Mindfulness
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ORIGINAL PAPER

Embracing the Intricacies of the Path Toward Mindfulness: Broadening Our Conceptualization of the Process of Cultivating Mindfulness in Day-to-Day Life by Developing the Unified Flexibility and Mindfulness Model

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Abstract

Objectives The study tested the Unified Flexibility and Mindfulness (UFM) model which organizes the dimensions of mindfulness and psychological flexibility into a multistage, process-oriented framework linking mindfulness to global functioning.

Methods A sample of 2742 online respondents (68% female, 81% Caucasian, $M_{age} = 42$ years old) completed the FFMQ, the MAAS, the Multidimensional Psychological Flexibility Inventory (MPFI), the Patient Health Questionnaire depression scale (PHQ-9), and Satisfaction with Life Scale (SWLS) within an online survey.

Results Path analyses run in random sample halves, across genders, across age groups, and across levels of current meditation converged to support the UFM model, suggesting that mindful lenses (e.g., describing feelings, observing sensations, attentive awareness) predicted mindfully flexible immediate responses to uncomfortable thoughts and feelings (e.g., acceptance, non-reactivity, non-judgment), which predicted life-enriching mindful behaviors (e.g., maintaining contact with values, taking steps toward deeper goals), which predicted greater life satisfaction. The components of the UFM model also identified differences in mindfulness between meditators and non-meditators—specific to those regularly practicing Buddhist-informed meditation. To facilitate future studies, IRT analyses selected items for two new mindfulness subscales that, when added to the MPFI, created the 70-item and 28-item UFM scales which demonstrated measurement invariance across gender, age, and meditation groups.

Conclusions The findings provide a conceptual framework offering researchers with an integrative, process-focused method of linking mindfulness to well-being. Underscoring the potential clinical implications, a hypothetical example is given of using the UFM scale to track clinically meaningful change for a client in therapy.

Keywords Mindfulness · Psychological flexibility · Acceptance and commitment therapy · Life satisfaction · Depressive symptoms · Mechanisms of change

The process of cultivating a mindful stance toward life (i.e., mindfulness) and a set of interrelated processes allowing individuals to non-judgmentally, non-reactively, and flexibly handle difficult or uncomfortable experiences (i.e., psychological flexibility) have been examined in parallel across the mindfulness and contextual behavioral science literatures. Growing out of a western adaptation (e.g., Kabat-Zinn 1990; see Kabat-Zinn 2003 for a review) of Buddhist writings (e.g., Bodhi 1994, 2000; Hanh 1998), research within the mindfulness literature has highlighted the advantages of cultivating mindful, open-hearted, and non-judgmental awareness in everyday life (Giluk 2009), yielding a host of effective mindfulness-based interventions (Grossman et al. 2004) and spawning a robust field of scientific study. Growing out of the cognitive behavioral therapy literature, research on acceptance and commitment therapy (ACT; Hayes et al. 2011, 1999; a conceptually distinct third-wave cognitive behavioral treatment approach) within the contextual behavioral science

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literature has examined the power of engaging psychologically flexible skills in response to difficult thoughts and feelings, highlighting how a decentered, non-judgmental, non-reactive flexible stance toward experiences can transform the lives of individuals (Hayes et al. 2006; Kashdan and Rottenberg 2010). Despite having markedly distinct conceptual origins, using distinct terminology, and even having notably distinct clinical foci in their respective interventions (e.g., meditation is not typically prescribed in ACT), the mindfulness and ACT literatures have converged upon a set of interrelated processes robustly linked to individual well-being that were integrated into a Unified Flexibility and Mindfulness (UFM) model. This UFM model (1) provides a conceptual framework to bridge the two literatures, (2) organizes their various constructs into a clear and testable process model linking attentive awareness to well-being, and (3) offers a more comprehensive conceptualization of the process of cultivating mindfulness in one's daily life, (4) thereby offering additional points of clinical intervention and strategies for interventions from both literatures and (5) providing deeper insights into treatment mechanisms for both mindfulness and ACT-based interventions.

To conceptually ground this narrative, it is necessary to first define mindfulness. Although commonly associated with meditation and attentive awareness, definitions of mindfulness within Buddhist writings (e.g., Bodhi 1994, 2000; Hanh 1998) provide a far broader and more complex definition of this construct which served as the conceptual framework for the UFM model. Mindfulness, or more appropriately, *being mindful*, describes an ongoing practice of cultivating an open-hearted awareness of moment-to-moment experiences. However, as summarized by Grossman and Van Dam (2011), the process does not end there, as cultivating that inner awareness through continued and sustained practice of meditation allows individuals to develop the kindness, courage, and patience they need to foster a non-judgmental and accepting orientation toward life and toward their own experiences. This further facilitates individuals' abilities to decenter from experiences (termed *samadhi* or right concentration in the teachings of the Buddha; see Bodhi 1994 as well as Crane et al. 2017 for discussions). Decentering represents individuals investigating their own experiences lightly and objectively without analyzing them, clinging to them, judging them, or reacting to them, thereby developing greater inner awareness and wisdom. Thus, the practice of mindfulness represents an aspirational path of self-discovery that encompasses affective, behavioral, cognitive, and interpersonal aspects of individuals' lives (see Grossman and Van Dam 2011 for a thorough discussion of the origins of mindfulness that guided this overview). This broad and process-oriented definition of mindfulness therefore offers a conceptual framework for integrating the fields of mindfulness and contextual behavioral science research.

Over the last two decades, a surge of both basic (e.g., Giluk 2009) and applied (e.g., Grossman et al. 2004) research on mindfulness has highlighted the critical value it can hold in daily life. In fact, mindfulness-based interventions have been shown to be effective at treating depressive and anxiety disorders and in managing cancer and other medical conditions (see Khoury et al. 2013 for a review). With over 12,000 citations in PsycInfo and its own dedicated journal, the field of mindfulness research has exploded in productivity over the last two decades, generating an exponentially expanding body of research and interventions. Despite a wide range of definitions of mindfulness emerging within this body of work, essential components of mindfulness interventions have emerged including (1) contemplative/meditative practice, (2) cultivating present moment focus, (3) an approach orientation and decentering stance toward experiences, and (4) the development of greater emotional and behavioral self-regulation (Crane et al. 2017).

The surge of research on mindfulness has produced a variety of self-report measures of mindfulness. With over 11,000 and 6000 Google Scholar citations to date (respectively), the 15-item Mindful Attentive Awareness scale (MAAS; Brown and Ryan 2003) and the 39-item Five Facet Mindfulness Questionnaire (FFMQ; Baer et al. 2006) represent the two most widely used self-report measures of mindfulness. In contrast to the broader, process-focused definitions of mindfulness found within the writings of the Buddha (Bodhi 1994, 2000), these scales conceptualize mindfulness as an individual trait focused on (1) failing to maintain an attentive awareness of the present moment (Brown and Ryan 2003), (2) observing physical and emotional sensations, (3) being able to describe the thoughts and feelings one is experiencing, and (4) being able to gently experience uncomfortable thoughts and feelings without reacting to them or (5) judging them (Baer et al. 2006). Given the negative wording of all of its items, the MAAS more specifically examines individuals' tendencies to drift through life on automatic pilot, inattentive and unaware. The FFMQ represented the first data-driven integration of 5 distinct mindfulness scales into a multidimensional scale that organizes the assessment of mindfulness around the dimensions described above. Although widely used and adopted within the field, these scales have been criticized for their somewhat limited focus, as they might be more appropriately described as measuring *aspects* of mindfulness or representing more fundamental skills that might serve as necessary prerequisites to *begin* the process of cultivating mindfulness but falling short of capturing the full complexity of the ongoing process of cultivating mindfulness in one's life (Grossman and Van Dam 2011). Concerns have also been raised over the psychometric properties of the FFMQ (e.g., Lecuona et al. 2020). More recent measurement work examining 8 popular mindfulness scales has identified as many as 9 distinct dimensions of mindfulness (Bergomi et al. 2013a, 2013b). In addition to the five dimensions covered by the MAAS and the FFMQ, these further included (1) acceptance, (2) non-

avoidance, (3) non-identification with own experiences (gently experiencing them rather than fusing with them), and (4) insightful understanding (seeing things from a broader perspective). However, to date a scale has not been developed to comprehensively assess these 9 dimensions as distinguishable subscales. In fact, a recent review of self-report mindfulness measures (Bergomi et al. 2013b) highlighted that (1) clarifying the distinct aspects of mindfulness that need to be assessed, (2) clarifying the nature of the relationships among these aspects, and (3) further validating the use of self-report measures to assess mindfulness as key challenges to be addressed in the literature. The UFM model therefore built on previous work by deepening the conceptualization of mindfulness to 14 distinct processes (challenge 1) within a clear three-stage process-oriented framework (challenge 2), providing a corresponding psychometrically optimized self-report scale, linked not only meditation practice but also therapeutic change (challenge 3).

The parallel field of contextual behavioral science has examined the benefits of acceptance and commitment therapy (ACT; Hayes et al. 2011, 1999). Grounded in relational frame theory and drawing from the mindfulness and emotion regulation literatures (Kashdan and Rottenberg 2010), ACT identifies a key set of interrelated behavioral responses to uncomfortable experiences as intervention targets. Termed psychological flexibility, ACT seeks to help clients to let go of rigid and inflexible responses and to instead engage in skills that allow them to more flexibly experience uncomfortable thoughts and feelings, thereby reframing the meaning of those thoughts and feelings in their daily lives. ACT specifically targets six key rigid and inflexible behavioral responses: (1) going on autopilot and being inattentive and unaware (inattentive unawareness), (2) experientially avoiding, (3) judging (self-as-content), or (4) getting stuck in (fusion) difficult feelings, (5) allowing one's deeper values to drop off of daily priority lists (lack of contact with values), and (6) getting stuck in inaction. ACT therefore strives to promote (1) maintaining an attentive awareness of the present moment, (2) accepting uncomfortable experiences, (3) maintaining a broader perspective (self-as-context) in the midst of uncomfortable thoughts and feelings, (4) gently experiencing uncomfortable thoughts and feelings (defusion), (5) maintaining contact with one's deeper priorities, and (6) continuing to take steps toward what you truly value in life despite setbacks or uncomfortable thoughts and feelings (committed action). These dimensions of flexibility have each been linked to individual functioning across a series of focused experimental (Levin et al. 2012) and correlational studies (Kashdan and Rottenberg 2010). Similarly, ACT interventions targeting these dimensions have shown benefits in treating a range of disorders (for reviews see A-Tjak et al. 2015; Hayes et al. 2006). Although typically characterized as psychological flexibility, these dimensions share striking similarities to the affective, behavioral, and cognitive components of the broader journey of cultivating mindfulness in one's daily life (Grossman 2010; Hanh 1998) and to key elements of mindfulness-based interventions (e.g., Crane et al. 2017). These dimensions of flexibility also bear striking similarities to the 9 dimensions of mindfulness conceptually identified within the current mindfulness literature (Bergomi et al. 2013a). Thus, although ACT does not necessarily involve any formal meditation training or practice, we see the psychological flexibility skills targeted in ACT as representing aspects of the open-hearted, non-judgmental, non-reactive, and accepting stance that allows individuals to decenter from experiences and therefore conceptualize them as processes involved in the larger process of cultivating mindfulness in one's life.

