Mindfulness, perceived partner responsiveness, and relationship quality: A dyadic longitudinal mediation model

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Abstract

General and domain-specific (e.g., relationship-specific) mindfulness frequently predict salutary relationship outcomes. The present preregistered study examined whether general and relationship mindfulness predicted longitudinal change in positive and negative relationship quality via greater perceived partner responsiveness (PPR). One hundred couples completed a baseline lab session (Phase 1), a 14-day diary period (Phase 2), and a 2-month follow-up survey (Phase 3). Actor-Partner Interdependence Mediation Model analyses revealed that actors' Phase 1 relationship mindfulness—but not general mindfulness—predicted increases in their own positive relationship quality from Phase 1–3 and decreases in their own negative relationship quality from Phase 1–3 indirectly via their own Phase 2 PPR. An exploratory alternate model testing if Phase 1 PPR predicted changes in Phase 1–3 relationship quality via Phase 2 relationship mindfulness did not reveal significant indirect effects. All results held when controlling for gender, age, and relationship length, and no partner effects emerged in any analysis. These findings further elucidate the relationship-enhancing role of mindfulness in couples and highlight PPR as a critical mediator explaining the link between domain-specific mindfulness and relationship quality. Implications for mindfulness-based training programs for couples are discussed.

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Keywords

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Mindfulness involves maintaining a moment-to-moment awareness of one's present experience with an open and non-critical attitude (Kabat-Zinn, 2004). Mindfulness has primarily been investigated as a domain-general construct having strong associations with relationship outcomes (e.g., Barnes et al., 2007; Karremans et al., 2017; McGill et al., 2016). However, recent research has begun identifying domain-specific types of mindfulness, including mindfulness within a particular romantic relationship (i.e., relationship mindfulness; Kimmes et al., 2018) or a given sexual experience (i.e., sexual mindfulness; Leavitt et al., 2019). These domain-specific types of mindfulness may play meaningful roles in enhancing the quality of individuals' relationships; for example, relationship mindfulness has been shown to predict relationship outcomes over and above general mindfulness in cross-sectional studies (Kimmes et al., 2020). Despite these interesting initial findings, little to no empirical work has investigated the distinct contributions of general and relationship mindfulness to relationship outcomes over time. Furthermore, few studies have explored the mediating variables that explain *how* mindfulness is linked to relationship outcomes (Karremans et al., 2017). The present dyadic study investigated whether actors' and partners' relationship mindfulness predicted longitudinal change in positive and negative relationship quality over and above general mindfulness. We also examined whether *perceived partner responsiveness* (PPR)—perceiving one's partner as validating, understanding, and caring toward the self (Reis et al., 2004)—mediated the links between relationship mindfulness and change in relationship quality.

Mindfulness in romantic relationships

Being mindful entails observing one's thoughts, emotions, and bodily sensations, and recognizing them open-mindedly without avoiding or becoming over-absorbed in their content (Kabat-Zinn, 2004). Two decades of research have shown that mindfulness is associated with better physical and psychological well-being (Brown & Ryan, 2003; Grossman et al., 2004; Keng et al., 2011). Importantly, mindfulness plays a positive role in romantic relationships as well (Atkinson, 2013; Karremans et al., 2017). Studies in this area have found that the overall tendency to be mindful (i.e., general mindfulness, also called trait mindfulness) is associated with greater relationship satisfaction (McGill et al., 2016), the ability to deal constructively with relationship stress (Barnes et al., 2007) and forgiveness of partner transgressions (Johns et al., 2015). The associations between general mindfulness and relationship quality can be explained by greater acceptance of one's partner (Kappen et al., 2018) and skill in identifying, regulating, and communicating emotions (Wachs & Cordova, 2007). Of particular relevance to the present study, Adair et al. (2018) found that PPR cross-sectionally mediated the association between general mindfulness and relationship satisfaction when couples engaged in a lab-based conversation about a personal concern.

Although research shows that mindfulness is linked to positive romantic relationship outcomes, most studies have focused on its *intrapersonal* benefits (i.e., how one's own mindfulness predicts one's own outcomes). Few studies have examined *interpersonal* effects—whether one's own mindfulness influences one's *partner's* relationship evaluations and functioning (Karremans et al., 2017). While the interdependence and closeness inherent in romantic relationships suggest that interpersonal effects are theoretically plausible (Rusbult & Van Lange, 2003), the evidence thus far is mixed. Some studies have demonstrated that one partner's mindfulness is linked to both partners' evaluations of the relationship (Adair et al., 2018; Khaddouma et al., 2017; Kimmes et al., 2020). Conversely, other studies have found that one partner's mindfulness is not associated with the other partner's relationship satisfaction (Barnes et al., 2007; Iida & Shapiro, 2017). Thus, it is unclear whether mindfulness is relevant only to one's own relationship experiences or to both partners' experiences.

A possible explanation for the inconsistent findings at the interpersonal level is that research typically measures general mindfulness, implicitly assuming it translates to mindfulness in relationship contexts. However, general mindfulness may be distinguished from *relationship mindfulness,* the tendency to non-reactively observe emotions or thoughts that influence one's current relationship (Kimmes et al., 2018). Relationship mindfulness incrementally accounts for variance in positive and negative relationship quality among couples, both intrapersonally and interpersonally, even after controlling for general mindfulness (Kimmes et al., 2018, 2020).[1] Additional examinations of relationship mindfulness may provide a more precise understanding of mindfulness and relationship processes, especially when examining how these processes unfold over time. Furthermore, noting calls for a better understanding of *how* mindfulness affects relationship quality over time (Karremans et al., 2017), this study tested PPR as a plausible mediator between the constructs.

Partner responsiveness in romantic relationships

Partner responsiveness refers to a process through which relationship partners attend to and respond supportively to each other's core needs and goals (Reis et al., 2004; Reis & Gable, 2015). It comprises validating (acknowledging and valuing a partner), understanding (showing appreciation for a partner's core self, needs, thoughts, and feelings), and caring (expressing affection and concern for a partner). Partner responsiveness was conceptualized in Reis and Shaver's (1988) transactional model of intimacy as a fundamental factor that fosters relational closeness. Since then, studies have shown that responsiveness encourages emotional expression (Ruan et al., 2020) and predicts several aspects of relationship quality (for a review, see Reis & Gable, 2015). Accordingly, responsiveness is viewed as a central organizing construct in relationship science and has emerged in many theoretical models as a key feature of healthy relationship development and maintenance (Finkel et al., 2017).

Partner responsiveness manifests as enacted (EPR) and perceived partner responsiveness (PPR). Reis and Gable's (2015) responsiveness model and Reis and Shaver's (1988) transactional model of intimacy emphasize that an individual's perception of a partner's responsiveness is potentially more important than the responsiveness itself for

personal and relationship well-being. Supporting these notions, Maisel and Gable (2009) demonstrated that participants who received social support from a partner tended to report lower negative affect and higher relationship quality, but only when the support was perceived as responsive. Furthermore, perceptions of responsive acts are more strongly related to relationship satisfaction than the act itself (Reis et al., 2014) and mediate the effects of EPR on intimacy (Debrot et al., 2012). As relationship outcomes appear to be a direct function of PPR rather than EPR, we focused on PPR as a potential mediator.

Mindfulness may promote PPR

Mindfulness and PPR have largely been examined separately in relationships research; however, there are strong theoretical grounds and preliminary empirical evidence that PPR should mediate the link between mindfulness and relationship quality (e.g., Adair et al., 2018). Mindfulness encompasses a heightened sense of awareness, augmenting one's attentiveness toward the environment and enhancing detection of subtle cues that might otherwise be overlooked (Semple, 2010). Mindful individuals may therefore be better able to detect caring, understanding, and validation from their partners. Furthermore, as mindfulness encompasses a non-judgmental attitude, mindful individuals are more likely to recognize and accept their partners' responsiveness, as opposed to judging whether their partner's response met certain expectations (cf. Kappen et al., 2018). This suggests that one's own relationship mindfulness would be positively linked to one's own PPR and, in turn, to one's own relationship quality.

