

Review

Mindfully green: Examining the effect of connectedness to nature on the relationship between mindfulness and engagement in pro-environmental behavior


Nicole Barbaro ^{a,*}, Scott M. Pickett ^b
^a 108 Pryale Hall, Oakland University, Department of Psychology, Rochester, MI 48309, United States

^b 209 Pryale Hall, Oakland University, Department of Psychology, Rochester, MI 48309, United States

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ABSTRACT

Mindfulness reflects heightened awareness and attention to the present moment, in both experience and behavior. Research has begun to examine mindfulness in the domain of pro-environmental behavior, and documents positive relationships with connectedness to nature, and engagement in pro-environmental behavior. Two independent studies with two different samples were conducted to test the study hypotheses. It was hypothesized that mindfulness would be significantly correlated with self-reported pro-environmental behavior (Hypothesis 1) and that that connectedness to nature indirectly affects the relationship between mindfulness and pro-environmental behavior (Hypothesis 2). Participants completed measures of mindfulness across five facets, connectedness to nature, and their engagement in 17 daily pro-environmental behaviors. Results support Hypothesis 1 in that mindfulness is significantly associated with pro-environmental behavior (Studies 1 and 2). Results also support Hypothesis 2 in that connectedness to nature indirectly affects the relationship between mindfulness and pro-environmental behavior (Studies 1 and 2). Post hoc analyses reveal that the facets of *observing* and *nonreactivity* are particularly important in the context of pro-environmental behavior (Study 2). We discuss these findings as they relate to the conceptualization of mindfulness as a means of behavioral regulation.

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1. Introduction

There has been an influx of research investigating the psychology underlying pro-environmental behavior (Bamberg & Möser, 2007 for review). Pro-environmental behaviors minimize the negative impact, or have a positive impact, on the natural environment (Kollmuss & Agyeman, 2002). Research investigating the psychological underpinnings of pro-environmental behavior has focused on interpersonal determinants—family norms (Gronhoj & Thøgersen, 2012), morality (Bratanova, Loughnan, & Gatersleben, 2012), and environmental settings (Miao & Wei, 2013)—and intrapersonal determinants of pro-environmental behavior—environmental attitudes (Milfont & Duckitt, 2010), cognitive motivation (Barbaro, Pickett, & Parkhill, 2015), and connectedness to nature (Mayer & Frantz, 2004).

Mindfulness reflects intentional awareness of experiences and behavioral functioning (Brown & Ryan, 2003; Kabat-Zinn, 1990). Research demonstrates that mindfulness impacts behavioral choices related to the awareness of specific experiences (Chatzisarantis & Hagger, 2007). Being mindful, *generally*, can intensify *specific* experiences, which may lead to better behavioral regulation (Langer &

Moldoveanu, 2000) in the context of those specific experiences. We argue that mindfulness is related to pro-environmental behaviors through the process of enhancing experiences with nature. Accordingly, the current research investigates the effect of connectedness to nature on the relationship between mindfulness and engagement in pro-environmental behavior.

Research investigating mindfulness and engagement in pro-environmental behavior is limited. Amel, Manning, and Scott (2009) found that mindfulness predicts sustainable behavioral choices—assessed by a single item measure asking “how green” participants’ behavioral choices were. Amel et al. suggests that because many everyday behaviors are carried out automatically (Bargh & Chartrand, 1999), mindfulness creates a greater self-world connection that motivates pro-environmental behavior. Research also shows that mindfulness is significantly correlated with pro-environmental behaviors concerning diet, transportation, and housing (Brown & Kasser, 2005), suggesting that mindfulness focuses attention to available sustainable options. Consistent with the notion of mindfulness as a means of behavioral regulation (Langer & Moldoveanu, 2000), research indicates that mindfulness positively influences decision-making processes (Black, Sussman, Johnson, & Milan, 2012), influences behavioral motivation (Levesque & Brown, 2007), and that awareness inhibits automatic behavioral choices by making alternative behavioral choices more salient (Dijksterhuis & van Knippenberg, 2000). Regarding pro-

* Corresponding author.