The 60-item Multidimensional Psychological Flexibility Inventory (MPFI) was recently developed and validated to assess the 12 specific dimensions of flexible and inflexible responding identified within the Hexaflex model (Rolffs et al. 2018) with 12 distinct 5-item subscales. The MPFI therefore offers the most comprehensive method of conceptualizing and assessing this set of adaptive and maladaptive skills/stances to date. In contrast to the trait-based focus of the MAAS, the MPFI takes a process-oriented approach similar to the FFMQ, seeing these processes as dynamic and changing over time. With its balanced sets of flexibility and inflexibility subscales (shown to be meaningfully distinct), the MPFI also avoids confounding the assessment of a positive skill with a set of items assessing the absence of that skill, as seen in the MAAS and some of the subscales of the FFMQ (for a discussion see Grossman and Van Dam 2011).

The development of the MPFI helped to clarify operational overlap between the five dimensions of mindfulness assessed by the MAAS and FFMQ and the 12 dimensions of flexibility and inflexibility within the Hexaflex model, yielding 3 pairs of dimensions with nearly identical item content (see online supplemental Table S1) and extremely high convergent validity correlations: (1) MPFI lack of present moment awareness with the FFMQ acting with awareness subscale and the MAAS, (2) the MPFI self-as-context and FFMQ non-judging subscales, and (3) the MPFI defusion and FFMQ non-reactivity subscales (see Rolffs et al. 2018). We would further argue that the dimensions of psychological flexibility cover a majority of the 9 distinct conceptual dimensions of mindfulness identified within that literature (Bergomi et al. 2013a). Thus, despite the different labels given to these three constructs across the two literatures, these scales would seem to be measuring common constructs. In fact, the defusion/non-reactivity construct shares components with the process of decentering (e.g., Crane et al. 2017) or reperceiving (Shapiro et al. 2006). Between the 5 dimensions of the FFMQ/MAAS and the 12 dimensions of the MPFI, there exist roughly14 unique constructs that clarify how individuals might engage experiences with an open-hearted mindful stance promoting

non-judgmental and accepting orientations toward difficult experiences. Although it could be argued that these 14 dimensions of mindfulness might still only reflect rudimentary skills that begin to approach the complexity of mindfulness practice as outlined in the teachings of the Buddha (serving as a gold standard of conceptual definitions), we would assert that when taken as a set, these 14 dimensions could offer a more thorough and complete representation of the broader construct of mindfulness than the use of the MAAS, FFMQ, or MPFI alone.

Building on recent conceptual (Shapiro et al. 2006; Lindsay and Creswell 2017) and empirical (Brown et al. 2015; Carmody and Baer 2008; Feldman et al. 2010; Pearson et al. 2015) work, the Unified Flexibility and Mindfulness (UFM; Fig. 1) model provides a conceptual framework that could integrate the work on psychological flexibility into a more comprehensive conceptualization of mindfulness. In the first stage of the UFM model, the UFM model proposes that three dimensions strongly aligned with Langer's (1997) definition of mindfulness (describing, observing, and attentive awareness) would serve as essential mindful lenses that allowed individuals to deeply experience the moments of their lives including their own thoughts, feelings, and experiences (Fig. 1), providing a critical foundation for the rest of the processes in the model in much the same way that the practice of *samatha* meditation is considered critical to develop the mental focus that then allows for more advanced forms of meditation (e.g., *vipassana*; Bodhi 1994). Thus, consistent with previous work (see Tomlinson et al. 2018 for a review), we posited that these lenses would exert influence across all stages of the model, directly shaping (1) immediate responses to difficult experiences (e.g., Brown et al. 2012; Bullis et al. 2014; Feldman et al. 2016; Kadziolka et al. 2016; Kiken and Shook 2012; Weinstein et al. 2009), (2) life-enriching/life-diminishing behavior, and (3) global individual functioning.

Shifting to the process-focused portion of the model, in the same way that the practice of meditation allows one to create space to perceive suffering (i.e., dukka) in a new light and respond to it in a new manner (Bodhi 1994), the UMM framework posits that the mindful lenses of the first stage promote more adaptive immediate responses to difficult thoughts and feelings in the form of mindful emotion regulation strategies/stances within the second stage of the model, effectively drawing from both literatures to deconstruct the specific components of decentering. In the third stage of the process model, we posited that the decentering within stage 2 would promote a set of behaviors that represent mindfulness in action within

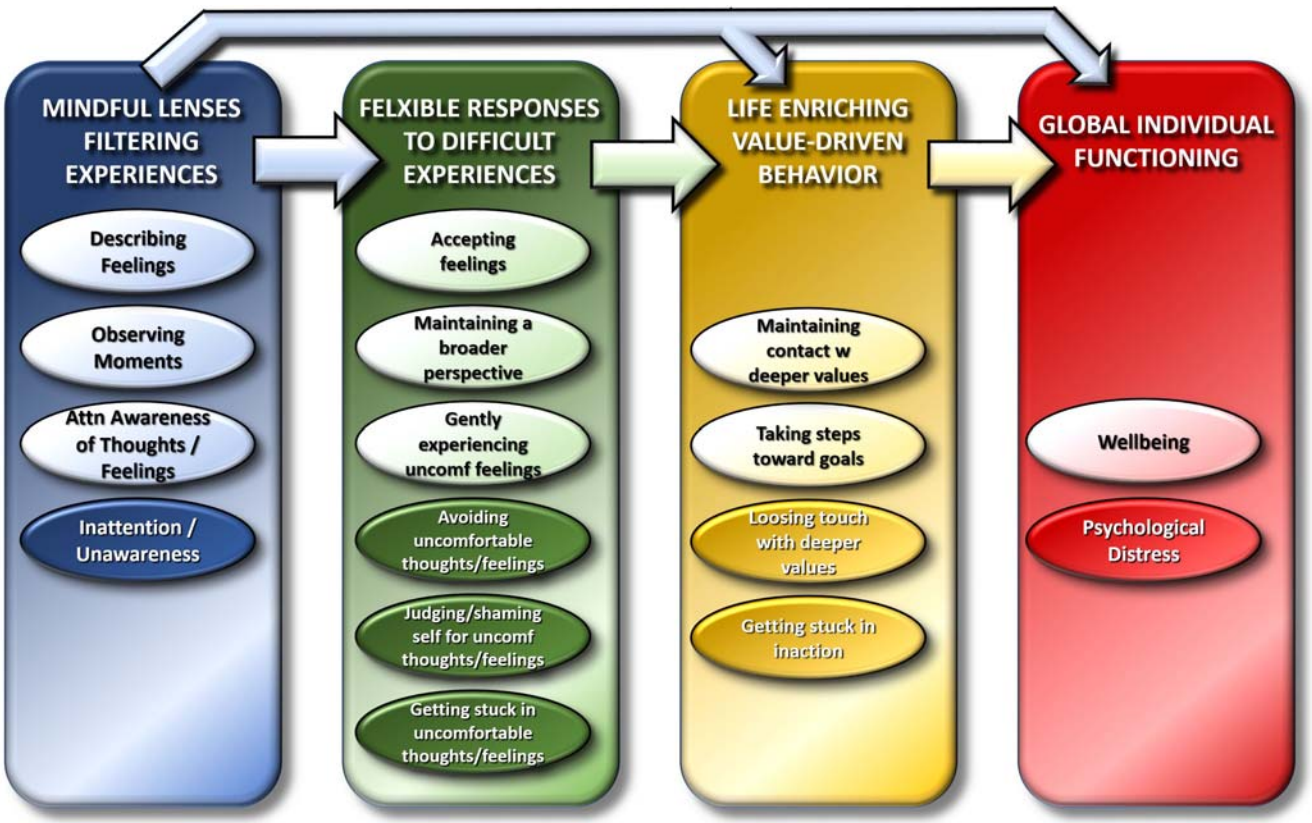

Fig. 1 The Unified Flexibility and Mindfulness model. FFMQ, construct assessed by the Five Facet Mindfulness Questionnaire; MPFI, construct assessed by the Multidimensional Psychological Flexibility Inventory; MAAS, construct assessed by the Mindful Attention Awareness Scale; t/f/exp = thoughts, feelings, and experiences; uncomfortable, uncomfortable

the daily lives of individuals, empowering individuals to continue engaging life-enriching and value-driven behaviors even in the face of setbacks, adversity, and/or difficult thoughts, feelings, and experiences. The UFM framework posits that these forms of mindfulness in action would be most strongly and directly (i.e., proximally) linked to individual well-being and distress, serving as a key mechanism linking mindful responses (stage 2 in the model) to individual well-being (the outcomes of the model). This extends previous work having linked mindful responses directly to individual well-being (e.g., FFMQ non-judging, FFMQ non-reactivity; see Mattes 2019 for a meta-analytic review) by positing that these action-oriented forms of mindfulness in this third stage would mediate links between mindfully flexible responses to difficult experiences and individual outcomes like well-being and distress. Consistent with the indirect effects proposed in the UFM model, a number of previous cross-sectional studies found results supporting stage 2 mindful responses to difficult emotions of the UFM model mediating links between stage 1 mindful lenses and psychological distress (McDonald et al. 2016; Prakash et al. 2015; Coffey and Hartman 2008; Alleva et al. 2014).

The current study sought to test the UFM model, with the specific goals of (1) bridging these two innovative fields of research, (2) introducing the components of the Hexaflex model as cognitive, affective, and behavioral components of mindfulness, and thereby (3) broadening the conceptual and operational definitions of mindfulness by providing a multi-stage, process-oriented, conceptual framework. The UFM model hypothesized that mindful lenses would demonstrate direct links to components in all stages of the model, promoting flexible responses to experiences (Hypothesis 1), life-enriching behaviors (Hypothesis 2), and individual well-being (Hypothesis 3). The model further hypothesized that flexible responses to difficult experiences would promote life-enriching behaviors (i.e., mindfulness in action; Hypothesis 4), which would, in turn, promote greater well-being (Hypothesis 5). The current study also sought to facilitate further research in this area and align the narrower operationalizations of mindfulness offered by the current measures with the broader Buddhist definition through the development of a corresponding scale (a secondary goal). To evaluate the UFM model and test these hypotheses, 2742 online respondents completed measures of mindfulness (i.e., FFMQ, MAAS) and psychological flexibility (i.e., MFPI) along with measures of individual functioning (life satisfaction and depressive symptoms) in an online survey. The Structural Equation Modeling path models conducted across demographic subsamples evaluated the UFM model. Item Response Theory (IRT; Hambleton et al. 1991) analyses optimized item selection to create the Unified Flexibility and Mindfulness (UFM) scale assessing the 14 distinct mindfulness constructs within the model. Exploratory and confirmatory factor analyses, internal consistency analyses, and measurement invariance analyses evaluated the UFM scale's psychometric properties.

Method

Participants

A total of 2742 respondents completed an online survey from August 2018 to February of 2019. The participants predominantly identified as female (68%), with 31% identifying as male and 0.9% identifying as gender-queer/agender/gender fluid. Respondents were primarily Caucasian (81%), with 5% African American, 8% Asian, and 6% other/biracial. Respondents were an average of 42 years old (SD = 18) with average incomes of $51,195 per year (SD = $35,017). Roughly 28% of respondents had completed some college or trade school, 32% had bachelor's degrees, 32% had completed graduate degrees, and 8% had high school educations or less. Roughly 65% of respondents were in romantic relationships (together M = 15.5 years; 65% married; 78% living together).