PPR may also serve as an interpersonal mediator (i.e., one's relationship mindfulness predicting one's *partner's* PPR, in turn predicting relationship quality change). Mindfulness is associated with greater empathy and fewer egocentric concerns that might obstruct empathic and supportive responses to a partner (Brown et al., 2007). Supporting this notion, Williams and Cano (2014) found that among chronic pain patients and their partners, patients who had partners with higher general mindfulness tended to perceive them as more supportive and responsive. Furthermore, Adair and colleagues (2018) found both intrapersonal and interpersonal mediation pathways by PPR, indicating that mindfulness was related to tendencies to perceive, and be perceived by, one's partner as responsive, which was then linked to the partner's relationship quality.

Further examination of mindfulness, PPR, and relationship quality is needed for several reasons. First, prior studies have examined mindfulness and PPR in social support contexts—negatively valenced contexts in which partners seek and derive support from each other. However, positive emotional exchanges represent an important part of relationships and outnumber negative ones in a 3.2-to-1 ratio in couples' day-to-day interactions (Gable & Haidt, 2005). Furthermore, Gable et al. (2012) demonstrated that responsiveness to positive events predicted relationship quality more strongly than responsive support during times of distress. It is thus of interest to examine these constructs in naturalistic, everyday settings wherein positive or negative interactions may occur.

Second, prior studies on mindfulness and PPR have examined only general mindfulness. As mentioned earlier, investigating relationship mindfulness may provide a

clearer understanding of how mindfulness relates to PPR and relationship quality. Relationship mindfulness, by definition, is tied specifically to a given partner and romantic relationship context and may therefore be more strongly linked to PPR than general mindfulness (Kimmes et al., 2018, 2020). Considering that in a recent study a general mindfulness intervention did not differ from a relaxation condition in improving relationship well-being (Karremans et al., 2020), understanding if a domain-specific type of mindfulness is more directly relevant to enhancing relationship quality over time may have implications for future intervention designs.

Third, previous research in this area has assessed relationship satisfaction as a uni-dimensional construct. Recent evidence suggests that relationship quality is better represented as a bidimensional construct comprising positive and negative qualities (Fincham & Rogge, 2010; Rogge et al., 2017). Indeed, bidimensional measures of relationship quality provide additional predictive validity above unidimensional measures on relationship outcomes (Rogge et al., 2017). More precise insights into how mindfulness and PPR relates to relationship quality, then, may be achieved by disentangling positive and negative relationship evaluations. Finally, prior studies of mindfulness and PPR used cross-sectional designs that are unable to account for the tendency for relationship quality to be dynamic and fluctuate as relationships develop over time (see Karney & Bradbury, 1997). Knowledge regarding the predictors of relationship quality change over time is particularly relevant to research and clinical practice, as elements of relationship quality are important determinants of health and well-being (Slatcher & Selcuk, 2017). The need for longitudinal research is further underscored by the fact that relatively few studies have examined predictors of relationship quality change, and a recent meta-analysis of 43 dyadic longitudinal datasets concluded that relationship quality change remains largely unpredictable from currently available research (Joel et al., 2020).

Mindfulness and PPR should serve as antecedents of relationship quality improvement over time. For example, the accumulation of experiences in which one perceives partner responsiveness during positive interactions (Gable et al., 2012), or interacts mindfully with one's partner, could contribute to global positive perceptions of one's relationship over time. Conversely, perceiving responsive support and mindful coping during relationship distress over the course of repeated interactions may serve to mitigate negative views toward one's relationship and negative spirals that might otherwise occur (Karremans et al., 2017; Maisel & Gable, 2009).

Research overview and hypotheses

The goals of this research were to (a) investigate the associations between relationship mindfulness and change in positive and negative relationship quality over time, both for oneself and one's partner, and (b) test PPR as a critical mediator of these links. We also tested if relationship mindfulness contributed to relationship quality change via PPR over and above general mindfulness. Our study had a dyadic longitudinal correlational design comprising a baseline session (Phase 1), a 14-day daily diary period (Phase 2), and a 2-month follow-up survey (Phase 3).

Drawing from prior research (e.g., Adair et al., 2018; Kimmes et al., 2020), we hypothesized that one's own higher Phase 1 relationship mindfulness would prospectively predict one's own higher Phase 2 PPR (**H1**). We further hypothesized that one's own higher Phase 1 relationship mindfulness would prospectively predict increases in one's own Phase 1–3 positive relationship quality and decreases in one's own Phase 1–3 negative relationship quality (**H2**). Lastly, we hypothesized that one's own higher Phase 2 PPR would mediate the associations between one's own Phase 1 relationship mindfulness and one's own Phase 1–3 relationship quality change (**H3**). Noting the mixed evidence in the literature for cross-partner effects of mindfulness (e.g., Iida & Shapiro, 2017), we kept hypotheses concerning partner effects exploratory.

Method

This study was part of a larger research project investigating couples' psychological experiences in relationships over time. Information regarding the parent project, including study measures, is available at https://osf.io/ekv6x. Information regarding the current study, including our preregistered hypotheses and analytic plan and code used for analyses, is available at https://osf.io/fnkjq.

Participants

The sample comprised 100 couples (87 heterosexual, 9 lesbian, 1 gay, 3 other non-binary) recruited via social media posts, advertisements in local magazines, and at local wedding fairs. The sample size for the larger project was based on an *a priori* APIM-PowerR analysis (https://robert-ackerman.shinyapps.io/APIMPowerR/) suggesting that 100 couples would provide 84% power for small-to-medium cross-sectional effects. Participants were between 18 and 64 years of age ($M_{years} = 24.15$, $SD_{years} = 6.61$) and were in relationships lasting 3 months to 35.50 years ($M_{years} = 2.84$, $SD_{years} = 4.41$). Most participants were White (85.50%). Approximately 85.50% of participants were casually or exclusively dating their current partner, and 14.50% were common-law, engaged, in a civil partnership, or married. A minority of couples (38.00%) were cohabiting. Ninety-eight couples were still together at Phase 3.

Measures and procedure

The study had three phases. In Phase 1, participants attended an in-person 2-hour lab session, where they provided informed consent and then completed a battery of questionnaires and some behavioral tasks. Phase 2 was a 14-day diary period that began the day following the lab session. Participants were asked to complete a 15-minute series of online questionnaires each day for 14 consecutive days. Individual survey links were sent at 4:00 PM each day and expired at midnight to avoid participants completing multiple surveys at once. The average number of diaries completed during Phase 2 was high ($M = 12.96$, $SD = 2.01$). Finally, Phase 3 was an online 45-minute follow-up survey that was sent 2 months following the end of the dairy period. After Phase 3 was complete, couples were debriefed, and each partner received up to £50.00 compensation depending

on how many parts of the study they completed. Throughout all phases, participants were asked to complete the questionnaires separately from one another.

Mindfulness. General mindfulness was measured at Phase 1 using the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003). The scale comprises 15 items (e.g., "I rush through activities without being really attentive to them") rated on a 6-point scale (1 = *almost never*, 6 = *almost always*). Responses across items were averaged and scored such that higher values reflect greater general mindfulness.

Relationship mindfulness was measured at Phase 1 using the Relationship Mind-fulness Measure (RMM; Kimmes et al., 2018). The scale comprises 5 items (i.e., "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," "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," "When my partner and I are together, it seems I am 'running on automatic,' without much awareness of what I'm doing," "When I'm with my partner, I find myself saying or doing things without paying attention," "I have conversations with my partner without being really attentive") rated on a 6-point scale (1 = *almost never*, 6 = *almost always*). Responses across items were averaged and scored such that higher values reflect greater relationship mindfulness.