E-mail addresses: nmbarbaro@oakland.edu (N. Barbaro), pickett@oakland.edu (S.M. Pickett).

environmental behavior, mindfulness might function to regulate behavior by increasing awareness of pro-environmental options (e.g., recycling a soda can vs. throwing a soda can in a trash bin). This relationship may be affected by greater self-world connection (Amel et al., 2009) as a result of mindfulness enhancing one's focus to specific experiences, like feelings and thoughts about the natural world (Bishop et al., 2004).

Mindfulness has been shown to enhance experiences with nature. One study found that mindfulness was significantly associated with greater connectedness to nature (Howell, Dopko, Passmore, & Buro, 2011). Peripheral empirical research shows that aspects of mindfulness, such as attentional capacity (Mayer, Frantz, Bruehlman-Senecal, & Dolliver, 2009) and internal awareness (Leary, Tipsord, & Tate, 2008) are both related to greater connectedness with nature. Research suggests that mindfulness enhances moment-to-moment experiences (Brown & Ryan, 2003) by enhancing one's self-world connection (Amel et al., 2009) and orientating one's focus toward the natural environment (Bishop et al., 2004), resulting in a stronger connection to nature (Howell et al., 2011).

Connectedness to nature reflects the extent to which one feels part of the natural world (Mayer & Frantz, 2004), and includes nature within the cognitive representation of the self (Schultz, 2002). It is argued that individuals who have a strong connection with nature are less likely to harm the environment because the self is embedded with nature, and thus, harmful behaviors would in essence be harming the self (Mayer & Frantz, 2004). Researchers have investigated the utility of connectedness to nature as a predictor of engagement in pro-environmental behavior and document this significant relationship in a number of studies (Hoot & Friedman, 2011; Dutcher, Finley, Luloff, & Johnson, 2007; Davis, Green, & Reed, 2009; Mayer & Frantz, 2004). Connectedness to nature can motivate individuals to engage in pro-environmental behaviors that have minimal negative impacts on the natural environment, and cognitively, themselves.

The current research utilizes a correlational design in order to expand on previous research by investigating the impact of total trait mindfulness and the unique effects of mindfulness facets on engagement in pro-environmental behavior. We aim to synthesize previous research on mindfulness and connectedness to nature into a cohesive model to better understand the psychological processes that encourage engagement in pro-environmental behavior. We hypothesize that mindfulness will be positively correlated with self-reported pro-environmental behavior (Hypothesis 1). Because mindfulness reflects awareness of behavioral functioning and may intensify experiences with nature, and connectedness to nature motivates engagement in pro-environmental behavior, we hypothesize that connectedness to nature will indirectly affect the relationship between mindfulness and pro-environmental behavior (Hypothesis 2). Two independent studies were conducted with two different samples to test the research hypotheses.

2. Study 1

Study 1 aims to secure initial support for the hypothesized model of the indirect effect of connectedness to nature on the relationship between mindfulness and pro-environmental behavior. The current research utilizes the conceptualization that mindfulness enhances experiences (Brown & Ryan, 2003) and behavioral regulation specific to these experiences (Chatzisarantis & Hagger, 2007). The current research assesses daily pro-environmental behaviors (e.g., recycling, buying local products and food, carpooling), which frequency might increase as a result of greater mindfulness.

2.1. Method

2.1.1. Participants

We recruited 360 undergraduate students (68% female, 76% White) at a Midwestern University. Participants' mean age was 20.11 years ($SD = 3.86$).

2.1.2. Procedure

Participants were recruited from the Psychology Department Participant Pool. Prospective participants were provided a link to the online study hosted by SurveyMonkey. Participants read the informed consent online and upon consent to participate in the study, entered demographic information and completed questionnaires. Participants were debriefed online and received partial course credit. The research was approved by the Institutional Review Board at the university in which the research was conducted.