Procedures

All procedures and materials for this study were approved by an Institutional Review Board and informed consent was obtained from all participants. Respondents needed to be at least 18 years of age to participate. The survey was hosted online via SurveyGizmo.com and took approximately 25–30 min to complete.

Participants were recruited through ResearchMatch (66%), a national health volunteer registry that was created by several academic institutions and supported by the US National Institutes of Health as part of the Clinical Translational Science Award program. Participants were also recruited via Amazon.com's Mechanical Turk service (16%), an undergraduate psychology research pool (14%), and a variety of other methods (4%). The survey was advertised as "The Mindfulness in Life Study." Recruitment materials highlighted that the study was voluntary and offered participants individualized feedback on a number of domains of individual functioning as the main recruitment incentive. Participants recruited through Mechanical Turk also received up to $0.40 of Amazon.com store credit, and those recruited from the undergraduate research pool received extra credit.

Measures

To assess the dimensions of the UFM model, respondents completed the 60-item MPFI (Rolffs et al. 2018), the FFMQ (Baer et al. 2006), and the MAAS (Brown and Ryan 2003).

The items of these scales were presented with 6-point response scales (e.g., "Not at all" to "Completely"). Responses to the items of specific subscales were averaged so that higher scores reflected higher levels of the construct being assessed. Given the findings that positively and negatively worded items were assessing conceptually distinct processes (Rolffs et al. 2018; Rogge et al. 2019), we retained the original direction of the items on each scale as much as possible. Thus, for each scale, responses were averaged in the direction of the predominant type of item, diverging from how certain scales (e.g., the MAAS) are typically scored. All Cronbach's alphas presented were calculated in the current study.

Mindful/Mindless Lenses As shown in Fig. 1, the scales that mapped onto the *mindful and mindless lenses* in the UFM model are as follows: the 8-item FFMQ describing subscale ($\alpha = 0.90$) represented describing thoughts/feelings/experiences, the 8-item FFMQ observing subscale ($\alpha = 0.92$) represented observing physical and emotional sensations, and the 5-item MPFI present-moment awareness subscale ($\alpha = 0.92$) represented attentive awareness. Three scales including the 5-item MPFI lack of present-moment awareness subscale ($\alpha = 0.95$), the 15-item MAAS ($\alpha = 0.95$), and the 8-item FFMQ acting with awareness subscale ($\alpha = 0.91$) all represented an inattentive/unaware lens and demonstrated strong convergent validity (correlating from 0.74 to 0.90 with one another). Thus, scores on those three scales were averaged to create a composite of an inattentive/unaware lens (composite average $\alpha = 0.92$). As detailed in the results, separate IRT analyses were run on the FFMQ described and observed subscales to identify the 2 and 5 items most informative items from each of those subscales. Thus, items with IRT item information curves suggesting that they offered the greatest amount of information across the broadest range of the underlying construct were selected to make 2- and 5-item versions of those subscales for inclusion in the UMM measure. This process identified the 2 most effective described items ($\alpha = 0.84$) and 3 additional items to create a 5-item version of a describing subscale ($\alpha = 0.91$) as well as 2-item ($\alpha = 0.82$) and 5-item versions of an observing subscale ($\alpha = 0.88$).

Mindful Responses to Experiences As shown in Fig. 1, the subscales of the MPFI and FFMQ that mapped onto the *flexible and inflexible responses* in the UFM model are as follows: the 5-item MPFI acceptance subscale ($\alpha = 0.93$) represented accepting thoughts and feelings, the 5-item MPFI self-as-context subscale ($\alpha = 0.94$) represented maintaining a broader perspective, both the 5-item MPFI defusion subscale ($\alpha = 0.94$) and the 7-item FFMQ non-reactivity subscale ($\alpha = 0.92$) represented gently experiencing uncomfortable feelings (composite average $\alpha = 0.86$), the 5-item MPFI experiential avoidance subscale ($\alpha = 0.94$) represented avoiding uncomfortable experiences, both the 5-item MPFI self-as-content subscale ($\alpha = 0.95$) and the 8-item FFMQ non-judging subscale ($\alpha = 0.95$) represented judging uncomfortable experiences (composite average $\alpha = 0.77$), and finally, the 5-item MPFI fusion subscale ($\alpha = 0.96$) represented getting stuck in uncomfortable thoughts/feelings.

Life-Enriching/Life-Diminishing Mindful Behavior As shown in Fig. 1, four subscales of the MPFI mapped onto the *life-enriching/life-diminishing behavior* constructs in the UFM model as follows: the 5-item MPFI contact with values subscale ($\alpha = 0.92$) represented maintaining contact with deeper values, the 5-item MPFI committed action subscale ($\alpha = 0.94$) represented taking steps toward goals, the 5-item MPFI lack of contact with values subscale ($\alpha = 0.93$) represented losing touch with deeper values, and finally, the 5-item MPFI inaction subscale ($\alpha = 0.96$) represented getting stuck in inaction.

Depressive Symptoms Respondents completed the 9-item Patient Health Questionnaire (PHQ-9; Kroenke and Spitzer 2002) that assesses depressive symptoms in the last 2 weeks (e.g., "How often have you been bothered by any of the following problems: Feeling down, depressed, or hopeless") on the original 4-point scale ("Not at all" to "Nearly every day"). In contrast to the other measures in the study, responses to the PHQ-9 were summed (rather than averaged) so that higher scores suggested higher depressive symptoms ($\alpha = 0.91$).

Satisfaction with Life Respondents completed the 5-item Satisfaction with Life Scale (SWLS; Diener et al. 1985) that assesses individual's global positive evaluations of their own lives (e.g., "I am satisfied with my life") on a 7-point scale ("Strongly Disagree" to "Strongly Agree"; $\alpha = 0.92$).

Data Analysis

To test the conceptual model, path analyses were run in Mplus 7.11. When more than one scale in the current study measured a construct within the UFM model, a composite was generated by averaging those scales together to retain maximum amounts of variance for each of those constructs in the model. Similarly, we chose to use the 8-item FFMQ observing and describing subscales in the path model (as opposed to their 5-item counterparts within the UFM scale—described below) to retain maximum variance. As shown in Fig. 1, the mindful/mindless lens constructs (stage 1) were allowed to directly predict all other classes of constructs in the model based on the model's premise that those lenses could influence every stage of the model. To test the more specific mediation paths proposed by the model, after being predicted by the lenses, the flexible/inflexible response constructs of stage 2 were allowed to predict only the life-enriching/life-diminishing behaviors (stage 3), and the life-enriching/life-diminishing behaviors were allowed to predict only the global functioning measures

(the outcomes). To focus the analyses on predictions *between* classes of variables, all constructs *within* a class of variables in the model were allowed to correlate with one another. To help ensure the robustness of the findings presented, the sample was randomly split into two halves and the same model was tested in both halves. As mindfulness has been shown to vary by age (e.g., Hohaus and Spark 2013; Mahoney et al. 2015; Shook et al. 2019), we further examined the generalizability of the model by running model invariance analyses across three age groups as well as across genders, levels of meditation, and recruitment sources. For these model invariance analyses, we first examined the fit of the model in each subgroup and then ran a multigroup analysis constraining the paths of the model to be equivalent across each set of subgroups. Adequate fit across all of those models combined with only nominal increases in CFI (≤ 0.010) and RMSEA (≤ 0.015) from comparable unconstrained multigroup models would suggest that the paths of the model were reasonably robust and invariant, generalizing across those groups (see Chen 2007; Cheung and Rensvold 2002). Given the number of paths being tested, only path coefficients significant at $p < .0005$ and with estimates whose absolute values greater than or equal to 0.15 in both sample halves were interpreted. This strategy not only helped to control experiment-wide alpha error levels but also focused the analyses on the stronger effects that emerged. The indirect paths were specified and estimated using model constraints in Mplus and their confidence intervals were estimated in 10,000 bootstrapped samples. Missing data was rare (1.5%) and Little's MCAR test suggested it was missing completely at random ($\chi^2(453) = 431.5$, $p = 0.759$). Thus, missing data was handled by using Full-Information Maximum Likelihood (FIML) estimation within Mplus.

Results

Table 1 presents correlations among key scales in the study. As seen in Table 1, the 14 constructs in the UFM model and the 2 outcome constructs demonstrated generally moderate associations with one another in the expected directions. Taken as a set, these correlations support the discriminant validity of the various components of the model and further support the appropriateness of the planned model.

The Unified Flexibility and Mindfulness Model

The path model as specified by the UFM framework demonstrated reasonable fit in both the first (S1: $\chi^2(12) = 89$, $p < 0.0005$, $CFI = 0.994$, $SRMR = 0.014$, $RMSEA = 0.069$, *95% confidence interval* $LL = 0.056$, $UL = 0.082$) and second (S2: $\chi^2(12) = 102$, $p < 0.0005$, $CFI = 0.993$, $SRMR = 0.016$, $RMSEA = .074$, *95% confidence interval* $LL = 0.061$, $UL = 0.087$) sample halves. These findings stand in contrast to previous work identifying links between specific forms of responding to emotions (stage 2) and the outcomes (see Mattes 2019), as those direct links were not specified in the UFM model. To ensure that we had not mis-specified the model (given those previous findings), we ran an exploratory model in which we included all possible paths, including direct links between the stage 2 constructs and the outcomes. Although the fully saturated nature of this exploratory model was less ideal as it precluded any examination of model fit, the results of this exploratory model were virtually identical to those of the model conceptually grounded in the UFM framework with one exception, the stage 2 construct of getting stuck in difficult thoughts/feelings (i.e., cognitive fusion within the ACT literature) demonstrated possible links to the outcomes. To increase our ability to examine model fit while accommodating this one deviation from the conceptual model (informed by previous work), the final model examined in the rest of the article is based on the UFM framework but included direct paths from getting stuck in thoughts/feelings to both outcomes.

As shown in Table 2, the final model demonstrated excellent fit in both random sample halves, demonstrating cross-replication. In fact, when a multigroup path analysis was conducted in which the paths of the model were constrained to be equal across the two sample halves, the model continued to demonstrate excellent fit and failed to demonstrate a significant worsening of fit on the CFI and RMSEA indices, suggesting that the results remained essentially identical across the two halves. Exploring the generalizability of the findings further, the model continued demonstrating excellent fit across three distinct age groups, across the two primary gender groups, across groups of individuals with varying levels of current meditation practice, and across individuals recruited from different sources. Notably, each time the substantive paths of the model were constrained to be equal across the various sets of subgroups, the model continued demonstrating appropriate fit, suggesting that the same general pattern of findings emerged across all of these disparate groups. An examination of shifts in the CFI and RMSEA fit indices between the constrained and unconstrained multigroup analyses for each set of groups suggested that the models demonstrated slight decreases in fit on the CFI when constrained across age groups and genders along with a more notable decrease in fit on both the CFI and RMSEA when constrained across recruitment sources. Thus, despite the excellent fit across the various constrained analyses supporting the replication of the same substantive model across the groups examined, slight deviations from complete structural invariance emerged and could be explored in future work. As a result, path coefficients from both sample halves are presented in Fig. 1.

