

Dispositional Mindfulness and Stress Coping Amid the COVID-19 Pandemic: An Exploration of Problem-Focused Mediators

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Abstract

The psychological phenomenon of mindfulness – a nonjudgmental attention to and awareness of one’s present experience – has been linked to effective coping with a range of situational stressors such as the transition to college, romantic relationships, and cancer. However, the potential mediating role of problem-focused coping strategies in predicting these outcomes has not been sufficiently addressed. In the current study we rectified this void in the literature by testing several problem-focused mechanisms for mindfulness’s relationship with situational stress coping in college undergraduates affected by the current COVID-19 pandemic. Using a correlational design, we tested whether: (1) dispositional mindfulness would predict less stress, less negative affect, and greater positive affect in the face of stressors manifested by the COVID-19 pandemic and (2) several problem-focused coping strategies would mediate the zero-order relationships between mindfulness and these criterion variables. We collected self-reports of all study variables from college students enrolled in the principal investigator’s undergraduate psychology courses via an online questionnaire. Results supported the expected associations between mindfulness and each of the well-being variables and partially supported the mediational hypotheses, with two out of the proposed five problem-focused strategies serving as statistically significant mediators. These results suggest that in addition to the primarily cognition-based mechanisms examined in previous research, mindfulness may also confer resistance to negative emotional states through adaptive behavior-based coping strategies.

Keywords: mindfulness, coping strategies, stress reduction, COVID-19, stress coping

Although there is no single integrated model that unanimously defines the psychological concept of mindfulness or describes its mechanistic relationship to enhanced well-being (Chiesa, 2013; Holzel et al., 2011; Khoury et al., 2017), there is general consensus that it can be essentially characterized as a nonjudgmental attention to and awareness of one’s present experience (Brown &

Ryan, 2003; Brown et al., 2007). Fundamentally, the mindful individual is not “lost in thought” reliving the past, anticipating the future, entertaining counterfactual or hypothetical scenarios, or perseverating about the self, but rather fully attuned to his or her current sensations (visual, auditory, tactile, etc.) and the thoughts that arise in relation to those sensations in real time.

What Are the Benefits of Mindfulness?

Many studies throughout multiple contextual frameworks have explored the myriad of beneficial psychological outcomes associated with mindfulness (Tomlinson et al., 2017). The results of these studies indicate that both dispositional and situationally induced mindfulness predict a range of beneficial clinical outcomes, including anxiety (Kabat-Zinn et al., 1992; Miller et al., 1995), depressive symptoms and relapse (Strauss et al., 2014), and subjective stress (Chiesa & Serretti, 2009). Furthermore, as Keng et al. (2011) point out, dispositional mindfulness has specifically been linked to numerous psychological health benefits including life satisfaction (Brown & Ryan, 2003), conscientiousness (Giluk, 2009; Latzman & Masuda, 2013; Thompson & Waltz, 2007), self-esteem (Brown & Ryan, 2003; Rasmussen & Pidgeon, 2011), agreeableness (Thompson & Waltz, 2007), empathy (Dekeyser et al., 2008), competence, and optimism (Brown & Ryan, 2003).

In addition to the clinical benefits and positive psychological outcomes associated with this multifaceted construct, mindfulness has also been shown to aid in the process of coping with specific stressors, such as the transition to college (Palmer & Rodger, 2009; Ramasubramanian, 2016), romantic relationships (Carson et al., 2004), and cancer (Kang & Oh, 2012). More recently, a study of middle-aged adults in Italy showed a negative relationship between dispositional mindfulness and overall psychological distress during the COVID-19 pandemic (Conversano et al., 2020).

How Does Mindfulness Aid in Stress Coping?