2.1.3. Measures

The five facets of mindfulness questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) was used to measure mindfulness. The FFMQ contains 39 items measured on a five-point Likert scale from 1 (*never or very rarely true*) to 5 (*very often or always true*). Following Baer et al. (2006) a total mindfulness composite score was calculated by summing participant responses on all 39 items ($\alpha = .85$), with higher scores indicating greater mindfulness. Composite scores were calculated for each facet of mindfulness: *nonreactivity* to inner experience ($\alpha = .74$; e.g. "In difficult situations, I can pause without immediately reacting"); *observing* ($\alpha = .80$; e.g. "I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow"); *acting* with awareness ($\alpha = .84$; e.g. "I find myself doing things without paying attention"); *describing* ($\alpha = .85$; e.g. "I can easily put my beliefs, opinions, and expectations into words"); and *nonjudging* of experience ($\alpha = .81$; e.g. "I make judgments about whether my thoughts are good or bad").

Participants completed the connectedness to nature scale (CNS; Mayer & Frantz, 2004) to measure perceived oneness with the natural world. The CNS contains 14 items measured on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A composite score was calculated for each participant ($\alpha = .75$) with higher scores indicating stronger connectedness to nature.

Pro-environmental behavior was measured using a modified version of the pro-environmental behavior scale (PEB; Whitmarsh & O'Neill, 2010). The original scale included 24 items; however the first seven questions were omitted because they are not relevant to the majority of undergraduate students (e.g., "installed insulation products in your home.") Using the remaining 17 items, participants indicated how often they engaged in each behavior (e.g., "Buy environmentally friendly products," "Recycle," "Buy products with less packaging") on a 4-point scale (0 = *never*, 1 = *occasionally*, 2 = *often*, 3 = *always*). Composite scores were created for each participant ($\alpha = .77$) with higher scores indicating more frequent engagement in pro-environmental behavior.

2.2. Results

All statistical analyses were conducted using SPSS version 21. Zero-order correlations and descriptive statistics of study variables are displayed in Table 1. Mindfulness is positively correlated with more frequent engagement in pro-environmental behavior, supporting Hypothesis 1 (see Table 1). We proceeded by testing the indirect effect of connectedness to nature on this relationship following the Baron and Kenny (1986) causal steps method. Mindfulness was significantly associated with pro-environmental behavior ($\beta = .19$, $t(309) = 3.45$, $p < .01$), and greater connectedness to nature ($\beta = .28$, $t(332) = 5.21$, $p < .01$). After statistically controlling for mindfulness, connectedness to nature was significantly associated with pro-environmental behavior ($\beta = .29$, $t(308) = 5.11$, $p < .01$). The distribution of the product of coefficients method (Tofighi & MacKinnon, 2011) was used to confirm mediation. As hypothesized, connectedness to nature mediates the relationship between mindfulness and pro-environmental behavior ($Mab = .038$, $SEab = .06$; 95% CI [.02, .06]), resulting in a 37% reduction in the standardized coefficient (see Fig. 1).

Table 1
Zero-order correlations and descriptive statistics for study variables: Study 1.

Variable	1	2	3	4	5	6	7	8
1. Mindfulness _{Total}	–							
2. Observing	.40***	–						
3. Nonreactivity	.47***	.43***	–					
4. Describing	.72***	.22***	.21***	–				
5. Nonjudging	.56***	–.25***	–.11*	.24***	–			
6. Acting	.63***	–.16**	–.01	.31***	.45***	–		
7. CNS	.28***	.46***	.30***	.11*	–.04	.03	–	
8. PEB	.19**	.28***	.28***	.11*	–.06	–.02	.34***	–
Mean	125.01	27.31	21.38	27.17	24.72	24.48	46.42	22.04
SD	14.26	5.11	3.96	5.24	6.11	5.20	6.65	6.76

n = 329–356 participants.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

2.3. Discussion

Study 1 investigated the indirect effect of connectedness to nature on the relationship between mindfulness and pro-environmental behavior. Results support Hypothesis 1: Mindfulness is significantly correlated with engagement in pro-environmental behavior. Hypothesis 2 was supported: Connectedness to nature indirectly affects this relationship. Study 2 sought to replicate the findings in Study 1 in an independent sample and explore the relationships between facets of mindfulness, connectedness to nature, and pro-environmental behavior.