We focus only on the paths significant at $p < .0005$ and with coefficients ≥ 0.15 in both sample halves, thereby limiting our narrative to the more robust effects most likely to

Table 1 Correlations among constructs in the Unified Flexibility and Mindfulness model

Unified process category	Descriptive statistics		Correlations among unified process constructs and outcomes																			
Specific scales/composites			Mindful/mindless lenses							Flexible/inflexible responses								Life-enriching/life-diminishing behavior			Global function	
	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Mindful/mindless lenses																							
1 UFM describing	3.77	1.09		**.92**	**.41**	.39	**.48**	−.17	−.16	**.44**	**.45**	**.40**	**.43**	−.11	−.17	−.15	−.16	**.49**	**.45**	−.15	−.16	.29	−.16
2 FFMQ describing	3.97	0.95	**.92**		.30	.27	**.41**	−.32	−.34	.37	**.42**	.36	.38	−.21	−.33	−.32	−.31	**.46**	**.43**	−.32	−.33	.28	−.32
3 UFM observe	3.69	1.09	**.43**	.33		**.97**	**.54**	−.17	−.15	**.47**	**.43**	**.40**	**.45**	−.04	−.03	−.02	−.10	**.46**	.37	−.06	−.05	.21	−.02
4 FFMQ observe	3.53	1.07	**.43**	.32	**.97**		**.54**	−.14	−.12	**.48**	**.42**	**.41**	**.46**	−.03	.00	.01	−.08	**.45**	.36	−.02	−.03	.22	.00
5 UFM awareness	4.01	1.00	**.53**	**.45**	**.51**	**.51**		−.32	−.30	**.61**	**.56**	**.51**	**.51**	−.06	−.13	−.12	−.18	**.62**	**.51**	−.21	−.18	.35	−.17
6 UFM inattentive	2.46	1.06	−.12	−.30	−.10	−.07	−.23		**.91**	−.16	−.29	−.22	−.20	.30	**.48**	**.47**	**.49**	−.34	−.32	**.67**	**.58**	−.24	**.50**
7 Comp. inattentive	2.71	0.88	−.13	−.33	−.09	−.06	−.23	**.90**		−.16	−.29	−.27	−.25	.34	**.53**	**.53**	**.57**	−.34	−.32	**.69**	**.66**	−.28	**.60**
Flexible/inflexible responses																							
8 UFM acceptance	3.48	1.11	**.46**	.38	.40	**.40**	**.55**	−.08	−.09		**.55**	**.66**	**.67**	−.28	−.23	−.23	−.28	**.51**	**.48**	−.14	−.21	.35	−.16
9 UFM maintaining perspective	4.23	1.03	**.48**	**.43**	.40	.38	**.55**	−.20	−.22	**.52**		**.66**	**.67**	−.11	−.28	−.28	−.38	**.70**	**.68**	−.32	−.39	**.43**	−.32
10 UFM gently exp t/f	3.54	1.12	**.43**	.39	.37	.36	**.48**	−.15	−.23	**.59**	**.68**		**.94**	−.17	−.32	−.32	**−.52**	**.56**	**.59**	−.23	**−.41**	**.43**	−.31
11 Comp. gently exp t/f	3.49	0.99	**.48**	**.41**	**.43**	**.43**	**.50**	−.12	−.19	**.60**	**.66**	**.95**		−.18	−.30	−.31	**−.50**	**.58**	**.59**	−.22	−.39	**.44**	−.30
12 UFM avoiding t/f/exp	3.41	1.18	−.07	−.19	.02	.04	−.02	.31	.36	−.28	−.05	−.18	−.18		**.46**	**.48**	**.44**	−.07	−.06	.31	.39	−.15	.32
13 UFM judging t/f	2.53	1.26	−.16	−.33	−.04	−.01	−.09	**.53**	**.59**	−.21	−.26	−.34	−.31	**.51**		**.99**	**.71**	−.28	−.28	**.58**	**.69**	−.30	**.57**
14 Comp. judging t/f	2.61	1.21	−.14	−.32	−.02	.01	−.08	**.52**	**.59**	−.20	−.26	−.34	−.32	**.52**	**.99**		**.72**	−.27	−.28	**.58**	**.69**	−.30	**.57**
15 UFM stuck in t/f	2.96	1.31	−.15	−.31	−.07	−.05	−.10	**.50**	**.59**	−.21	−.33	**−.50**	**−.48**	**.44**	**.73**	**.73**		−.31	−.34	**.57**	**.78**	**−.41**	**.63**
Life-enriching/life-diminishing behavior																							
16 UFM contact with values	4.35	0.99	**.52**	**.50**	**.46**	**.45**	**.62**	−.30	−.31	**.47**	**.68**	**.61**	**.60**	−.02	−.26	−.25	−.32		**.79**	**−.46**	**−.41**	**.49**	−.34
17 UFM taking steps	4.33	1.01	**.44**	**.42**	.34	.33	**.52**	−.25	−.28	**.43**	**.69**	**.60**	**.59**	−.03	−.25	−.24	−.34	**.78**		**−.44**	**−.46**	**.49**	−.38
18 UFM losing values	2.33	1.08	−.13	−.32	−.06	−.02	−.16	**.68**	**.70**	−.06	−.27	−.22	−.19	.31	**.60**	**.60**	**.61**	−.40	−.38		**.75**	−.31	**.59**
19 UFM inaction	2.48	1.29	−.15	−.33	−.04	−.01	−.13	**.58**	**.66**	−.14	−.33	**−.41**	−.38	.40	**.69**	**.70**	**.80**	−.39	**−.44**	**.74**		**−.42**	**.69**
GLOBAL FUNCTIONING																							
20 SWLS life satisfaction	4.75	1.53	.33	.33	.19	.19	.29	−.16	−.21	.34	**.43**	**.51**	**.48**	−.16	−.29	−.29	**−.40**	**.48**	**.49**	−.27	**−.42**		**−.51**
21 PHQ-9 depressive Sx	7.31	6.52	−.17	−.34	−.01	.01	−.14	**.52**	**.62**	−.13	−.28	−.37	−.32	.35	**.58**	**.59**	**.68**	−.32	−.36	**.59**	**.72**	**−.50**	

Correlations in the first random sample half are presented above the diagonal and correlations in the second random sample half are presented below the diagonal. FFMQ = Five Facet Mindfulness Questionnaire; UFM = Unified Flexibility and Mindfulness scale comprised of the 12 5-item subscales of the Multidimensional Psychological Flexibility Inventory and two new 5-item IRT-derived subscales assessing Describing and Observing; t/f/exp = thoughts, feelings, and experiences; SWLS = Satisfaction with Life Scale; PHQ-9 = 9-item Patient Health Questionnaire – depressive symptom subscale; Comp. = Composite made from the 2-3 scales assessing that construct by averaging those scales together. When available, composites were used in the path model to retain maximum variance. All correlations with absolute values ≥ .090 were significant at $p < .001$. Correlations ≥ .40 have been bolded for ease of interpretation

Table 2 Examining invariance of the UFM model across random sample halves and demographic subgroups

Grouping strategy	*n*	χ^2			RMSEA			CFI	TLI	SRMR	Change in fit with constraints	
					est	90% CI						
Specific subgroups tested		est	df	p		LL	UL				ΔCFI	ΔRMSEA
Split by random sample halves												
First sample half	1363	27.6	10	.002	.036	.020	.052	.999	.985	.005		
Second sample half	1379	31.5	10	.001	.040	.024	.055	.998	.982	.008		
Multigroup—unconstrained	2742	59.2	20	< .0005	.038	.027	.049	.999	.983	.007		
Multigroup—constrained across groups	2742	156.6	102	.0004	.020	.013	.026	.998	.995	.016	.001	−.018
Split by age groups												
18 to 29 years old	867	20.5	10	.025	.035	.012	.056	.999	.985	.007		
30 to 49 years old	761	24.4	10	.007	.044	.022	.066	.998	.978	.007		
50 to 75 years old	947	9.5	10	.482	< .0005	< .0005	.034	> .9995	> .9995	.005		
Multigroup—unconstrained	2575[A]	54.4	30	.0041	.031	.017	.044	.999	.989	.007		
Multigroup—constrained across groups	2575[A]	547.9	194	< .0005	.046	.042	.051	.986	.975	.048	.013	.015
Split by self-identified gender												
Females	1854	22.6	10	.012	.026	.012	.041	.999	.992	.006		
Males	862	38.0	10	< .0005	.057	.038	.077	.997	.966	.009		
Multigroup—unconstrained	2716[A]	60.6	20	< .0005	.039	.028	.050	.998	.983	.007		
Multigroup—constrained across groups	2716[A]	484.2	102	< .0005	.053	.048	.057	.986	.968	.047	.012	.014
Split by meditation practice												
Not currently meditating	1526	16.7	10	.080	.021	< .0005	.038	> .9995	.994	.005		
Infrequently meditating	581	24.9	10	.006	.051	.026	.076	.997	.970	.009		
Regularly meditating	628	15.2	10	.123	.029	< .0005	.056	.999	.991	.007		
Multigroup—unconstrained	2735[A]	56.9	30	.0022	.031	.019	.044	.999	.988	.007		
Multigroup—constrained across groups	2735[A]	382.5	194	< .0005	.033	.028	.037	.993	.987	.036	.006	.002
Split by recruitment source												
Research match	1826	16.5	10	< .0006	.019	< .0005	.035	> .9995	.996	.005		
Mechanical Turk	437	39.7	10	< .0007	.082	.057	.110	.994	.936	.010		
Undergraduate subject pool	378	11.9	10	< .0008	.022	< .0005	.063	.999	.993	.008		
Multigroup—unconstrained	2641[A]	68.1	30	.0001	.038	.026	.050	.999	.983	.006		
Multigroup—constrained across groups	2641[A]	990.3	194	< .0005	.068	.064	.073	.969	.945	.082	.030	.030

[A] These numbers are slightly lower than 2742 due to missing responses on those grouping questions, identification as an alternative gender (queer, non-binary, fluid, agender), and recruitment by other sources with lower yields. All path models were run in Mplus 7.11 using FIML to handle missing data. The rows of the table present the fit indices when the main model was tested in each subsample as well as the corresponding fit when the paths of the model were constrained to be equivalent across groups in corresponding multigroup models. RMSEA values less than 0.08, CFI, and TLI values above 0.90, and SRMR values below 0.10 are suggestive of adequate fit

replicate in future studies (see Fig. 2A; see supplemental Table S2 for estimates of all path coefficients). As seen in Fig. 2B and consistent with the model, the mindful lenses of describing thoughts/feelings, observing physical and emotional sensations, and attentive awareness were linked to current levels of life satisfaction primarily by predicting flexible responding (i.e., maintaining a broader perspective, gently experiencing thoughts/feelings, supporting Hypothesis 1) which in turn predicted life-enriching behaviors (maintaining contact with values, taking steps toward goals despite setbacks, supporting Hypothesis 4), which in turn predicted higher life satisfaction (supporting Hypothesis 5). As seen in the first 3 sections of Table 3, when the specific indirect paths suggested by these results were evaluated with bootstrapped 99% confidence intervals, those indirect paths emerged as significant, providing support for the step-wise, process-oriented focus of the UFM model.