Perceived partner responsiveness. PPR was measured daily at Phase 2 using 3 items from the Perceived Partner Responsiveness Scale (PPRS; Reis et al., 2018). The original PPRS is 18 items, but the number of items was reduced in the present study to minimize participant burden during the diary period. The 3 items used began with the stem "In the past 24 hours, my romantic partner . . . ," including 1 item from each of the three core segments of the PPRS: general responsiveness (" . . . was responsive to my needs"), validation (" . . . valued me, shortcomings and all"), and understanding (" . . . saw the 'real' me"). Participants rated each item on a 9-point scale (1 = *never*, 9 = *always*). Item ratings were averaged into daily scores, and the daily scores were aggregated into a score representing the mean PPR across the 14 days of the diary period, with higher scores indicating greater PPR.

Relationship quality. Relationship quality was measured at Phase 1 and Phase 3 using the 16-item Positive-Negative Relationship Quality Scale (PN-RQ; Rogge et al., 2017). For positive relationship quality, participants read the instructions "Considering only the positive qualities of your relationship, and ignoring the negative ones, evaluate your relationship on the following qualities." The instructions were reversed for negative relationship quality. Participants rated their relationship using eight positive (e.g., "Pleasant") and eight negative adjectives (e.g., "Discouraging") on a 7-point scale (1 = *not at all*, 7 = *completely*). Overall scores for the positive and negative subscales were computed separately by averaging their respective item ratings, with higher scores indicating greater positive and negative relationship quality.

Results

Descriptive statistics, reliability information, and correlations among study variables appear in Table 1. Prior to the main analyses, values beyond three standard deviations from the mean were identified as outliers and winsorized to the value of the third standard deviation. As this did not make any difference to the pattern of findings, the reported results were based on the original values. Data were analyzed using the Actor-Partner Interdependence Mediation Model for indistinguishable dyads (APIMeM; Ledermann et al., 2011). Following Ledermann and Kenny's (2017) recommendation to use structural equation modeling (SEM) for dyadic mediation analyses, data were fitted using the *lavaan* package in R (Rosseel, 2012). Missing values were handled using full information maximum likelihood estimation (Schafer & Graham, 2002). Indirect effects were evaluated using the Monte Carlo Method for Assessing Mediation (MCMAM; Preacher & Selig, 2012) with 20,000 resamples.

In the initial models we fitted, we calculated residualized change scores for positive and negative relationship quality by regressing Phase 3 scores on Phase 1 scores. This approach has been used in previous research using the APIMeM to test change over time (e.g., Donato et al., 2015). However, during the review process reviewers rightfully noted the limitations of using change scores and encouraged us to instead test residual change in relationship quality by examining Phase 3 outcomes controlling for Phase 1 scores. The pattern of results was identical regardless of the approach used. In the interest of providing the most meaningful estimates, we present the models with Phase 3 outcomes controlling for Phase 1 scores. We ran separate models for positive and negative relationship quality. Our initial models included only our primary variables of interest (relationship mindfulness, PPR, and relationship quality). We then ran models controlling for general mindfulness. At the recommendation of reviewers, in the second round of models we also controlled for gender, age, and relationship length.[2]

Confirmatory models

Figure 1 displays the estimates for the direct and indirect effects of the longitudinal APIMeM models (Panel A: positive relationship quality; Panel B: negative relationship quality). The results supported **H1**. In both models, there were significant actor effects of Phase 1 relationship mindfulness on Phase 2 PPR, indicating that individuals who reported higher relationship mindfulness at baseline reported higher PPR over the next 14 days. However, **H2** was not supported, as Phase 1 relationship mindfulness did not directly predict residual change in Phase 1–3 positive or negative relationship quality. Lastly, in both models, actor Phase 2 PPR predicted residual change in Phase 1–3 relationship quality, indicating that individuals who reported higher PPR during the diary period showed greater increases in positive relationship quality and greater decreases in negative relationship quality from baseline to Phase 3. No partner effects emerged.

Subsequently, we evaluated the indirect effects of the models using MCMAM analyses. Consistent with **H3**, individuals' Phase 1 relationship mindfulness predicted

Table 1. Descriptive statistics, reliability information, and correlations among study variables.

| Variable | Descriptives and Reliability | | | Correlations | | | | | | | | | |
	Range	M(SD) or %	α	1	2	3	4	5	6	7	8	9	10
1 P1 Relationship Mindfulness	1.20–6.00	4.57(0.91)	.79	**.07**	.46***	.16*	.25***	.12	−.29***	−.18*	.06	.08	.003
2 P1 General Mindfulness	2.13–5.73	3.89(0.73)	.84		**.11**	.06	.11	.02	−.08	.0001	−.02	.17*	.14
3 P2 PPR	1.67–9.00	7.03(1.48)	.88			**.28*****	.53***	.43***	−.35***	−.34***	.21**	−.18**	−.09
4 P1 Positive RQ	1.88–7.00	6.25(0.78)	.92				**.36*****	.50***	−.58***	−.38***	.10	−.18**	−.04
5 P3 Positive RQ	2.00–7.00	6.18(0.89)	.95					**.26*****	−.34***	−.65***	.02	.03	.10
6 P1 Negative RQ	1.00–6.75	1.45(0.74)	.92						**.53*****	.60***	−.02	.02	−.04
7 P3 Negative RQ	1.00–3.88	1.40(0.63)	.90							**.24****	−.01	−.05	−.09
8 P1 Gender	N/A	53% Women	N/A								**N/A**	−.09	−.02
9 P1 Age	18.00–64.00	24.15(6.61)	N/A									**.90*****	.80***
10 P1 Relationship Length	0.25–35.50	2.84(4.41)	N/A										**N/A**

Note. P1 = Phase 1 (baseline); P2 = Phase 2 (14-day daily diary); P3 = Phase 3 (2-month follow-up); PPR = perceived partner responsiveness; RQ = relationship quality. Higher scores on continuous variables represent greater standing on the variable (e.g., higher relationship mindfulness). Gender was effect-coded (−1 = men, 1 = women). Relationship length scores are in years. We present actor correlations, with actor-partner correlations (e.g., actor PPR and partner PPR) in bold along the diagonal.
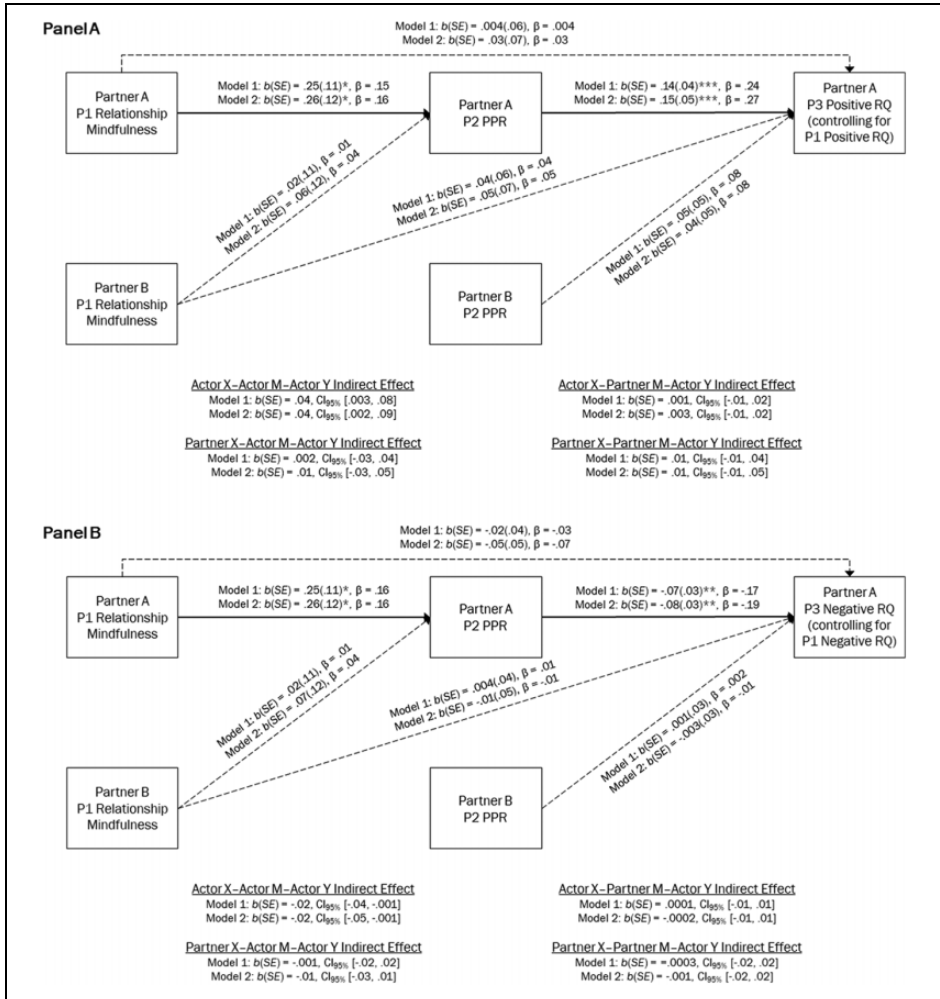
*p < .05, **p < .01, ***p < .001.