3. Study 2

Results of Study 1 suggest that greater mindfulness is associated with engagement in pro-environmental behavior, and connectedness to nature indirectly affects this relationship. Study 2 secured data from a broader age range with the primary aim to replicate the results documented above, and increase the generalizability of the results beyond a college population. Baer et al. (2006) maintain that mindfulness is comprised of five facets, and examining the unique effects of each facet can yield useful information in the investigation of how mindfulness impacts behavioral processes. Study 2 examines the utility of each facet on connectedness to nature and pro-environmental behavior to gain greater insight into the relationship between mindfulness and pro-environmental behavior. Because of the limited research in this domain, a priori hypotheses were not made regarding mindfulness facets—*observing*, *nonreactivity*, *describing*, *nonjudging*, and *acting*—as they relate to connectedness to nature and self-reported pro-environmental behavior.

3.1. Method

3.1.1. Participants

We recruited 296 participants (60% female, 75% White) via Amazon Mechanical Turk (MTurk). Participants' mean age was 38.01 years

(*SD* = 12.24). MTurk filters (Peer, Vosgerau, & Acquisti, 2013) were implemented: MTurk participants could access and participate if they had successfully completed 95% of at least 500 accessed MTurk jobs.

3.1.2. Procedure

Eligible participants viewed an advertisement for the study on MTurk's job listings. Eligible participants were provided a link to an information sheet about the study. Only those who agreed to participate in the study were redirected to the survey hosted by Qualtrics. Participants entered demographic information and completed questionnaires. Participants that completed the study were compensated \$1.00. The research was approved by the Institutional Review Board at the university in which the research was conducted.

3.1.3. Measures

As in Study 1, participants completed the 39-item FFMQ (Baer et al., 2006). Composite scores were calculated for each participant for total mindfulness ($\alpha = .92$) and for each facet—*observing* ($\alpha = .87$), *nonreactivity* ($\alpha = .88$), *describing* ($\alpha = .90$), *nonjudging* ($\alpha = .89$), and *acting* ($\alpha = .90$). Participants completed the 14-item CNS (Mayer & Frantz, 2004) and composite scores were calculated for each participant ($\alpha = .83$). Pro-environmental behavior was assessed using the modified PEB (Whitmarsh & O'Neill, 2010) used in Study 1 and composite scores were calculated for each participant ($\alpha = .87$). The three questionnaires were counterbalanced.

3.2. Results

All statistical analyses were conducted using SPSS version 21. Zero-order correlations and descriptive statistics of study variables are displayed in Table 2. Hypothesis 1 was supported in that mindfulness is positively correlated with pro-environmental behavior (see Table 2). We proceeded by testing the indirect effect of connectedness to nature on this relationship following the Baron and Kenny (1986) causal steps method. Mindfulness was significantly associated with pro-environmental behavior ($\beta = .30$, $t(296) = 5.43$, $p < .01$),

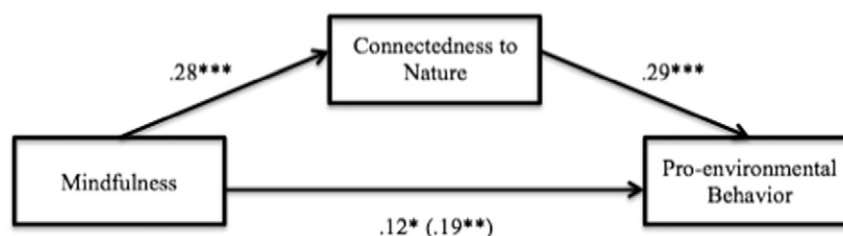


Fig. 1. Study 1: Standardized regression coefficients for the relationship between mindfulness and pro-environmental behavior as partially mediated by connectedness to nature. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2

Zero-order correlations and descriptive statistics for study variables: Study 2.