In addition to the zero-order relationships observed between the mindful state and effective stress coping, a number of studies have implicated multiple clusters of emotion regulation mechanisms as potential mediators of the mindfulness-subjective stress relationship (Baer et al., 2006; Corcoran et al., 2010; Farb et al., 2012; Guendelman et al., 2017; Iani et al., 2018; Keng et al.,

2011). Investigators have proposed that various facets of mindfulness promote adaptive emotion regulation (cognitive responses) by facilitating flexibility of emotion reactivity through multiple pathways (Corcoran et al., 2010; Farb et al., 2012; Garland et al., 2017; Iani et al., 2018). Specifically, non-judgmental acceptance is thought to foster a reduction of initial automatic appraisals which may reduce emotional suppression, avoidance, and cognitive distortion (Garland, 2015; Iani et al., 2018). Furthermore, the unique relationship with thoughts and emotions unique to mindfulness is thought to establish psychological distance (Grecucci et al., 2015) and interfere with habitual cognitive response cycles (Corcoran et al., 2010; Farb et al., 2012; Garland et al., 2017), which would otherwise perpetuate rumination and over-reactivity (Iani et al., 2018). Shapiro et al. (2006) posit that the clarity afforded by cognitive inhibition, enhanced self-regulation, and cognitive-behavioral flexibility may conspire to promote more adaptive coping skills.

The Present Study

Despite this impressive body of theory regarding potential mechanisms of the mindfulness-stress relationship, there are currently very few studies that have empirically tested specific mediators. The present study was intended to rectify this void in the literature by testing multiple potential mediators of mindfulness's relationship with situational stress coping in college undergraduates affected by the current COVID-19 pandemic. We hypothesized that, in addition to the rather passive, cognitive and emotion-focused mechanisms described in previous literature, several problem-focused coping strategies such as planning, seeking social support, and suppression of competing activities would also play a mediational role. In light of this possibility, using a correlational design, we tested the following hypotheses: (1) Dispositional mindfulness would predict less stress, less negative affect, and more positive affect in the face of the stressors brought on by the COVID-19 pandemic and (2) A number of

problem-focused (approach) coping strategies (adapted from the inventory proposed by Carver et al., 1989) would mediate the zero-order relationships observed between mindfulness and these criterion variables.

Method

Participants

The participants ($N = 102$) included students enrolled in introductory psychology courses at a southeastern college of moderate size. All participants received extra credit as an incentive for their participation in the study that amounted to 3% of the total course grade. Complete datasets were obtained from 102 participants (30 males, 72 females) ranging in age from 18 to 50 ($M = 21.81$, $SD = 6.02$). No datasets were excluded from the analysis.

Measures

We measured dispositional mindfulness using the Mindful Attention and Awareness Scale (MAAS, Brown & Ryan, 2003), a self-report questionnaire consisting of 15 items that tap into the traits and dispositions characteristic of mindfulness. The MAAS has been extensively validated and used in a large number of previous studies (see Brown et al., 2007, for a review). This scale achieved adequate internal reliability ($\alpha = .88$).

To assess the different ways participants responded to pandemic-related stress, they were administered the COPE Inventory (COPE; Carver et al., 1989) which is designed to measure a range of problem-focused (i.e., aimed at resolving the stressful situation or event, or altering the source of the stress), emotion-focused (i.e., aimed at managing the emotions associated with the situation, rather than changing the situation itself), and dysfunctional coping strategies (i.e., aimed at avoiding the situation or associated emotions by ignoring the problem through disengagement or substance abuse). We used a version of this scale in which respondents are prompted to indicate the degree to which they have evinced each response during the present period using the present perfect (I have been ...) verb form. In total, the scale con-

tains 60 items, representing 15 separate, unipolar coping strategies comprised of four items each. Because our investigation only explored approach-focused coping strategies, we specifically adopted four problem-focused strategies for analysis: active coping (taking active steps to deal with the stressor), planning (thinking about how to cope with a stressor), suppression of competing activities (putting other projects and events aside in order to deal with the stressor), and seeking of instrumental social support (seeking advice, assistance, or information).

Participants completed the 10-item Perceived Stress Scale (PSS; Cohen et al., 1983) to report their subjective stress experienced in relation to the COVID-19 pandemic. Participants were asked about their feelings during the previous 30 days. This scale failed to achieve adequate internal consistency reliability ($\alpha = .61$).

The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) was used to assess participants' positive and negative mood states over the past 30 days using a COVID-19-specific prompt similar to those which accompanied the previous two measures. Participants' scores for each of the positively and negatively valenced items were summed to yield separate total scores for positive affect ($\alpha = .88$) and negative affect ($\alpha = .88$).