Figure 1. Direct and indirect effects of Phase 1 relationship mindfulness, Phase 2 PPR, and Phase 1–Phase 3 positive relationship quality (Panel A) and Phase 1–3 negative relationship quality (Panel B). *Note.* P1 = Phase 1 (baseline); P2 = Phase 2 (14-day daily diary); P3 = Phase 3 (2-month follow-up); PPR = perceived partner responsiveness; RQ = relationship quality. Higher scores on continuous variables represent greater standing on the variable (e.g., higher relationship mindfulness). Model 1 refers to the analysis without covariates, and Model 2 refers to the analysis adding in general mindfulness, gender, age, and relationship length as covariates. Solid paths are statistically significant in both models. *p < .05, **p < .01, ***p < .001.

their own PPR at Phase 2, which then predicted residual change in their positive and negative relationship quality from Phase 1 to 3. No cross-partner indirect effects emerged. Altogether, these results support PPR as an intrapersonal—but not inter-personal—mediating variable explaining the link between relationship mindfulness and

relationship quality. Notably, all direct and indirect effects remained robust when controlling for general mindfulness, gender, age, and relationship length (see Model 2 of Figure 1(a) and (b)).

Effects of general mindfulness

There were no actor or partner effects of Phase 1 general mindfulness on PPR, $b(SE) = .05(.15)$, $p = .76$, $\beta = .02$ (actor), $b(SE) = -.01(.15)$, $p = .96$, $\beta = -.004$ (partner). Similarly, there were no actor or partner effects of Phase 1 general mindfulness on residual change in Phase 1–3 positive ($b(SE) = -.10(.09)$, $p = .26$, $\beta = -.08$ [actor]; $b(SE) = -.02(.09)$, $p = .79$, $\beta = -.02$ [partner]) or negative relationship quality ($b(SE) = .08(.06)$, $p = .20$, $\beta = .09$ [actor]; $b(SE) = .01(.06)$, $p = .89$, $\beta = .01$ [partner]). Lastly, there were no indirect effects of Phase 1 mindfulness on residual change in Phase 1–3 relationship quality via Phase 2 PPR (all $CI_{95\%}$ included zero). Overall, these results support the incremental predictive validity of relationship mindfulness over and above general mindfulness.

Alternate exploratory model

In response to a reviewer suggestion, we ran exploratory models that reversed the predictor and mediating variables; that is, testing whether Phase 2 relationship mindfulness mediated the link between Phase 1 PPR and residual change in Phase 1–3 relationship quality.[3] As seen in Figure 2 (Panel A: positive relationship quality; Panel B: negative relationship quality), we found that while Phase 1 PPR predicted relationship mindfulness during the daily diary period, Phase 2 relationship mindfulness did not predict residual change in positive or negative relationship quality. Phase 1 PPR was not directly linked to residual change in Phase 1–3 relationship quality. Hence, we found evidence that the links between relationship mindfulness and PPR are somewhat reciprocal (i.e., Phase 1 relationship mindfulness predicted Phase 2 PPR, and Phase 1 PPR predicted Phase 2 relationship mindfulness); however, we found no evidence that PPR predicted residual change in relationship quality through relationship mindfulness. In other words, predicting residual change in relationship quality appears to occur from relationship mindfulness to PPR rather than the reverse.

Discussion

Using longitudinal dyadic methods, we investigated whether relationship mindfulness prospectively predicted residual change in positive and negative relationship quality via PPR. Results revealed that individuals' relationship mindfulness prospectively predicted their own higher PPR (in line with **H1**). Our results are consistent with Adair and colleagues' (2018) findings that mindful individuals are more likely to perceive their partners as responsive. By adopting a present-focused and non-judgmental stance, mindful individuals may be more perceptive and accepting toward a partner's responsive behaviors (Kappen et al., 2018; Semple, 2010).
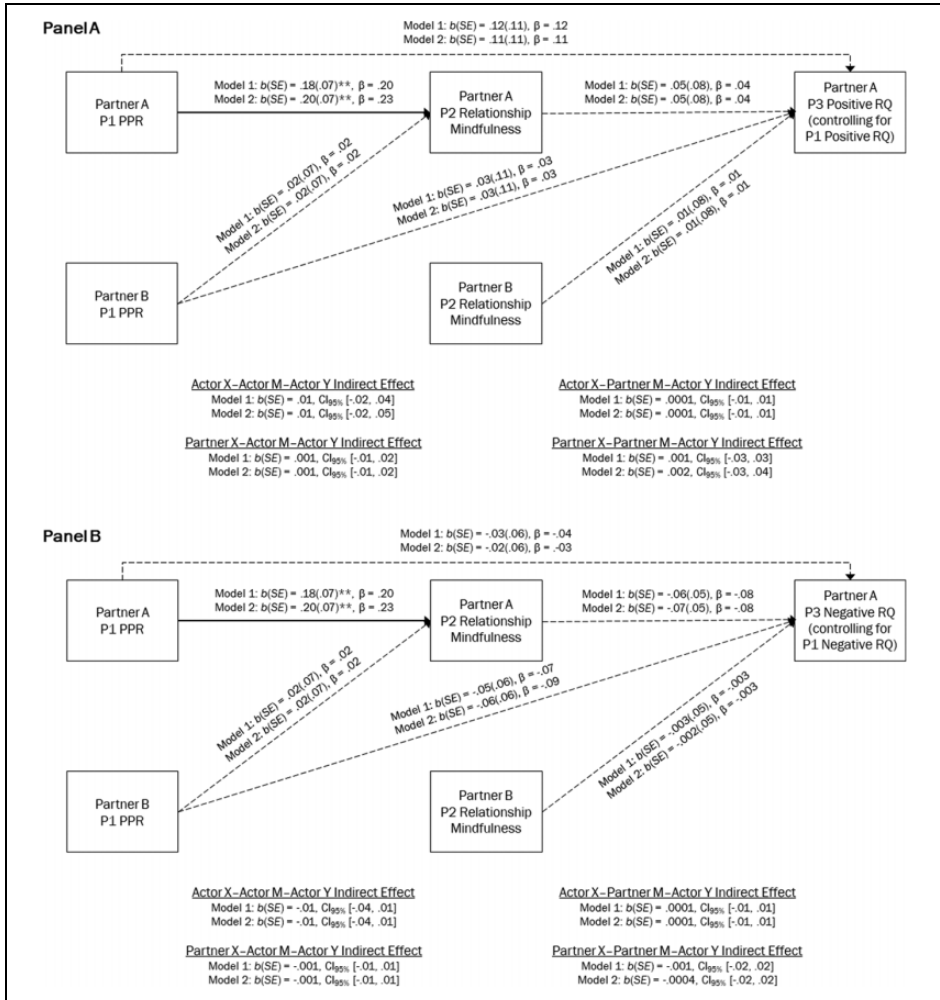
Figure 2. Direct and indirect effects of phase 1 PPR, phase 2 relationship mindfulness, and phase 1–phase 3 positive relationship quality (panel A) and negative relationship quality (Panel B). *Note.* P1 = Phase 1 (baseline); P2 = Phase 2 (14-day daily diary); P3 = Phase 3 (2-month follow-up); PPR = perceived partner responsiveness; RQ = relationship quality. Higher scores on continuous variables represent greater standing on the variable (e.g., higher relationship mindfulness). Model 1 refers to the analysis without covariates, and Model 2 refers to the analysis adding in general mindfulness, gender, age, and relationship length as covariates. Solid paths are statistically significant in both models. *p < .05, **p < .01, ***p < .001.