Variable	1	2	3	4	5	6	7	8
1. Mindfulness _{Total}	–							
2. Observing	.54***	–						
3. Nonreactivity	.63***	.41***	–					
4. Describing	.78***	.40***	.35***	–				
5. Nonjudging	.563***	–.12*	.19**	.35***	–			
6. Acting	.72***	.17**	.20***	.47***	.53***	–		
7. CNS	.42***	.52***	.23***	.29***	.11	.28***	–	
8. PEB	.30**	.37***	.30***	.17*	.04	.15*	.55***	–
Mean	131.91	27.26	21.62	28.42	28.42	26.20	38.95	25.01
SD	20.54	6.06	5.61	6.38	7.35	5.75	8.10	8.52

n = 296 participants.

* p < .05.

** p < .01.

*** p < .001.

and connectedness to nature ($\beta = .42$, $t(296) = 8.01$, $p < .01$). After statistically controlling for mindfulness, connectedness to nature was significantly associated with pro-environmental behavior ($\beta = .51$, $t(296) = 9.59$, $p < .01$). The distribution of the product of coefficients method (Tofghi & MacKinnon, 2011) was used to confirm mediation. As hypothesized, connectedness to nature mediates the relationship between mindfulness and pro-environmental behavior ($Mab = .09$, $SEab = .15$; 95% CI [.063, .12]), resulting in a 72% reduction in the standardized coefficient (see Fig. 2).

Following replication of the hypothesized model, post hoc analyses were conducted to identify the mindfulness facets that are the best predictors of pro-environmental behavior. To identify the unique contribution of each mindfulness facet, a multiple regression analysis was conducted and the mindfulness facets were entered simultaneously, with pro-environmental behavior as the dependent variable. Two facets—*observing* and *nonreactivity*—were significant predictors of proenvironmental behavior, but the remaining facets—*acting*, *nonjudging*, and *describing*—were not significant predictors (see Table 3).

Because the facets of *observing* and *nonreactivity* significantly predicted pro-environmental behavior (Table 3) and both facets are significantly correlated with connectedness to nature (see Table 2), we proceeded by testing the indirect effect of connectedness to nature on the relationship between *observing* and *nonreactivity*—independently while controlling for the remaining mindfulness facets—and pro-environmental behavior following the Baron and Kenny (1986) causal steps method. *Observing* was significantly associated with pro-environmental behavior ($\beta = .31$, $t(296) = 4.77$, $p < .01$), and greater connectedness to nature ($\beta = .53$, $t(296) = 8.85$, $p < .01$). After statistically controlling for *observing*, connectedness to nature was significantly associated with pro-environmental behavior ($\beta = .50$, $t(296) = 8.59$, $p < .01$). The distribution of the product of coefficients method (Tofghi & MacKinnon, 2011) was used to confirm mediation. As hypothesized, connectedness to nature mediates the relationship between *observing* and pro-environmental behavior ($Mab = .02$, $SEab = .004$; 95% CI [.02, .03]), resulting in an 84% reduction in the standardized coefficient (see Fig. 3).

We proceeded to test the indirect effect of connectedness to nature on the relationship between *nonreactivity* and pro-environmental behavior. Although *nonreactivity* was significantly associated with daily pro-environmental behavior ($\beta = .18$, $t(296) = 2.84$, $p < .01$), *nonreactivity* was not significantly associated with greater connectedness to nature ($\beta = -.03$, $t(296) = -.59$, $p = .56$), and therefore, analyses to confirm mediation were not conducted.

3.3. Discussion

Results of Study 2 support Hypothesis 1: Mindfulness is significantly correlated with frequent engagement in pro-environmental behavior. Results also support Hypothesis 2: Connectedness to nature indirectly affects this relationship. Post hoc analyses reveal that the mindfulness facets of *observing* and *nonreactivity* uniquely predict pro-environmental behavior. However, only the mindfulness facet *observing* fit our hypothesized model in that connectedness to nature indirectly affects the relationship between *observing* and pro-environmental behavior.

4. General discussion

The current research examined the indirect effect of connectedness to nature on the relationship between mindfulness and pro-environmental behavior. Two independent studies with different samples were conducted to test the study hypotheses. Hypothesis 1 was supported by both studies, such that mindfulness was positively correlated with greater engagement in pro-environmental behavior. Results of both studies also support Hypothesis 2 in that connectedness to nature indirectly affects the relationship between mindfulness and pro-environmental behavior. Post hoc analyses (Study 2) indicate that the facets of *observing* and *nonreactivity* significantly predict engagement in pro-environmental behavior. Moreover, the relationship between *observing* and pro-environmental behavior is indirectly affected by connectedness to nature.