Procedure

The study was conducted in a digital format, administered via a Qualtrics® survey to be completed in one session. A series of self-report measures, including the MAAS, COPE, PSS, and PANAS were completed in succession. We collected data over the course of approximately one week during the Spring 2020 academic semester. Participants were sent a Qualtrics® survey link directly to their college email, which contained the instructions and all of the study questionnaires. Upon providing voluntary consent to participate and creating anonymous subject ID numbers, participants proceeded to complete the study questionnaires. The survey questionnaires required ap-

proximately 15 minutes to complete in total. Once participants finished the questionnaires, they were redirected to a separate webpage where they were asked to record their name and course section in order to receive course extra credit. All participants received extra credit in return for participation and all participant data remained strictly anonymous and confidential.

Results

Correlational Analyses

Our general correlational hypothesis was that dispositional mindfulness (MIND) would predict less perceived stress (PS), less negative affect (NA), and more positive affect (PA) as reported by our study participants in connection with the COVID-19 pandemic. To test these specific hypotheses, we conducted a series of Pearson correlation analyses depicted below in Table 1, which also includes intercorrelations with the four problem-focused coping strategies we adapted from Carver et al. (1989) COPE measure.

These analyses indicated moderately strong negative correlations between MIND and the criterion variables of NA, ($r(100) = -.35, p < .001$) and PS ($r(100) = -.31, p < .001$) and a moderate positive correlation between MIND and PA ($r(100) = .33, p < .001$). The outcome of these correlational analyses collectively indicate that higher self-reported mindfulness corresponded with more positive affect, less negative affect, and less stress in our study sample.

Mediational Analyses

Our broad mediational hypothesis was that one or more of the problem-focused coping strategies, RESTRAINT, SUPPCOMPAC, and (ACTCOPE PLANNING) would mediate the zero-order relationships observed between MIND and one or more of the criterion variables of PS, PA, and NA. In order to test this hypothesis, we conducted a series of regression analyses in line with the procedure described by Baron & Kenny (1986). We conducted this procedure using the

predictor of MIND, each of the candidate mediator variables (ACTCOPE, RESTRAINT, SUPPCOMPAC, and PLANNING) and all three criterion variables (PS, PA, and NA) in separate analyses. For the sake of brevity, we will report only the results of the analyses that indicated either full or partial mediation.

MIND, ACTCOPE, PA Analyses

In Step 1 of the mediation model that included MIND, ACTCOPE, and PA, the regression of PA scores on MIND scores was significant, $b = .21, t(100) = 3.47, p < .001$. Step 2 showed that the regression of the ACTCOPE scores on the MIND scores was also significant, $b = .06, t(100) = 3.08$, resulting in a $p < 0.1$. Moving on, Step 3 of the mediation process showed that ACTCOPE was a significant predictor of PA scores, $b = 1.58, t(100) = 5.52, p < .0001$. Finally, Step 4 of the analyses revealed that, controlling for ACTCOPE, MIND scores were still significant predictor of PA scores, $b = .13, t(99) = -4.94, p < .05$. However, we conducted a Sobel test and found partial mediation in the model ($z = 2.63, p < .01$). See Figure 1 for a visual depiction of these results.

MIND, PLANNING, PA Analyses

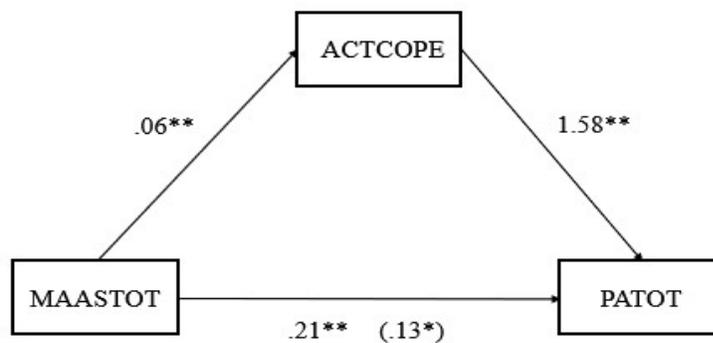
In Step 1 of the mediation model that included MIND, PLANNING, and PA, the regression of PA scores on MIND scores was significant, $b = .21, t(100) = 3.47, p < .001$. Step 2 showed that the regression of the PLANNING scores on the MIND scores was also significant, $b = .08, t(100) = 3.92, p < .001$. Step 3 of the mediation process showed that PLANNING was a significant predictor of PA scores, $b = 1.58, t(100) = 6.55, p < .0001$. Finally, Step 4 of the analyses revealed that, controlling for PLANNING, MIND scores were no longer a significant predictor of PA scores, $b = .09, t(99) = 1.66, p > .05$. We then conducted a Sobel test, which confirmed full mediation in the model ($z = 3.42, p < .001$). See Figure 2 for a visual depiction of these results.