As seen in Fig. 2C, the lens of inattentive unawareness was directly predictive of greater depressive symptoms (supporting Hypothesis 3). In addition, the inattentive/unaware lens was also directly predictive of higher levels of being stuck in inaction (supporting Hypothesis 2). Even after controlling for those links, the lens of inattentive unawareness was indirectly linked to both outcomes (depressive symptoms and life satisfaction) by predicting higher levels of inflexible responses (judging uncomfortable thoughts/feelings/experiences, getting stuck in uncomfortable thoughts/feelings/experiences, supporting Hypothesis 1), which in turn predicted greater levels of getting stuck in inaction (supporting Hypothesis 4), which in turn predicted greater depressive symptoms and lower life satisfaction (supporting Hypothesis 5). The mindful lens of describing thoughts and feelings was indirectly linked to both higher life satisfaction and lower depressive symptoms via the same indirect pathways. As shown in the two sections of Table 3 predicting current

Table 3 *Significant indirect paths within the model*

Variables being indirectly linked	est	99% CI		est	99% CI	
Specific indirect paths examined		LL	UL		LL	UL
Describe ➜ Life Satisfaction						
Sum of major indirect paths examined	.140	.090	.199	.168	.110	.233
Describe ➜ Maintaining Perspective ➜ Contact with Values ➜ Life Satisfaction	.026	.011	.050	.023	.009	.044
Describe ➜ Maintaining Perspective ➜ Committed Action ➜ Life Satisfaction	.024	.008	.047	.025	.010	.047
Describe ➜ Gently Experience ➜ Committed Action ➜ Life Satisfaction	.010	.004	.022	.011	.004	.024
Describe ➜ Judging t/f/exp. ➜ Stuck in Inaction ➜ Life Satisfaction	.012	.004	.026	.012	.005	.026
Describe ➜ Stuck in t/f/exp. ➜ Stuck in Inaction ➜ Life Satisfaction	.019	.006	.040	.038	.016	.067
Describe ➜ Stuck in t/f/exp. ➜ Life Satisfaction	.048	.019	.089	.058	.025	.108
Observe ➜ Life Satisfaction						
Observe ➜ Gently Experience ➜ Committed Action ➜ Life Satisfaction	.013	.005	.026	.011	.004	.023
Attentive Awareness ➜ Life Satisfaction						
Sum of major indirect paths examined	.177	.119	.243	.180	.124	.247
Attentive Awareness ➜ Maintaining Perspective ➜ Contact with Values ➜ Life Satisfaction	.045	.019	.078	.042	.019	.074
Attentive Awareness ➜ Contact with Values ➜ Life Satisfaction	.076	.033	.131	.074	.032	.130
Attentive Awareness ➜ Maintaining Perspective ➜ Committed Action ➜ Life Satisfaction	.040	.014	.073	.048	.019	.084
Attentive Awareness ➜ Gently Experience ➜ Committed Action ➜ Life Satisfaction	.016	.006	.033	.016	.006	.032
Inattentive/Unaware ➜ Life Satisfaction						
Sum of major indirect paths examined	−.388	−.514	−.272	−.462	−.588	−.341
Inattentive/Unaware ➜ Judging t/f/exp. ➜ Stuck in Inaction ➜ Life Satisfaction	−.032	−.063	−.010	−.036	−.071	−.013
Inattentive/Unaware ➜ Stuck in t/f/exp. ➜ Stuck in Inaction ➜ Life Satisfaction	−.076	−.134	−.024	−.125	−.202	−.056
Inattentive/Unaware ➜ Stuck in t/f/exp. ➜ Life Satisfaction	−.188	−.292	−.088	−.195	−.307	−.090
Inattentive/Unaware ➜ Stuck in Inaction ➜ Life Satisfaction	−.092	−.167	−.028	−.107	−.178	−.048
Describe ➜ Depressive Symptoms						
Sum of major indirect paths examined	−.021	−.036	−.010	−.029	−.047	−.016
Describe ➜ Judging t/f/exp. ➜ Stuck in Inaction ➜ Depressive Symptoms	−.008	−.016	−.004	−.007	−.014	−.003
Describe ➜ Stuck in t/f/exp. ➜ Stuck in Inaction ➜ Depressive Symptoms	−.013	−.023	−.006	−.022	−.037	−.011
Inattentive/Unaware ➜ Depressive Symptoms						
Sum of major indirect paths examined	.130	.073	.192	.157	.100	.216
Inattentive/Unaware ➜ Judging t/f/exp. ➜ Stuck in Inaction ➜ Depressive Symptoms	.021	.011	.036	.021	.009	.037
Inattentive/Unaware ➜ Stuck in t/f/exp. ➜ Stuck in Inaction ➜ Depressive Symptoms	.049	.028	.077	.073	.046	.105
Inattentive/Unaware ➜ Stuck in Inaction ➜ Depressive Symptoms	.060	.033	.091	.062	.037	.095
Describe ➜ Losing Touch with Values						
Sum of major indirect paths examined	−.072	−.110	−.042	−.094	−.134	−.059
Describe ➜ Judging t/f/exp. ➜ Losing Touch with Values	−.044	−.074	−.022	−.041	−.071	−.020
Describe ➜ Stuck in t/f/exp. ➜ Losing Touch with Values	−.028	−.054	−.010	−.053	−.088	−.028
Inattentive/Unaware ➜ Losing Touch with Values						
Sum of major indirect paths examined	.223	.161	.289	.297	.228	.369
Inattentive/Unaware ➜ Judging t/f/exp. ➜ Losing Touch with Values	.114	.065	.170	.120	.061	.182
Inattentive/Unaware ➜ Stuck in t/f/exp. ➜ Losing Touch with Values	.109	.047	.171	.177	.112	.246

est = estimate; 99% CI = Confidence intervals estimated from bootstrapping 10,000 samples; t/f/exp = thoughts, feelings, and experiences

depressive symptoms, these indirect paths also emerged as statistically significant when their confidence intervals were tested with bootstrapping, supporting the hypothesized model.

As seen in Fig. 2D, the inattentive/unaware lens was directly predictive of losing touch with values (supporting Hypothesis 2). As seen in Fig. 2D and the final sections of Table 3, a number of additional indirect paths emerged in the model linking the lenses of describing thoughts and feelings, attentive awareness, and inattentive/unaware to losing touch with values via both judging uncomfortable thoughts/feelings/

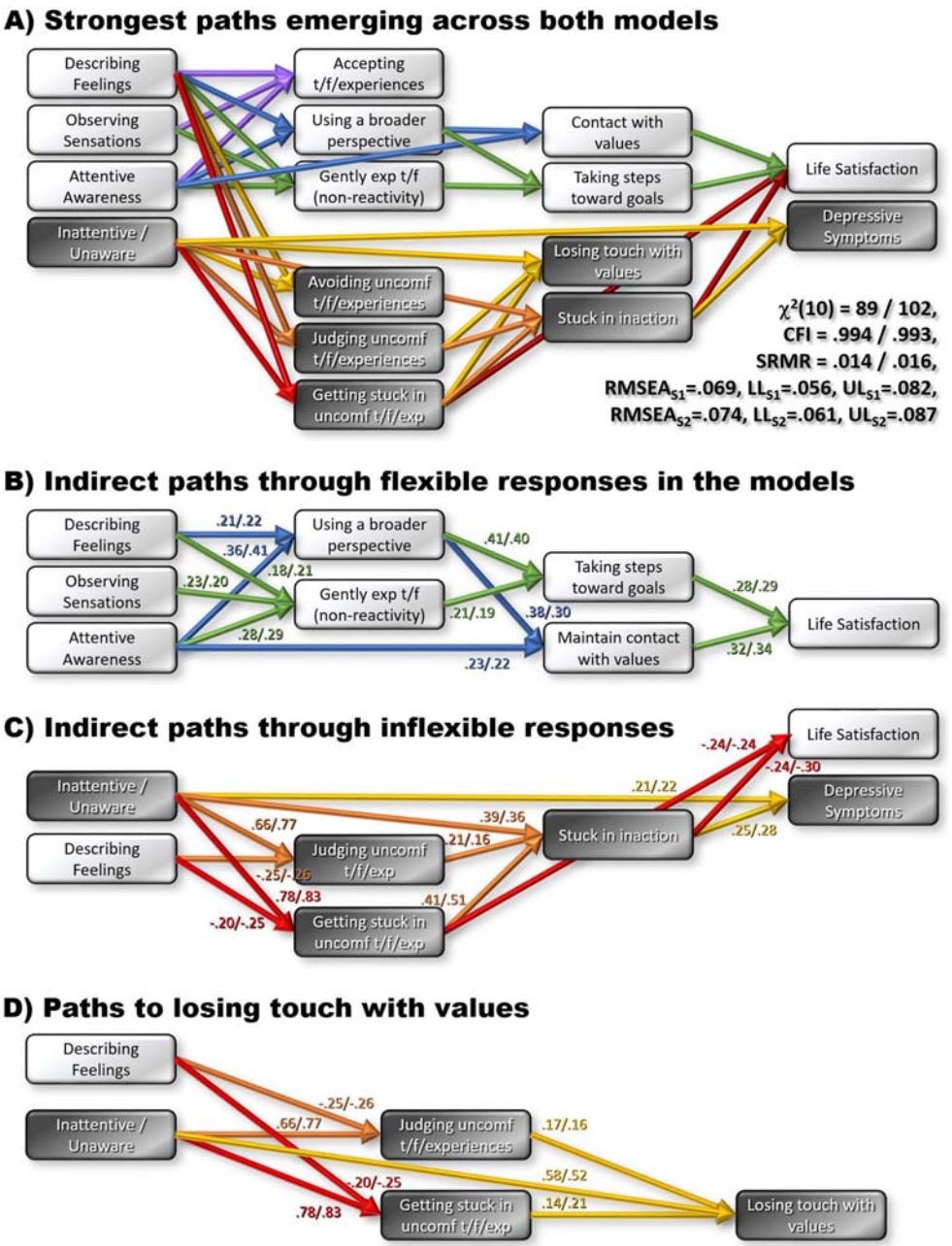

Fig. 2 Path Analysis Results Testing the Unified Flexibility and Mindfulness model. Unstandardized path coefficients are shown. In the interest of parsimony and clarity, only paths emerging significant at $p < .0005$ in both sample halves and with absolute magnitudes $\geq .15$ in both sample halves are shown, thereby focusing the figure on the most robust effects. t/f/exp = thoughts, feelings, and experiences; uncomf, uncomfortable. The fit statistics are shown for both sample halves

experiences and getting stuck in uncomfortable thoughts/feelings/experiences.