Interestingly, relationship mindfulness did not prospectively predict residual change in relationship quality (contrary to **H2**). This finding is inconsistent with Kimmes et al. (2018, 2020) who found that relationship mindfulness concurrently predicted positive and negative relationship quality. One difference in our study is that we examined

relative change in relationship quality over time as opposed to testing the links between relationship mindfulness and relationship quality at a single time point. Perhaps relationship mindfulness is a direct predictor of relationship quality immediately but has less direct explanatory power in dynamic and changing relationships assessed longitudinally. Over time, the associations between relationship mindfulness and relationship quality may simply be fully accounted for by underlying variables such as PPR. In other words, being attentive and aware in one's relationship may not in and of itself increase positive relationship quality and decrease negative relationship quality; rather, the benefits to quality may occur because one's mindful attentiveness to the partner and relationship promote healthy relationship perceptions and experiences (Atkinson, 2013; Karremans et al., 2017), which lead to more positive and less negative evaluations of the relationship over time.

Although there were no direct actor effects of relationship mindfulness on relationship quality change, we found robust evidence for indirect effects via PPR. That is, individuals' Phase 1 relationship mindfulness was linked to their PPR at Phase 2, which in turn was linked to relative increases in their positive relationship quality from baseline and relative decreases in their negative relationship quality from baseline (in line with **H3**). These findings dovetail with Adair et al. (2018) to support PPR as an important mediating variable explaining the relation between mindfulness and relationship evaluations. We also extend previous findings by uncovering the directionality of the associations by using a longitudinal design. The fact that our exploratory alternate model testing whether Phase 1 PPR predicted residual change in positive or negative relationship quality through Phase 2 relationship mindfulness did not reveal significant indirect effects further bolsters our conclusions about the directionality of these processes.

Notably, relationship mindfulness prospectively predicted relationship quality change through PPR even after controlling for general mindfulness, gender, age, and relationship length. Interestingly, general mindfulness had no associations with PPR or residual change in relationship quality when contrasted with relationship mindfulness. Our findings therefore replicate earlier studies supporting the incremental predictive validity of relationship mindfulness over and above general mindfulness (Kimmes et al., 2018, 2020). This distinction between effects of general and relationship mindfulness in our study has interesting implications for future research. The fact that relationship mindfulness and general tendencies to be mindful are differentially related to relationship processes and outcomes suggests that researchers may benefit from measuring both forms of mindfulness when examining mindfulness in relationship contexts. From a broader research perspective, our findings emphasize the value of taking context into account when measuring mindfulness, as has been done with recent efforts to develop context-specific measures in domains such as sexuality (Leavitt et al., 2019).

Although we explored partner effects in our models, we found no evidence that one's own relationship mindfulness predicted one's partner's PPR or relationship quality change. Our findings contradict Williams and Cano's (2014) and Adair et al.'s (2018) earlier reports that one partner's general mindfulness is associated with the other partner's PPR. Instead, the present study aligns with research suggesting that individuals' mindfulness implicates their own relationship experience but not that of their partner

(Barnes et al., 2007; Iida & Shapiro, 2017). In a wider context, this notion is consistent with Joel and colleagues' (2020) meta-analysis revealing that partner reports on a wide variety of relationship variables (e.g., sexual satisfaction, trust, appreciation, conflict) did not explain any variance in baseline and follow-up relationship quality over and above actor reports. However, it is possible that partner effects of relationship mindfulness on global relationship evaluations simply take longer to emerge when examined longitudinally. Future studies are needed to further elucidate when partner relationship mindfulness may play an important role in relationship processes (e.g., when buffering insecure attachment; Gazder & Stanton, 2020), and when its effects are subsumed by individuals' own reports.

Our findings indicate that PPR and residual change in relationship quality over time are uniquely tied to one's own mindfulness. One explanation for these results is that mindfulness inherently involves an altered state of consciousness and attitude toward one's internal and external environment (Kabat-Zinn, 2004), and may therefore exert a more direct influence on one's perceptions than on one's observable behaviors. This implies that mindful individuals are more likely to perceive their partners as responsive but are not necessarily more likely to be perceived by their partners as responsive. However, evidence suggests that mindfulness does translate into observable patterns of communication and interaction (May & Reinhardt, 2018). It is possible that mindful individuals behave more responsively toward their partners to some extent, but other factors internal to their partners are involved in the interpretation of the mindful individuals' actions. Indeed, Reis and Shaver's (1988) transactional model of intimacy argues that intrapersonal factors function as a perceptive lens through which a partner's actions are construed. There is also evidence that PPR can be influenced by perceptual biases and motivated interpretations (Reis & Gable, 2015). Thus, the lack of partner effects in this context may be explained by partner-level variables. Determining precisely what these variables are, and when they influence PPR and relationship quality, is an interesting direction for future research.

Practical implications

This study has potential implications for mindfulness-based interventions as well as forms of couples therapy which incorporate elements of mindfulness (e.g., identifying internal states which may contribute to destructive behaviors and fostering emotional acceptance), such as Pragmatic/Experiential Therapy for Couples (PET-C; Atkinson, 2005) and Integrative Behavioral Couple Therapy (IBCT; Jacobson et al., 2000). While not mindfulness therapies per se, these programs typically include a variety of mindfulness exercises. Nevertheless, there is limited research to inform therapists as to which mindfulness exercises should be incorporated, or who in particular might benefit from them. In light of our findings, it is conceivable that mindfulness-based interventions may be especially useful for couples whose relationship dissatisfaction stems from low PPR. This is particularly important considering that PPR can change over time (Stanton et al., 2019), making it a potential target for intervention. Our exploratory finding that PPR also predicts relationship mindfulness over time suggests that mindfulness programs aiming to improve relationships should also incorporate skills relevant to responsiveness.

Mindfulness-based interventions may serve as a viable means to cultivate partners' detection of situations that involve responsiveness and promote mutually reinforcing relationship-enhancing responses to each other (Atkinson, 2013). Although paying attention to one's partner and perceiving them to be responsive should enhance relationship quality, any benefits may depend on whether the perceptions of responsiveness are "rooted in reality" (i.e., whether the partner is actually responsive). Partners are frequently accurate in their perceptions of each other, but can be biased as well (Fletcher & Kerr, 2010; West & Kenny, 2011). Mindfulness may help people accurately detect when their partner is being caring, understanding, and validating, but mindfulness may also be related to accurately detecting when a partner is being uncaring and insensitive. In this instance, mindfulness training could potentially exacerbate relationship problems when partners' actual responsiveness is low (cf. Britton et al., in press). Furthermore, it may be the case that mindfulness is not necessarily linked to accurately tracking responsiveness, but instead shifts partners' perceptions such that they either adopt a "rosy" bias and systematically overestimate each other's responsiveness, or they project their own levels of responsiveness onto their partner. Whether general mindfulness, relationship mindfulness, or both are associated with bias and accuracy in perceptions of a partner's thoughts, feelings, and behaviors awaits future investigation, but the interplay of these perceptual processes may have implications for maintaining and improving relationships over time.

Our findings suggest that mindfulness programs aiming to enhance relationship outcomes may require relationship-specific training. A general tendency to be mindful in life is likely to spill over into interactions with a romantic partner, but in our study general and relationship mindfulness correlated only moderately. Thus, additional skills relevant to being mindful with a partner across situations and time (e.g., skills that enhance active listening, shared identity, or healthy emotion co-regulation; cf. McGill et al., 2021) may be needed to increase the efficacy of mindfulness programs. Specifically, couples may benefit most from relational forms of mindfulness exercises, such as mindful awareness during shared activities and partner-focused loving-kindness meditation, rather than non-relational exercises such as sitting meditation and individual yoga. Research on couples-based mindfulness interventions is still in its infancy (Carson et al., 2004; Karremans et al., 2020), but our findings demonstrate the potential importance of targeted interventions. Further research should examine the differential effects of relational versus non-relational mindfulness exercises on relationship well-being.