Consistent with prior research (Amel et al., 2009; Brown & Kasser, 2005), our results show that more mindful individuals self-report

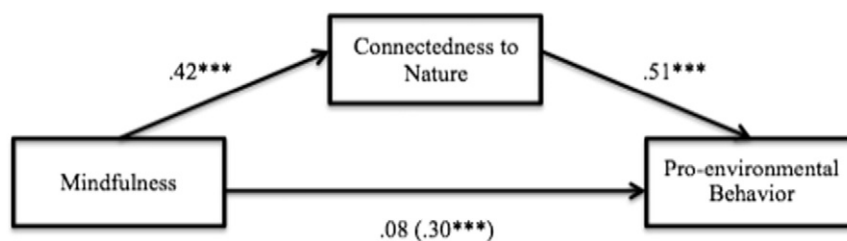


Fig. 2. Study 2: Standardized regression coefficients for the relationship between mindfulness and pro-environmental behavior as mediated by connectedness to nature. ***p < .001.

Table 3

Multiple regression analyses: The five facets of mindfulness predicting pro-environmental behavior.

Mindfulness facets	β	t
Observing	.31	4.77***
Nonreactivity	.18	2.84**
Describing	-.06	-.89
Nonjudging	.03	.38
Acting	.08	1.10

$n = 296$ participants. β = standardized beta coefficient, t = test statistic associated with β .

* $p < .05$.

** $p < .01$.

*** $p < .001$.

more engagement in daily pro-environmental behaviors. The current research expands on these studies by investigating total mindfulness and all five facets of mindfulness (Baer et al., 2006). Our findings indicate that the facets *observing* and *nonreactivity* uniquely predict pro-environmental behavior. Amel et al. (2009) found that *acting* was related to self-reported sustainable choices. However, our study differs from that of Amel et al. (2009) in two important ways. First, because the five facets of mindfulness are significantly correlated with each other (Baer et al., 2006), the five facets were simultaneously entered into a single regression analysis to assess the unique predictive power of each facet, whereas Amel et al. (2009) only examined two facets simultaneously, which do not account for intercorrelations between the facets. Secondly, participants in the current research reported on 17 specific pro-environmental behaviors, whereas Amel et al. (2009) assessed pro-environmental behavior with a single-item measure. This measurement difference may account for the discrepancy in associated mindfulness facets, despite both studies using the FFMQ to measure mindfulness.

The current research assumed the conceptualization that mindfulness reflects heightened awareness of experiences (Brown & Ryan, 2003) and behavioral regulation (Langer & Moldoveanu, 2000) in the context of such experiences (Chatzisarantis & Hagger, 2007). Related research (Dijksterhuis & van Knippenberg, 2000; Black et al., 2012) indicates that heightened awareness inhibits automatic behavioral responses, aids in behavioral regulation, and makes alternative behavioral choices salient. Accordingly, we assessed pro-environmental behaviors that could be engaged in daily (e.g., recycling) and that were common sustainable alternatives to normative behaviors (e.g., carpooling to work). We suggest that in the context of these pro-environmental behaviors, mindfulness increases the salience of sustainable alternatives.

Results of both studies support the hypothesized model, such that connectedness to nature indirectly affects the relationship between mindfulness and engagement in pro-environmental behavior. Because mindfulness enhances experiences and related behavioral functioning (Brown & Ryan, 2003; Chatzisarantis & Hagger, 2007), it is suggested that mindfulness can intensify experiences with nature. As a result of these experiences with nature, one's connection to nature is strengthened. These results are in accordance with prior research reporting a significant relationship between mindfulness and connectedness to

nature (Howell et al., 2011), and that mindfulness can strengthen one's self-world view (Amel et al., 2009). Moreover, connectedness to nature is associated with pro-environmental behavior (e.g., Hoot & Friedman, 2011), and the current two studies replicate these findings with a different measure of pro-environmental behavior (Whitmarsh & O'Neill, 2010) in two independent samples. We suggest that mindfulness makes alternative behavioral choices more salient through the process of intensifying experiences—and subsequent connectedness—with the natural environment. This connectedness might motivate engagement in pro-environmental behaviors that have a minimal negative impact on the natural environment. The effect of connectedness to nature on the relationship between mindfulness and pro-environmental behavior suggests that mindfulness increases awareness to pro-environmental behavioral choices through the intensification of experiences with the natural environment.