The Unified Flexibility and Mindfulness Scale

To facilitate future studies of the UFM model and to provide a preliminary clinical tool that could be used with clients in either ACT-based or mindfulness-based interventions, the current study sought to create a new scale by strategically combining the MPFI with components of the FFMQ. Although the MPFI assesses 12 of the 14 dimensions posited within the UFM model, it lacks subscales assessing two dimensions assessed by the FFMQ: observing physical and emotional sensations and describing thoughts/feelings/experiences. To create a scale comprehensively assessing the UFM model, we used the Item Response Theory (IRT; Hambleton et al. 1991) analyses within the current data to identify the 5 most effective/informative items from each of those FFMQ subscales (a process identical to that used to create and psychometrically optimize the MPFI; Rolffs et al. 2018). We specifically used Graded Response Modeling (Samejima 1997) within Multilog 7.0 (Thissen et al. 2002) to evaluate the precise quality of discriminating information provided by each item, offering insights into how those items will function beyond what can be obtained via correlational methods like factor analysis alone. IRT specifically allows the identification

of the most effective items for assessing a construct among a set of items by creating information profiles for each item. Thus, IRT can often be used to shorten scales without a marked loss of information. Such IRT-optimized scales have not only been shown to have greater precision and power for detecting meaningful differences between participants (e.g., Funk and Rogge 2007), but have also been linked to an enhanced ability to detect meaningful change over time, yielding stronger treatment effects when used as outcome measures (Rogge et al. 2017). IRT analyses were therefore used to identify the 5 most effective/informative items from the FFMQ observed and described subscales, and within each of those, the two most informative items. This created shorter versions of those scales that could be used with the 24-item and 60-item versions of the MPFI when wanting to comprehensively assess the 14 dimensions of the UFM model within research settings that might not be able to accommodate longer versions of those two scales (e.g., weekly assessments of treatment processes, daily diary studies, experiential momentary assessment studies), creating the 28-item and 70-item versions of the UFM scale.

To further validate the UFM scale, an exploratory factor analysis (EFA) in one random sample half ($n = 1363$) and a confirmatory factor analysis (CFA) were run in the other sample half ($n = 1379$) to evaluate the stability of the factor structure of the 70-item UFM scale at an item level. The EFA was run with Principal Axis Factoring extraction and Direct Oblimin rotation (to allow the factors to correlate) using SPSS 23.0. When the expected 14 factors were specified, the solution accounted for 79.9% of variance in the item-to-item correlation matrix and all 14 subscales emerged as distinct factors, with the individual items showing appropriately strong correlations with their respective factors (from 0.66 to 0.93, M = 0.85) and correspondingly strong path coefficients (Table 4). In contrast, when greater numbers of factors were specified, only 14 factors emerged with items loading on them. When fewer numbers of factors were specified, increasing numbers of items demonstrated poor loadings (below .4). Thus, the EFA results supported the 14-subscale structure of the UFM scale. The CFA was run with Full-Information Maximum Likelihood Estimation in the other half of the sample ($n = 1379$) using Mplus 7.11. A CFA model specifying the 14 subscales of the UFM scale demonstrated excellent fit: χ^2 (2254) = 7102, $p < 0.0005$, CFI = 0.951, TLI = 0.947, SRMR = 0.035, RMSEA = 0.04, 90% CI LL = 0.038, and UL = 0.041. Within this model, each of the 70 items demonstrated an appropriately strong path loading onto its corresponding factor (from 0.62 to 0.94, see Table 4), cross-validating the factor structure.

To ensure the appropriateness of using the UFM scale across a diverse array of future populations, Cronbach's alphas were estimated for all 14 subscales across demographic subsamples. These analyses suggested that all 14 subscales remained highly internally consistent across the 22 subsamples tested, yielding Cronbach's alphas ranging from 0.849 to 0.972 (M = .931, SD = .023) across gender (male, female), race (White, Black, Asian, Biracial/other), ethnicity (non-Latinx, Latinx), age (18–29 years old, 30–49 years old, 50–85 years old), education (high school or less, some college or associates degree, bachelor's degree, graduate degree), income (0–$20 k, $20–$60 k, $60–$100 k, over $100 k), and meditation (no current, infrequent, regular) groups (see supplemental Table S3). Thus, the UMM subscales' basic psychometric properties were robust, remaining consistent across a diverse range of populations.

To further validate the use of the UFM scale across various populations, we ran measurement invariance analyses following current guidelines (see Vandenberg and Lance 2000) within Mplus 7.11. Thus, we ran sets of nested models on the item of the UFM scale testing configural, metric, scalar, full uniqueness, and structural invariance of its 70 items and its 14-subscale structure by implementing increasing numbers of constraints across gender, age, and levels of meditation practice groups. As shown in Table 5, these models not only continued to demonstrate adequate fit across the increasingly stringent tests but demonstrated only nominal increases in RMSEA and CFI, suggesting that the items of the UFM scale functioned nearly identically across the groups tested and the subscales correlated with one another in a highly similar manner across those groups. Thus, the UFM scale demonstrated robust measurement and structural invariance, supporting the direct comparison of scores across these groups.

The correlations presented in Table 1 reveal generally low to moderate correlations among the UFM subscales. These correlations support the discriminant validities of those 14 UFM subscales, supporting their use as distinct forms of mindfulness in future research and clinical applications.

Criterion Validity of the UFM Scale: Capturing Real-World Variance in Mindfulness

Within the current sample, 628 respondents practiced meditation at least once per week, 581 meditated infrequently (rarely to just a few times a month), and 1526 did not currently meditate. Of the 628 regular meditators, 609 provided details on the form of meditation they practiced: 68 practiced some form of Buddhist-informed meditation (e.g., samatha, vipassana, Zen, transcendental), 92 practiced meditation based on movement (e.g., yoga, walking meditation, Tai Chi), and 449 practiced less-specific forms (e.g., guided visualization, relaxation, quite time, prayer, deep breathing). To extend the path model results, we examined how the UFM scale might capture variance in the process of cultivating mindfulness by examining differences across these groups. As seen in Fig. 3A, a series of ANOVAs uncovered significant differences (at $p \leq .001$)

Table 4 Results of exploratory and confirmatory factor analyses on the items of the UFM scale run in separate random sample halves

Stage of UFM model UFM subscale UFM item text	EFA pattern coeff**	CFA path coefficients β	 SE
Stage 1: Mindful lenses			
Describing thoughts/feelings			
* I was good at finding the words to describe my feelings	.74	.82	.011
* I was easily able to put my beliefs, opinions, and expectations into words	.72	.83	.010
Even when I was feeling terribly upset, I found a way to put it into words	.70	.83	.010
My natural tendency was to put my experiences into words	.79	.79	.012
I could usually describe how I felt at the moment in considerable detail	.86	.86	.009
Observing sensations			
* I paid attention to sensations, such as the wind in my hair or sun on my face	.88	.88	.009
* I noticed visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow	.77	.81	.011
When I took a shower or a bath, I stayed alert to the sensations of water on my body	.62	.73	.015
I paid attention to sounds such as clocks ticking, birds chirping, or cars passing	.84	.84	.010
I paid attention to how my emotions affected my thoughts and behavior	.48	.62	.019
Attentive awareness			
* I was attentive and aware of my emotions	.83	.86	.008
* I was in tune with my thoughts and feelings from moment to moment	.78	.86	.008
I paid close attention to what I was thinking and feeling	.71	.82	.010
I was in touch with the ebb and flow of my thoughts and feelings	.87	.90	.007
I strived to remain mindful and aware of my own thoughts and emotions	.63	.78	.012
Inattention/distraction			
* I did most things on "automatic" with little awareness of what I was doing	.77	.83	.009
* I did most things mindlessly without paying much attention	.96	.94	.004
I went through most days without paying much attention to what I was thinking or feeling	.82	.85	.008
I floated through most days without paying much attention	.91	.91	.005
Most of the time, I was just going through the motions without paying much attention	.87	.91	.006
Stage 2: Mindful responses/reactions to difficult thoughts/feelings/emotions			
Acceptance			
* I was receptive to observing unpleasant thoughts and feelings without interfering with them	.83	.87	.008
* I tried to make peace with my negative thoughts and feelings rather than resisting them	.65	.84	.009
I made room to fully experience negative thoughts and emotions, breathing them in rather than pushing them away	.83	.82	.010
When I had an upsetting thought or emotion, I tried to give it space rather than ignoring it	.84	.86	.008
I opened myself to all of my feelings, the good and the bad	.65	.83	.009
Maintaining a broader perspective (self-as-context) in the face of difficult thoughts/feelings			
* Even when I felt hurt or upset, I tried to maintain a broader perspective	.90	.91	.006
* I carried myself through tough moments by seeing my life from a larger viewpoint	.72	.84	.009
I tried to keep perspective even when life knocked me down	.71	.82	.010
When I was scared or afraid, I still tried to see the larger picture	.86	.89	.007
When something painful happened, I tried to take a balanced view of the situation	.82	.89	.007
Gently experiencing difficult thoughts/feelings			
* I was able to let negative feelings come and go without getting caught up in them	.81	.89	.007
* When I was upset, I was able to let those negative feelings pass through me without clinging to them	.85	.89	.007
When I was scared or afraid, I was able to gently experience those feelings, allowing them to pass	.76	.86	.008
I was able to step back and notice negative thoughts and feelings without reacting to them	.78	.83	.010
In tough situations, I was able to notice my thoughts and feelings without getting overwhelmed by them	.73	.85	.009
Experiential avoidance of difficult thoughts/feelings			
* When I had a bad memory, I tried to distract myself to make it go away	.86	.82	.010
* I tried to distract myself when I felt unpleasant emotions	.88	.90	.006
When unpleasant memories came to me, I tried to put them out of my mind	.92	.87	.008
When something upsetting came up, I tried very hard to stop thinking about it	.83	.89	.007
If there was something I did not want to think about, I would try many things to get it out of my mind	.77	.86	.008
Judging difficult thoughts/feelings			
* I thought some of my emotions were bad or inappropriate and I should not feel them	.80	.88	.007
* I criticized myself for having irrational or inappropriate emotions	.75	.88	.007
I believed some of my thoughts are abnormal or bad and I should not think that way	.87	.89	.007
I told myself that I should not be feeling the way I'm feeling	.89	.92	.005
I told myself I should not be thinking the way I was thinking	.87	.93	.004
Getting stuck in difficult thoughts/feelings			
* Negative thoughts and feelings tended to stick with me for a long time	.78	.89	.006
* Distressing thoughts tended to spin around in my mind like a broken record	.91	.92	.005
It was very easy to get trapped into unwanted thoughts and feelings	.84	.92	.005
When I had negative thoughts or feelings, it was very hard to see past them	.68	.92	.005

Table 4 (continued)

Stage of UFM model UFM subscale UFM item text	EFA pattern coeff**	CFA path coefficients β	 SE
When something bad happened, it was hard for me to stop thinking about it	.75	.89	.006
Stage 3: Mindful value-driven actions in the face of difficult experiences			
Maintaining daily contact with deeper values/priorities			
* I was very in touch with what is important to me and my life	.47	.83	.010
* I stuck to my deeper priorities in life	.49	.84	.009
I tried to connect with what is truly important to me on a daily basis	.62	.84	.009
Even when it meant making tough choices, I still tried to prioritize the things that were important to me	.39	.84	.009
My deeper values consistently gave direction to my life	.44	.82	.010
Taking steps toward goals despite difficult thoughts/feelings/experiences			
* Even when I stumbled in my efforts, I did not quit working toward what is important	.70	.85	.008
* Even when times got tough, I was still able to take steps toward what I value in life	.77	.91	.006
Even when life got stressful and hectic, I still worked toward things that were important to me	.82	.90	.006
I did not let setbacks slow me down in taking action toward what I really want in life	.80	.86	.008
I did not let my own fears and doubts get in the way of taking action toward my goals	.71	.82	.010
Losing touch with deeper values/priorities			
* My priorities and values often fell by the wayside in my day-to-day life	.74	.85	.008
* When life got hectic, I often lost touch with the things I value	.83	.90	.006
The things that I value the most often fell off my priority list completely	.86	.89	.007
I did not usually have time to focus on the things that are really important to me	.61	.79	.011
When times got tough, it was easy to forget about what I truly value	.75	.88	.007
Getting stuck in inaction by difficult thoughts/feelings/experiences			
* Negative feelings often trapped me in inaction	.66	.92	.005
* Negative feelings easily stalled out my plans	.70	.94	.004
Getting upset left me stuck and inactive	.74	.94	.004
Negative experiences derailed me from what's really important	.61	.92	.005
Unpleasant thoughts and feelings easily overwhelmed my efforts to deepen my life	.57	.92	.005