The finding that relationship mindfulness prospectively predicted both positive and negative relationship quality change through PPR is also of interest. Current therapies which incorporate elements of mindfulness such as IBCT or PET-C place particular emphasis on enabling couples to successfully navigate conflicts and distressing interactions. However, building on the notion that positive relationship processes are also vital to a flourishing relationship, mindfulness-based therapies may benefit from moving beyond using mindfulness to manage relationship distress toward enabling couples to facilitate, savor, and capitalize on positive interactions (cf. Feeney & Collins, 2015). Having said the above, we also note that our findings should be taken as preliminary and additional research using experimental or intervention designs is needed to develop more

precise and robust understanding relevant to enhancing mindfulness-based interventions, identifying specific target populations, and establishing the boundary conditions of when skills-based training for couples is efficacious (see Rogge et al., 2013).

Strengths and limitations

Our study had several notable strengths. First, we applied a robust statistical framework, the APIMeM (Ledermann et al., 2011), to examine longitudinal associations between constructs while accounting for couples' interdependence. To date, few studies examining mindfulness-related outcomes in couples have examined dyadic mediation models (for exceptions, see Adair et al., 2018; McGill & Adler-Baeder, 2020). Second, this is the first study to demonstrate the temporal relationship between mindfulness, PPR, and relationship quality using a longitudinal mediational model (including testing alternate temporal models), enabling us to draw stronger inferences regarding directionality than earlier cross-sectional studies (Bollen & Pearl, 2013). Third, the rigorous measurement of constructs enabled us to isolate and compare the specific associations between relationship mindfulness versus general mindfulness, PPR, and positive as well as negative relationship quality. Finally, our study was preregistered, including our hypotheses and analytic plan, which we hope adds to the credibility of mindfulness research in the relationships domain.

Our findings must also be interpreted in light of some limitations. Our study relied solely on self-report measures, which are generally susceptible to response and social desirability biases (Fisher & Katz, 2000). For instance, people may overestimate their own tendencies to be attentive to the present moment or may feel uncomfortable acknowledging that their partner does not appear to validate, understand, or care for them. Furthermore, our mindfulness measures comprised items that focus primarily on the attentional awareness component of mindfulness rather than other facets of mindfulness, such as non-judgmental acceptance, that are likely to play a role in relationship processes (Adair et al., 2018; Williams & Cano, 2014). Thus, future research may consider using relationship mindfulness measures that assess different mindfulness facets (e.g., a romantic relationship-specific variant of the Interpersonal Mindfulness Scale; Pratscher et al., 2019) to substantiate our findings. Another possibility is to use observational data on behavioral manifestations of mindfulness as an alternative to self-report measures, given that studies indicate that external observers are sometimes more accurate in reporting the frequency of individuals' behaviors than the individuals themselves (Vazire & Mehl, 2008).

Although the longitudinal nature of our study is a strength, we acknowledge that the study timeframe encompasses a relatively short period of time (2.5 months). The effects in our study were small (indirect effects) or small-to-medium (relationship mindfulness–PPR, PPR–relationship quality change). This is on par with previous studies of mindfulness (McGill et al., 2016), but small effect sizes over a 2.5-month period may call into question how meaningful the effects would be if examined over a longer period of time. Given that PPR was one of the few robust predictors of relationship quality over time in a recent machine learning analysis of 43 longitudinal datasets (Joel et al., 2020), we believe that these links would stand the test of time and play a meaningful role in helping

couples maintain high-quality relationships. However, this idea needs to be substantiated with additional studies testing the associations between these variables over a longer timeframe. Few studies have examined the trajectory of relationship mindfulness and PPR in relationships over time, though research suggests that long-term relationships tend to show declines in intimacy and satisfaction (Karney & Bradbury, 1997). It may be that relationship mindfulness and PPR similarly decline. Consequently, relationship mindfulness may serve an increasingly vital function for relationships as they develop over time by enhancing the relational skills needed for relationship partners to maintain PPR, and in turn, enhance relationship quality.

Lastly, sample characteristics limit the generalizability of our results. As in most dyadic studies, our couples were quite satisfied, with "low" relationship quality essentially capturing moderate levels. For instance, the highest reported negative relationship quality at Phase 3 was the midpoint of the scale (though there was more variation in negative relationship quality at Phase 1 and the average was similar across phases). This means that the relative change in positive and negative relationship quality from Phase 1 to 3 is likely to be minimal, a notion supported by the small effect sizes observed in the present study. Of course, small changes can still be practically meaningful, especially if they accumulate over time. Nevertheless, additional longitudinal investigations of these processes are needed to determine whether mindfulness and PPR primarily play a role in maintaining high positive and low negative relationship quality, or if these processes actually increase positive and decrease negative relationship quality. Future work in this area will also benefit from recruiting a more diverse sample, including partners in objectively discordant relationships.

Concluding remarks

Overall, the present study further demonstrates the value of using context-specific measures of mindfulness in relationships research and validates PPR as a mediator underlying the links between relationship mindfulness and change in relationship quality over time. We show that, over time, relationship mindfulness is associated with mindful individuals' own relationship experiences but not their partners', and that relationship mindfulness is relevant to both positive and negative appraisals of relationship quality. These findings advance our understanding of the dynamics of mindfulness and PPR in romantic relationships and raise interesting questions about how relationship mindfulness may be incorporated into mindfulness training programs. We encourage future research to build on these findings by using alternative measurement methods, drawing on larger and more diverse samples, and investigating these constructs over longer periods of time.

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Open research statement

As part of IARR's encouragement of open research practices, the author(s) have provided the following information: This study was part of a larger research project investigating couples' psychological experiences in relationships over time. Information regarding the parent project, including study measures, is available at https://osf.io/ekv6x. Information regarding the current study, including preregistered hypotheses and analytic plan and code used for analyses, is available at https://osf.io/fnkjq. The data used in the research are available upon request and can be obtained by emailing Sarah C. E. Stanton (sarah.stanton@ed.ac.uk).

Notes

1. Broadly speaking, domain-specific constructs in relationship science are not new, and frequently offer insight into the nuances of individual and couple functioning. For example, domain-specific types of attachment (e.g., attachment to parents vs. peers vs. romantic partners vs. pets) are linked to different cognitions, emotions, and behaviors (e.g., Fraley et al., 2011; Johnson et al., 1992). In other research, relationship constructs specific to the sexual domain (e.g., sexual communal strength, Muise et al., 2013; sexual destiny and growth beliefs, Maxwell et al., 2017) also inform our understanding of relationship processes beyond their domain-general counterparts. We suggest that relationship mindfulness is a domain-specific construct that may have stronger and more consistent implications for romantic relationship functioning than domain-general mindfulness.
2. At the recommendation of the associate editor, we also tested if gender, age, and relationship length moderated the effects of Phase 1 mindfulness on Phase 2 PPR. No significant interactions emerged in any models (ps > .208).
3. Phase 1 PPR was assessed with the 18-item PPRS (Reis et al., 2018). Phase 2 relationship mindfulness was assessed with 2 items from the RMM (Kimmes et al., 2018). We did not assess general mindfulness during Phase 2.

References

Adair, K. C., Boulton, A. J., & Algoe, S. B. (2018). The effect of mindfulness on relationship satisfaction via perceived responsiveness: Findings from a dyadic study of heterosexual romantic partners. *Mindfulness*, *9*(2), 597–609. https://doi.org/10.1007/s12671-017-0801-3

Atkinson, B. J. (2005). *Emotional intelligence in couples therapy: Advances from neurobiology and the science of intimate relationships*. WW Norton & Company.