Table 1*Intercorrelations Between Mindfulness, Coping Strategies, and Well-Being Outcomes*

Measure	1	2	3	4	5	6	7	8
1. MAASTOT	1.00							
2. ACTCOPE	.30**	1.00						
3. RESTRAINT	.21*	.33**	1.00					
4. SUPPCOMPAC	.01	.61**	.29**	1.00				
5. PLANNING	.37**	.77**	.43**	.57**	1.00			
6. PSSTOT	-.31**	-.09	-.00	-.11	-.24*	1.00		
7. PATOT	.33**	.48**	.30**	.35**	.55**	-.31**	1.00	
8. NATOT	-.35**	.15	.16	.15	-.02	.42**	.01	1.00

Note. MAASTOT = total mindfulness; ACTCOPE = active coping; RESTRAINT = restraint coping; SUPPCOMPAC = suppression of competing activities; PSSTOT = total perceived stress; PATOT = total positive affect; NATOT = total negative affect.

* $p < .05$; ** $p < .01$.

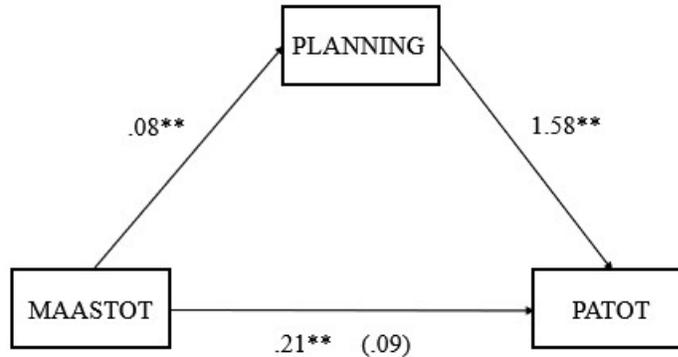
Figure 1*Partial Mediation of Active Coping on the Relationship Between Mindfulness and Positive Affect*

Note. MAASTOT = total mindfulness; ACTCOPE = active coping; PATOT = total positive affect.

* $p < .05$; ** $p < .01$.

Figure 2

Full Mediation of Planning on the Relationship Between Mindfulness and Positive Affect



Note. MAASTOT = total mindfulness; ACTCOPE = active coping; PLANNING = planning
** $p < .01$.

Discussion

The results of this investigation supported all of the correlational hypothesis and part of the mediational hypothesis, with two of the proposed problem-focused coping strategies serving as statistically significant mediators between MIND and PA. These findings serve to extend previous research examining the mechanisms that account for the relationship between mindfulness and successful stress coping (Baer et al., 2006; Corcoran et al., 2010; Farb et al., 2007; Garland, 2015; Garland et al., 2017; Guendelman et al., 2017; Iani et al., 2018; Keng et al., 2012) by finding evidence for a different type of mechanism than has been hitherto considered, namely problem-focused coping strategies. On the other hand, our study failed to find the hypothesized mediational effects for the NA and PS criterion variables. In the latter case, this null result may have been at least partly due to the failure of the PSS to achieve adequate internal consistency reliability in our study and, more generally, our relatively small sample may have limited the statistical power to detect effects. Future research should address these limitations, test additional problem-focused mediators, and utilize fully randomized designs for the purposes of revealing causal relationships. Overall, these

results suggest that in addition to the primarily cognition-based mechanisms examined in previous research, mindfulness may also confer resistance to negative emotional states through adaptive problem based coping strategies.

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