The EFA was run with Principal Axis Factoring extraction and Direct Oblimin rotation (to allow the factors to correlate) in half ($n = 1363$) of the respondents using SPSS 23.0. **The EFA pattern coefficients presented represent how each item loads on the factor corresponding to its subscale (i.e., showing each item's strongest loading). The CFA was run with Full-Information Maximum Likelihood Estimation in the other half of the sample ($n = 1379$) using Mplus 7.11. The CFA model demonstrated excellent fit: χ^2 (2254) = 7102, $p < .0005$, CFI = .951, TLI = .947, SRMR = .035, RMSEA = .04, 90% CI LL = .038, UL = .041. The CFA path coefficients presented are the standardized estimates. * identifies the two most informative items of each subscale as assessed by IRT information curves to allow for a 28-item version of the scale. A handout detailing the UFM scale is available at www.couples-research.com/measures/ and the scale can be administered to clients and scored via the MindFlex Assessment System (see www.mindflex.org for details)

between the non-meditators and the regular meditators on 12 of the 14 UFM dimensions as well as on the global composites of mindfulness and mindlessness. Tukey post hoc analyses revealed group differences (indicated by differing letters between means plotted within each of the vertical columns of Fig. 3A), suggesting that the individuals regularly practicing some specific form of Buddhist meditation or movement-based meditation reported significantly higher levels of flexible mindfulness across the 8 positively worded UFM subscales than non-meditators. Although the individuals regularly practicing Buddhist-informed forms of meditation also reported significantly lower levels of experiential avoidance and judging uncomfortable experiences than non-meditators, fewer significant differences emerged on the 6 negatively worded UFM subscales and individuals practicing movement-based meditation reported significantly higher inflexible mindlessness than the individuals practicing forms of Buddhist meditation. Taken as a set, these results reveal specificity for the UFM subscales, suggesting that they are sensitive to the cultivation of mindfulness associated with Buddhist meditation and thereby supporting the criterion validity of the UFM subscale scores.

Given its length and complexity, the UFM scale has also recently been incorporated into an online assessment system originally centered around making the UFM available to clinicians conducting ACT-based and mindfulness-based interventions. The MindFlex Assessment system (www.mindflex.org) includes the UFM scale within a comprehensive and empirically grounded assessment of individual functioning in the form of a 15–20-min online survey, generating normed and standardized profiles (1) showing baseline levels of individual functioning and (2) tracking clinically significant change during treatment (via the Reliable Change indices of each scale; Jacobson and Truax 1991). To exemplify the type of information that can be obtained, Fig. 3 presents a hypothetical MindFlex profile created as a composite from several

Table 5 *Measurement Invariance Analyses on the UFM Scale*

Groups examined								Change from prior model	
Model #	Model description	df	χ^2	CFI	TLI	SRMR	RMSEA	ΔRMSEA	ΔCFI
Testing MI across gender identities [male vs. female]									
0	Item-to-item covariance matrix invariance	2485	5347.6	.985	.971	.079	.029		
1	Configural [*weak* factorial] invariance	4510	14,023.7	.950	.947	.040	.039		
2	Metric [*strong* factorial] invariance	4580	14,256.9	.950	.947	.049	.039	.000	.000
3	Scalar [equivalent scores] invariance	4650	14,723.8	.948	.945	.049	.040	.001	−.002
4	Full uniqueness [*stringent*] invariance	4720	15,851.6	.942	.941	.050	.042	.002	−.006
5	Factor covariance [*structural*] invariance	4811	16,425.4	.939	.939	.090	.042	.000	−.003
Testing MI across age groups [18–29 vs. 30–49 vs. 50–75]									
0	Item-to-item covariance matrix invariance	4970	10,116.7	.971	.958	.086	.035		
1	Configural [*weak* factorial] invariance	6764	16,656.0	.945	.941	.039	.041		
2	Metric [*strong* factorial] invariance	6904	17,101.0	.943	.941	.062	.041	.000	−.002
3	Scalar [equivalent scores] invariance	7044	17,983.2	.939	.938	.065	.043	.002	−.004
4	Full uniqueness [*stringent*] invariance	7184	20,325.8	.927	.926	.066	.046	.003	−.012
5	Factor covariance [*structural*] invariance	7366	21,106.9	.924	.925	.094	.047	.001	−.003
Testing MI across meditation practice [never vs. infreq. vs. freq.]									
0	Item-to-item covariance matrix invariance	4970	8106.9	.984	.976	.050	.026		
1	Configural [*weak* factorial] invariance	6764	17,324.5	.945	.941	.043	.041		
2	Metric [*strong* factorial] invariance	6904	17,645.2	.944	.941	.056	.041	.000	−.001
3	Scalar [equivalent scores] invariance	7044	18,063.3	.943	.941	.065	.041	.000	−.001
4	Full uniqueness [*stringent*] invariance	7184	18,622.8	.941	.940	.065	.042	.001	−.002
5	Factor covariance [*structural*] invariance	7366	19,131.3	.939	.940	.074	.042	.000	−.002

MI = measurement invariance. All models evaluated the 70 items of the UFM scale loading onto 14 correlated latent factors and were run in Mplus 7.11 using Full-Information Maximum Likelihood estimation. The models were constructed following the guidelines established in Vandenberg and Lance (2000). A handout detailing the UFM scale is available at www.couples-research.com/measures/ and the scale can be administered to clients and scored via the MindFlex Assessment System (see www.mindflex.org for details)

clients helping to pilot this system. As seen in Fig. 3, the hypothetical profile identifies a significant drop in the use of an inattentive/unaware lens, and corresponding drops in getting stuck in uncomfortable feelings and the life-diminishing forms of behavior (i.e., losing touch with deeper values and getting stuck in inaction). These changes were associated with a notable changes in clinically relevant outcomes (e.g., an increase in the client's sense of autonomy and a marked decrease in depressive symptoms). Thus, the profile presented in Fig. 3 provides an example of how the UFM model (as assessed with the UFM scale within the MindFlex Assessment system) could help to clarify processes of change even within individual clients.

Discussion

Building on previous work examining the processes of mindfulness (e.g., Brown et al. 2015; Shapiro et al. 2006) and the mechanisms linking mindfulness to psychological health (e.g., Alleva et al. 2014; Coffey and Hartman 2008; McDonald et al. 2016; Prakash et al. 2015), the current study proposed a Unified Flexibility and Mindfulness model, offering an expanded conceptual framework to broaden our understanding of the process of cultivating mindfulness in daily life that is more directly aligned with the rich and complex conceptualization of mindfulness within Buddhist teachings. Whereas previous models conceptualized decentering or reperceiving as a meta-mechanism (Shapiro et al. 2006), the current model conceptualizes that construct as a set of more specific, interrelated mindfulness processes. The results in a large-scale online sample were consistent with the proposed process model. Although a handful of more direct paths emerged between mindful/mindless lenses and the later stages of the model (supporting Hypotheses 2 and 3), much of the prediction occurred via the indirect, multistage, process-orientated mechanisms proposed by the model. The UFM model therefore provides researchers and clinicians with an expanded conceptual framework identifying specific mechanistic pathways linking various aspects of mindfulness to psychological health, taking a critical initial step to explain how those various processes might be working with one another. The associated UFM scale provides researchers and clinicians with a concrete method of assessing the components of the

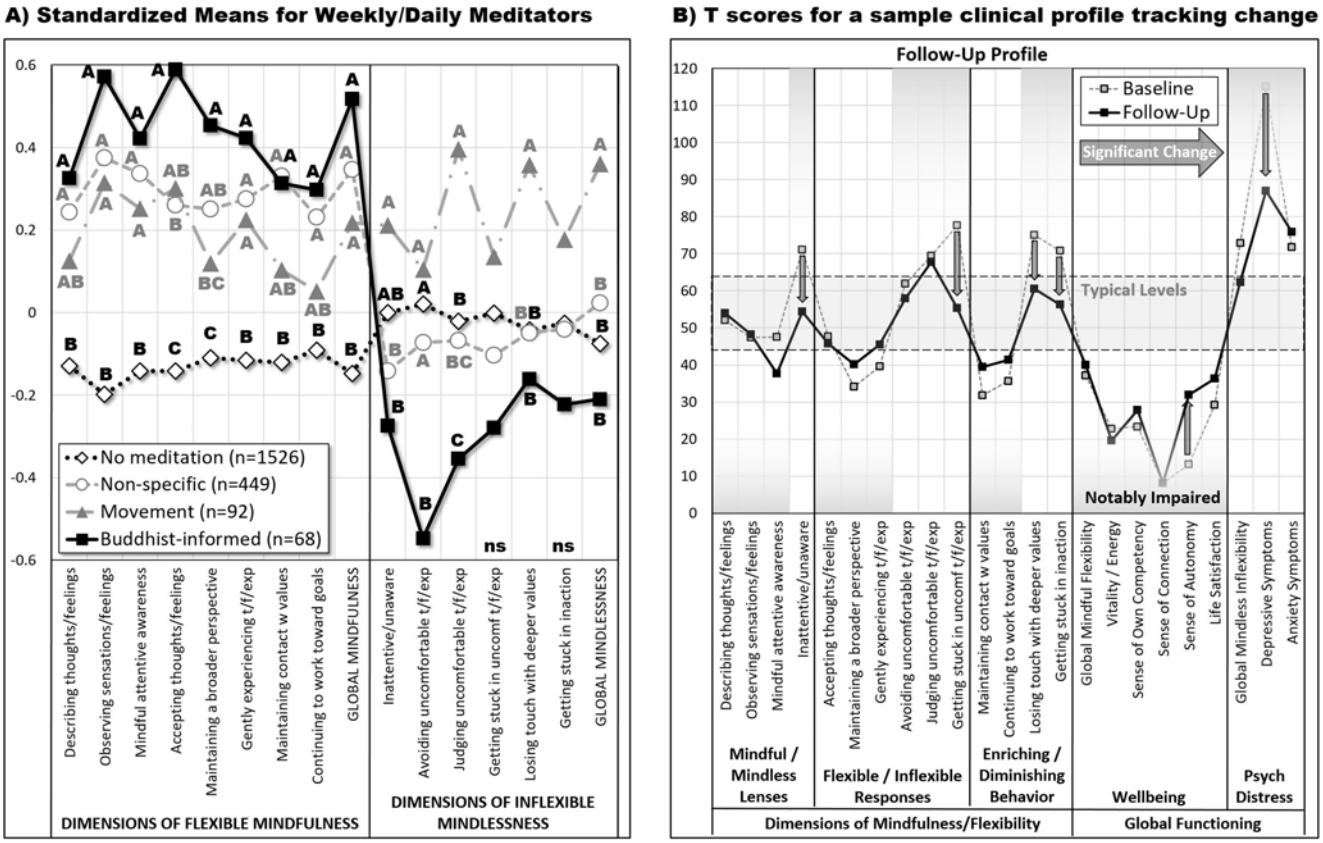

Fig. 3 Examining UFM scores in individuals practicing meditation (panel A) and in a composite client receiving treatment (panel B). The letters in panel A reflect the results of Tukey post hoc analyses following ANOVA results significant at $p \leq .001$. Different letters in a vertical column of means indicate significant differences between groups, whereas shared letters between means indicate a lack of significant differences. Panel B presents a hypothetical follow-up profile based on a composite of several clients helping to pilot the MindFlex Assessment System. The profile plots T scores (M = 50, SD = 10) for each dimension based on normative data. Thus, scores above 60 or below 40 represent notable strengths or challenges for a client. The bolded arrows indicate significant individual change as assessed with the Reliable Change Index (Jacobson and Truax 1991) for each scale. t/f/exp. = thoughts, feelings, and experiences

UFM model to comprehensively track the process of cultivating mindfulness.