Atkinson, B. J. (2013). Mindfulness training and the cultivation of secure, satisfying couple relationships. *Couple and Family Psychology: Research and Practice*, 2(2), 73–94. https://doi.org/10.1037/cfp0000002

Barnes, S., Brown, K. W., Krusemark, E., Campbell, W. K., & Rogge, R. D. (2007). The role of mindfulness in romantic relationship satisfaction and responses to relationship stress. *Journal of Marital and Family Therapy*, 33(4), 482–500. https://doi.org/10.1111/j.1752-0606.2007.00033.x

Bollen, K. A., & Pearl, J. (2013). Eight myths about causality and structural equation models. In S. L. Morgan (Ed.), *Handbook of causal analysis for social research* (pp. 301–328). Springer.

Britton, W. B., Lindahl, J. R., Cooper, D. J., Canby, N. K., & Palitsky, R. (in press). Defining and measuring meditation-related adverse effects in mindfulness-based programs. *Clinical Psychological Science*.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822–848. https://doi.org/10.1037/0022-3514.84.4.822

Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry*, 18(4), 211–237. https://doi.org/10.1080/10478400701598298

Carson, J. W., Carson, K. M., Gil, K. M., & Baucom, D. H. (2004). Mindfulness-based relationship enhancement. *Behavior Therapy*, 35(3), 471–494. https://doi.org/10.1016/S0005-7894(04)80028-5

Debrot, A., Cook, W. L., Perrez, M., & Horn, A. B. (2012). Deeds matter: Daily enacted responsiveness and intimacy in couples' daily lives. *Journal of Family Psychology*, 26(4), 617–627. https://doi.org/10.1037/a0028666

Donato, S., Parise, M., Iafrate, R., Bertoni, A., Finkenauer, C., & Bodenmann, G. (2015). Dyadic coping responses and partners' perceptions for couple satisfaction: An actor-partner interdependence analysis. *Journal of Social and Personal Relationships*, 32(5), 580–600. https://doi.org/10.1177/0265407514541071

Feeney, B. C., & Collins, N. L. (2015). A new look at social support: A theoretical perspective on thriving through relationships. *Personality and Social Psychology Review*, 19(2), 113–147. https://doi.org/10.1177/1088868314544222

Fincham, F. D., & Rogge, R. D. (2010). Understanding relationship quality: Theoretical challenges and new tools for assessment. *Journal of Family Theory and Review*, 2, 227–242. https://doi.org/10.1111/j.1756-2589.2010.00059.x

Finkel, E. J., Simpson, J. A., & Eastwick, P. W. (2017). The psychology of close relationships: Fourteen core principles. *Annual Review of Psychology*, 68, 383–411. https://doi.org/10.1146/annurev-psych-010416-044038

Fisher, R. J., & Katz, J. E. (2000). Social-desirability bias and the validity of self-reported values. *Psychology & Marketing*, 17(2), 105–120. https://doi.org/10.1002/(SICI)1520-6793(200002)17:2<105::AID-MAR3>3.0.CO;2-9

Fletcher, G. J. O., & Kerr, P. S. G. (2010). Through the eyes of love: Reality and illusion in intimate relationships. *Psychological Bulletin*, 136(4), 627–658. https://doi.org/10.1037/a0019792

Fraley, R. C., Heffernan, M. E., Vicary, A. M., & Brumbaugh, C. C. (2011). The experiences in close relationships-relationship structures questionnaire: A method for assessing attachment

orientations across relationships. *Psychological Assessment*, *23*(3), 615–625. https://doi.org/10.1037/a0022898

Gable, S. L., Gosnell, C. L., Maisel, N. C., & Strachman, A. (2012). Safely testing the alarm: Close others' responses to personal positive events. *Journal of Personality and Social Psychology*, *103*(6), 963–981. https://doi.org/10.1037/a0029488

Gable, S. L., & Haidt, J. (2005). What (and why) is positive psychology? *Review of General Psychology*, *9*(2), 103–110. https://doi.org/10.1037/1089-2680.9.2.103

Gazder, T., & Stanton, S. C. E. (2020). Partners' relationship mindfulness promotes better daily relationship behaviours for insecurely attached individuals. *International Journal of Environmental Research and Public Health*, *17*(19), 7267. https://doi.org/10.3390/ijerph17197267

Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research*, *57*(1), 35–43. https://doi.org/10.1016/S0022-3999(03)00573-7

Iida, M., & Shapiro, A. F. (2017). The role of mindfulness in daily relationship process: Examining daily conflicts and relationship mood. *Mindfulness*, *8*(6), 1559–1568. https://doi.org/10.1007/s12671-017-0727-9

Jacobson, N. S., Christensen, A., Prince, S. E., Cordova, J., & Eldridge, K. (2000). Integrative behavioral couple therapy: An acceptance-based, promising new treatment for couple discord. *Journal of Consulting and Clinical Psychology*, *68*(2), 351–355. https://doi.org/10.1037/0022-006X.68.2.351

Joel, S., Eastwick, P. W., Allison, C. J., Arriaga, X. B., Baker, Z. G., Bar-Kalifa, E., Bergeron, S., Birnbaum, G., Brock, R. L., Brumbaugh, C. C., Carmichael, C. L., Chen, S., Clarke, J., Cobb, R. J., Coolsen, M. K., Davis, J., de Jong, D. C., Debrot, A., DeHaas, E. C., . . . Wolf, S. (2020). Machine learning uncovers the most robust self-report predictors of relationship quality across 43 longitudinal couples studies. *Proceedings of the National Academy of Sciences*, 1–11. https://doi.org/10.1073/pnas.1917036117

Johns, K. N., Allen, E. S., & Gordon, K. C. (2015). The relationship between mindfulness and forgiveness of infidelity. *Mindfulness*, *6*(6), 1462–1471. https://doi.org/10.1007/s12671-015-0427-2

Johnson, T. P., Garrity, T. F., & Stallones, L. (1992). Psychometric evaluation of the Lexington Attachment to Pets Scale (LAPS). *Anthrozoös*, *5*(3), 160–175. https://doi.org/10.2752/089279392787011395

Kabat-Zinn, J. (2004). *Wherever you go there you are: Mindfulness meditation in everyday life*. Piatkus.

Kappen, G., Karremans, J. C., Burk, W. J., & Buyukcan-Tetik, A. (2018). On the association between mindfulness and romantic relationship satisfaction: The role of partner acceptance. *Mindfulness*, *9*(5), 1543–1556. https://doi.org/10.1007/s12671-018-0902-7

Karney, B. R., & Bradbury, T. N. (1997). Neuroticism, marital interaction, and the trajectory of marital satisfaction. *Journal of Personality and Social Psychology*, *72*(5), 1075–1092. https://doi.org/10.1037/0022-3514.72.5.1075

Karremans, J. C., Kappen, G., Schellekens, M., & Schoebi, D. (2020). Comparing the effects of a mindfulness versus relaxation intervention on romantic relationship wellbeing. *Scientific Reports*, *10*, 21696. https://doi.org/10.1038/s41598-020-78919-6

Karremans, J. C., Schellekens, M. P., & Kappen, G. (2017). Bridging the sciences of mindfulness and romantic relationships: A theoretical model and research agenda. *Personality and Social Psychology Review*, *21*(1), 29–49. https://doi.org/10.1177/1088868315615450

Keng, S. L., Smoski, M. J., & Robins, C. J. (2011). Effects of mindfulness on psychological health: A review of empirical studies. *Clinical Psychology Review*, *31*(6), 1041–1056. https://doi.org/10.1016/j.cpr.2011.04.006

Khaddouma, A., Coop Gordon, K., & Strand, E. B. (2017). Mindful mates: A pilot study of the relational effects of mindfulness-based stress reduction on participants and their partners. *Family Process*, *56*(3), 636–651. https://doi.org/10.1111/famp.12226

Kimmes, J. G., Jaurequi, M. E., May, R. W., Srivastava, S., & Fincham, F. D. (2018). Mindfulness in the context of romantic relationships: Initial development and validation of the relationship mindfulness measure. *Journal of Marital and Family Therapy*, *44*(4), 575–589. https://doi.org/10.1111/jmft.12296

Kimmes, J. G., Jaurequi, M. E., Roberts, K., Harris, V. W., & Fincham, F. D. (2020). An examination of the association between relationship mindfulness and psychological and relational well-being in committed couples. *Journal of Marital and Family Therapy*, *46*(1), 30–41. https://doi.org/10.1111/jmft.12388

Leavitt, C. E., Lefkowitz, E. S., & Waterman, E. A. (2019). The role of sexual mindfulness in sexual wellbeing, relational wellbeing, and self-esteem. *Journal of Sex and Marital Therapy*, *45*(6), 497–509. https://doi.org/10.1080/0092623X.2019.1572680

Ledermann, T., & Kenny, D. A. (2017). Analyzing dyadic data with multilevel modeling versus structural equation modeling: A tale of two methods. *Journal of Family Psychology*, *31*(4), 442–452. https://doi.org/10.1037/fam0000290

Ledermann, T., Macho, S., & Kenny, D. A. (2011). Assessing mediation in dyadic data using the actor-partner interdependence model. *Structural Equation Modeling: A Multidisciplinary Journal*, *18*(4), 595–612. https://doi.org/10.1080/10705511.2011.607099

Maisel, N. C., & Gable, S. L. (2009). The paradox of received social support: The importance of responsiveness. *Psychological Science*, *20*(8), 928–932. https://doi.org/10.1111/j.1467-9280.2009.02388.x

Maxwell, J. A., Muise, A., MacDonald, G., Day, L. C., Rosen, N. O., & Impett, E. A. (2017). How implicit theories of sexuality shape sexual and relationship well-being. *Journal of Personality and Social Psychology*, *112*(2), 238–279. https://doi.org/10.1037/pspi0000078

May, L. M., & Reinhardt, K. M. (2018). Self-other agreement in the assessment of mindfulness using the five-facet mindfulness questionnaire. *Mindfulness*, *9*(1), 105–116. https://doi.org/10.1007/s12671-017-0749-3

McGill, J., & Adler-Baeder, F. (2020). Exploring the link between mindfulness and relationship quality: Direct and indirect pathways. *Journal of Marital and Family Therapy*, *46*(3), 523–540. https://doi.org/10.1111/jmft.12412

McGill, J., Adler-Baeder, F., & Garneau-Rosner, C. (2021). An evaluation of the ELEVATE program for couples: Considering vulnerabilities and relationship length. *Family Relations*, *70*, 327–351. https://doi.org/10.1111/fare.12502

McGill, J., Adler-Baeder, F., & Rodriguez, P. (2016). Mindfully in love: A meta-analysis of the association between mindfulness and relationship satisfaction. *Journal of Human Sciences and Extension*, *4*(1), 89–101. https://www.jhseonline.com/article/download/623/678

Muise, A., Impett, E. A., Kogan, A., & Desmarais, S. (2013). Keeping the spark alive: Being motivated to meet a partner's sexual needs sustains sexual desire in long-term romantic relationships. *Social Psychological and Personality Science*, *4*(3), 267–273. https://doi.org/10. 1177/1948550612457185

Pratscher, S. D., Wood, P. K., King, L. A., & Bettencourt, B. A. (2019). Interpersonal mindfulness: Scale development and initial construct validation. *Mindfulness*, *10*(6), 1044–1061. https://doi. org/10.1007/s12671-018-1057-2

Preacher, K. J., & Selig, J. P. (2012). Advantages of Monte Carlo confidence intervals for indirect effects. *Communication Methods and Measures*, *6*(2), 77–98. https://doi.org/10.1080/193 12458.2012.679848

Reis, H. T., Clark, M. S., & Holmes, J. G. (2004). Perceived partner responsiveness as an organizing construct in the study of intimacy and closeness. In D. J. Mashek & A. P. Aron (Eds.), *Handbook of closeness and intimacy* (pp. 201–225). Lawrence Erlbaum Associates Publishers.

Reis, H. T., Crasta, D., Rogge, R. D., Maniaci, M. R., & Carmichael, C. L. (2018). Perceived partner responsiveness scale (PPRS). In D. L. Worthington & G. D. Bodie (Eds.), *The sourcebook of listening research: Methodology and measures* (pp. 516–521). Wiley Blackwell.

Reis, H. T., & Gable, S. L. (2015). Responsiveness. *Current Opinion in Psychology*, *1*, 67–71. https://doi.org/10.1016/j.copsyc.2015.01.001

Reis, H. T., Maniaci, M. R., & Rogge, R. D. (2014). The expression of compassionate love in everyday compassionate acts. *Journal of Social and Personal Relationships*, *31*(5), 651–676. https://doi.org/10.1177/0265407513507214

Reis, H. T., & Shaver, P. R. (1988). Intimacy as an interpersonal process. In S. Duck & D. F. Hay (Eds.), *Handbook of personal relationships: Theory, research, and interventions* (pp. 367–389). Wiley.

Rogge, R. D., Cobb, R. J., Lawrence, E., Johnson, M. D., & Bradbury, T. N. (2013). Is skills training necessary for the primary prevention of marital distress and dissolution? A 3-year experimental study of three interventions. *Journal of Consulting and Clinical Psychology*, *81*(6), 949–961. https://doi.org/10.1037/a0034209

Rogge, R. D., Fincham, F. D., Crasta, D., & Maniaci, M. R. (2017). Positive and negative evaluation of relationships: Development and validation of the positive-negative relationship quality (PN-RQ) scale. *Psychological Assessment*, *29*(8), 1028–1043. https://doi.org/10.1037/pas0000392

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, *48*, 1–36. http://dx.doi.org/10.18637/jss.v048.i02

Ruan, Y., Reis, H. T., Clark, M. S., Hirsch, J. L., & Bink, B. D. (2020). Can I tell you how I feel? Perceived partner responsiveness encourages emotional expression. *Emotion*, *20*(3), 329–342. https://doi.org/10.1037/emo0000650

Rusbult, C. E., & Van Lange, P. A. (2003). Interdependence, interaction, and relationships. *Annual Review of Psychology*, *54*(1), 351–375. https://doi.org/10.1146/annurev.psych.54.101601.145059

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, *7*(2), 147–177. https://doi.org/10.1037/1082-989X.7.2.147

Semple, R. J. (2010). Does mindfulness meditation enhance attention? A randomized controlled trial. *Mindfulness*, *1*(2), 121–130. https://doi.org/10.1007/s12671-010-0017-2

Slatcher, R. B., & Selcuk, E. (2017). A social psychological perspective on the links between close relationships and health. *Current Directions in Psychological Science*, *26*(1), 16–21. https:// doi.org/10.1177/0963721416667444

Stanton, S. C. E., Selcuk, E., Farrell, A. K., Slatcher, R. B., & Ong, A. D. (2019). Perceived partner responsiveness, daily negative affect reactivity, and all-cause mortality: A 20-year longitudinal study. *Psychosomatic Medicine*, *81*(1), 7–15. https://10.1097/PSY.0000000000000618

Vazire, S., & Mehl, M. R. (2008). Knowing me, knowing you: The accuracy and unique predictive validity of self-ratings and other-ratings of daily behavior. *Journal of Personality and Social Psychology*, *95*(5), 1202–1216. https://doi.org/10.1037/a0013314

Wachs, K., & Cordova, J. V. (2007). Mindful relating: Exploring mindfulness and emotion repertoires in intimate relationships. *Journal of Marital and Family therapy*, *33*(4), 464–481. https://doi.org/10.1111/j.1752-0606.2007.00032.x

West, T. V., & Kenny, D. A. (2011). The truth and bias model of judgment. *Psychological Review*, *118*(2), 357–378. https://doi.org/10.1037/a0022936

Williams, A. M., & Cano, A. (2014). Spousal mindfulness and social support in couples with chronic pain. *The Clinical Journal of Pain*, *30*(6), 528–535. https://doi.org/10.1097/AJP.0000000000000009