Implications

Integrating Literatures In response to calls for the integration of the mindfulness and psychological flexibility literatures (e.g., Kashdan and Rottenberg 2010) and separate calls for an organizing conceptual framework to understand the process of change in mindfulness and ACT-based therapies (e.g., McCracken and Vowles 2014), the current study represents a data-driven effort to offer a unifying conceptual framework that integrates the unique constructs developed in both literatures into a multistage process model for understanding links between mindfulness and well-being. The UFM model offers both ACT and mindfulness clinicians and researchers a method of organizing the dimensions of mindfulness and flexibility validated within those literatures into a larger conceptual picture that can inform both their clinical work as well as future research.

Flexible Mindfulness as a Mechanism The UFM model helps to delineate lenses that shape individuals' approach toward life from the flexible and inflexible responses they might engage in response to unwanted or difficult thoughts and feelings. Thus, although it might be possible to engage high levels of flexible responding in the absence of mindful lenses, the current results are consistent with previous work (e.g., McDonald et al. 2016; Prakash et al. 2015), suggesting that the various mindful lenses examined might help to promote flexible responding (e.g., being able to describe one's thoughts and feelings facilitates maintaining a broader perspective when experiencing a difficult feeling). The results further suggest that flexible responding might influence well-being primarily by shaping life-enriching behaviors that represent mindfulness in action within daily life. This three-stage process offers a conceptual foundation for investigating the processes responsible for the sizeable treatment gains observed for both mindfulness-based and ACT interventions. Consistent with this, previous work has identified specific dimensions of mindfulness within the UFM framework as

potential mechanisms (typically examined one at a time in isolation from one another) explaining treatment benefits from mindfulness-based interventions (Alsubaie et al. 2017; van der Velden et al. 2015) and ACT-based interventions (e.g., Forman et al. 2007; Kocovski et al. 2015; Hayes et al. 2006). The UFM model advances this work beyond its current focus by offering a multistage framework for organizing the examination of treatment mechanisms, thereby explaining how some treatment processes might naturally feed into others over the course of treatment.

Broadening the scope of this discussion, the components within the unified model might even help to identify therapeutic processes that are common to a range of therapies beyond just mindfulness and ACT-based interventions. For example, it is likely that the ability to gently experience difficult feelings and to maintain a broader perspective in the midst of uncomfortable feelings would be useful in most forms of insight-oriented therapy. Future work could even seek to apply the UFM model to clarify links between mindfulness and family functioning (e.g., Daks et al. 2020; Miklósi et al. 2017; Parent et al. 2010) or romantic relationship functioning (e.g., Barnes et al. 2007; Khaddouma and Gordon 2018; see Daks and Rogge 2020 for a review). Although a handful of studies examining mindfulness in romantic relationships have begun to examine possible mediators (e.g., Khaddouma et al. 2014, 2015), the current results offer a framework to extend that work as they are the first to offer a comprehensive, multistage process model to understand how mindfulness can influence lives.

Specificity of Mechanisms Although there was a small degree of cross-prediction between mindful/flexible/enriching processes and mindless/inflexible/diminishing processes, the results predominantly suggested two sets of parallel pathways. This is consistent with findings linking flexibility to adjustment following a traumatic event (e.g., Bonanno et al. 2004). It is also consistent with recent meta-analytic findings from the emotion regulation literature suggesting that maladaptive emotion regulation strategies were more strongly linked to psychopathology than adaptive strategies (Aldao et al. 2010). This begins to suggest some specificity in how the components of the UFM model are linked to outcomes. Thus, reducing clients' engagement of an inattentive lens, inflexible responses, and life-diminishing forms of behavior might be more strongly linked to reductions of psychological distress, whereas promoting mindful lenses, flexible responses, and life-enriching forms of behavior could be more strongly linked to gains in well-being. Thus, these results could allow clinicians using the UFM scale with their clients to potentially tailor the focus of their sessions to the needs of individual clients.

Informing Mindfulness Research Although the current results are consistent with previous work highlighting links between mindfulness and individual well-being (for reviews, see Giluk 2009; Grossman et al. 2004; Tomlinson et al. 2018), these results are some of the first to test a three-stage, process-oriented model assessing a comprehensive set of mechanisms. Thus, the current findings are consistent with previous work identifying emotion regulation deficits and rumination as mechanisms linking mindfulness to psychological health (e.g., Alleva et al. 2014; Coffey and Hartman 2008; McDonald et al. 2016; Prakash et al. 2015) and extend that work by identifying 6 distinct mindful and mindless emotion regulation strategies that allow or inhibit individuals from effectively decentering from difficult thoughts, feelings, and experiences—deconstructing the process of decentering into a number of its component parts. The UFM framework also introduces an entirely new stage of constructs: life-enriching/life-diminishing behaviors that put mindfulness in action. These stage 3 facets of mindfulness mediated links between the stage 2 responses to difficult experiences and psychological health, and yet they have received relatively little attention in the mindfulness literature. Thus, the current results serve to highlight the critical importance of being able to maintain contact with one's deeper values and to be able to take meaningful steps toward one's goals even in the face of setbacks and suffering, opening up a new area for inquiry within the mindfulness literature. It is also possible that additional mechanisms play meaningful roles linking mindful responses to difficult experience to individual functioning. In fact, given the robust links between the mindful/mindless responses to difficult experiences and individual well-being (see Mattes 2019 for a meta-analytic review), those aspects of decentering within the UFM model could also directly impact aspects of individual functioning not examined in the current study (e.g., peace of mind, psychological need satisfaction, vitality), highlighting further lines of future inquiry.

Informing Flexibility Research Although the current results are consistent with results linking psychological flexibility to well-being (for reviews, see Kashdan and Rottenberg 2010; Levin et al. 2012), these are the first findings to organize those results into a multistage, process-oriented model. The bulk of the process-oriented work in the ACT literature has used single-dimension scales like the AAQ-II or the MAAS (e.g., Fledderus et al. 2013; Hawkes et al. 2014). The UFM framework therefore extends this line of process-oriented research, allowing mindfulness and ACT researchers to incorporate the full complexity of the unified model in their work. The current results begin to suggest that in much the same way that Buddhist meditation practice begins with *samatha* (a fundamental breathing meditation), mindful lenses might represent critical skills with notable positive downstream effects on other forms of psychological flexibility, helping to promote more

adaptive forms of responses to uncomfortable thoughts and feelings and encouraging more life-enriching behaviors linked to greater well-being.

Facilitating Use of the UFM Scale A handout detailing the 70-item and 28-item versions of the UFM scale is available on the lab website of the first author (www.couples-research.com/measures/). To further disseminate the UFM scale and facilitate its administration, scoring, norming, and interpretation in clinical settings, the authors have developed and are in the process of piloting an online system that incorporates the UFM scale with measures of psychopathology (depressive and anxiety symptoms) and well-being (vitality, life satisfaction, and the satisfaction of the basic psychological needs of competency, autonomy, and relatedness). Thus, the MindFlex Assessment system (www.mindflex.org) offers therapists a comprehensive and empirically grounded method of assessing baseline functioning as well as tracking change over time in their clients (see Fig. 3) on 14 different forms of mindfulness typically targeted within ACT and Mindfulness-based interventions. In addition to potentially helping to quantitatively inform their case conceptualizations and treatment plans with individual clients, MindFlex profiles also provide concrete quantitative data for therapists to track the progress of treatment both within and across clients.

Limitations and Future Research Directions

The current study represents an effort to broaden the conceptualization of mindfulness by integrating psychological flexibility within a unified framework of mindfulness. Despite this contribution, the results of the current study are limited by a number of factors. First, the analyses presented were entirely cross-sectional, rendering the direction of causality unclear. Although it is likely that the various classes of processes identified in the model could be transactionally related to one another (i.e., exerting reciprocal influence on one another across time), future research will need to use longitudinal and/or experimental paradigms to help clarify the directions of causality within the unified model. Second, the analyses were conducted within a community sample, raising the possibility that they might not generalize to clinical populations of individuals with mental health diagnoses. Although the sample contained 494 individuals with clinically significant levels of depressive symptoms (as assessed by the clinical cut-scores of PHQ-9), future work will need to evaluate the UFM model in clinical populations to further verify its clinical utility. Third, the sample was predominantly female (68%) and White (81%), potentially limiting the generalizability of the findings beyond those groups. Although the sheer size of the sample allowed for model invariance analyses suggesting robust generalizability of the current findings, future work will need to test the unified model in more diverse samples to ensure the generalizability of the current findings. Fourth, the findings presented were based entirely on self-report data, raising concerns about both levels of self-awareness and insight, particularly in non-meditators as they might interpret the items differently (see Grossman and Van Dam 2011). Although the UFM subscale scores demonstrated significant differences between individuals regularly practicing Buddhist-informed meditation and non-meditating individuals, future work could (1) incorporate behavioral observation and (2) multiple-informant paradigms and (3) examine this model in large populations of individuals practicing Buddhist meditation to more directly evaluate the degree to which the current results and the unified model truly capture the process of cultivating mindfulness. Fifth, as the data was entirely self-report, the correlational findings could have been inflated by common method biases like response styles, social desirability, and priming effects (e.g., Podsakoff et al. 2003), further supporting the diversification of methods in future studies. Finally, despite being derived from scales common to both the mindfulness and ACT literatures, the UFM scale requires further validation. Future work should examine the UFM scale in direct comparison to other measures of mindfulness with differing conceptual foundations like the Toronto Mindfulness Scale (TMS; Lau et al. 2006), the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R; Feldman et al. 2007), and the Southampton Mindfulness Questionnaire (SMQ; Chadwick et al. 2008) to further evaluate its convergent and discriminant validities as well as its psychometric properties over time.

Authors' Contributions R.R. developed the study concept and collaborated with J.D. on the study design, IRB approval, online implementation, and recruitment of the sample. R.R. performed the data analyses and drafted the manuscript. Both authors provided critical revisions, approved the final version of the manuscript for submission, and are responsible for its content. Both authors agree to the order of authorship.

Compliance with Ethical Standards

The study and all of its materials were evaluated and approved by a university IRB, and the study was conducted following those ethical guidelines. Informed consent was obtained on the first webpage of the survey via an information letter.

Conflict of Interest The authors declare that they have no conflicts of interest.

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