Post hoc analyses reveal significant, direct relationships between that the mindfulness facets of *observing* and *non-reactivity*, and pro-environmental behavior. Both of these facets are significantly related to less absent-mindedness (Baer et al., 2006)—consistent with the conceptualization of mindfulness as a means of behavioral regulation (Langer & Moldoveanu, 2000). *Observing* and *nonreactivity* may be particularly useful for future research examining the relationship between mindfulness and pro-environmental behavior. We argue that the facet of *nonreactivity*, in particular, appears to reflect mindfulness as a means of behavioral regulation. *Nonreactivity*—refraining from impulsive reactions to experiences (Baer et al., 2006)—might function to inhibit engagement in habitual behaviors that negatively impact the environment. The *observing* facet seems particularly useful in the context of connectedness to nature and pro-environmental behavior because it is unique among the mindfulness facets in that it reflects attention to external stimuli, whereas the other facets reflect attention to cognitions (Baer et al., 2006). Attentiveness to external stimuli might orient focus toward experiences in the surrounding environment. Because pro-environmental behaviors, in part, are motivated by one's connection to nature (Mayer & Frantz, 2004), the *observing* component of mindfulness may uniquely function to intensify experiences one has with nature through greater attention to environmental stimuli. Indeed, connectedness to nature affects the relationship between *observing* and pro-environmental behavior, even after statistically controlling for the remaining mindfulness facets. We argue that *observing* can provide fruitful avenues for future research investigating the effects of mindfulness on orientation to experiences and behavioral choices related to those experiences.

4.1. Limitations and future directions

Participants self-reported the average frequency of their engagement in 17 daily pro-environmental behaviors, but self-reports may contain reporting and recall errors. Future research could secure a behavioral measure of pro-environmental behavior in a laboratory setting, or use a diary method to record engagement in pro-environmental behaviors, to afford a more reliable assessment of pro-environmental behavior.

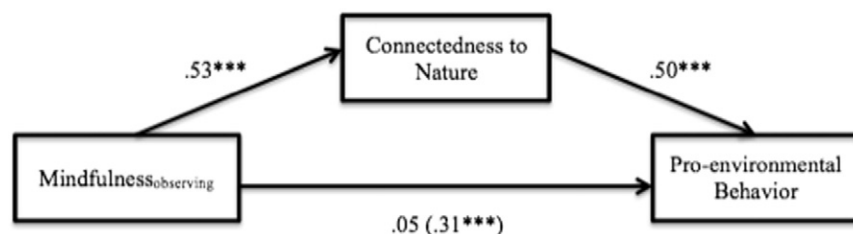


Fig. 3. Study 2: Standardized regression coefficients for the relationship between the mindfulness facet of observing and pro-environmental behavior as mediated by connectedness to nature. *** $p < .001$.

The current research examined daily pro-environmental behaviors (e.g., recycling, using reusable shopping bags), and thus, generalization of these results to other types of pro-environmental behaviors should be implemented with caution. Research should examine how total mindfulness and mindfulness facets uniquely contribute to different pro-environmental behaviors. Research could reveal that different pro-environmental behaviors are uniquely associated with distinct mindfulness facets. For example, the facet *describing* might best predict environmental activism behaviors, specifically, because this facet is strongly related to emotional intelligence and self-compassion (Baer et al., 2006).

It is important to note that the results of Study 1 and Study 2 are correlational in nature. We cannot make strict causal claims and the data cannot support causal relationships. Thus, directional interpretation of the proposed relationships should be interpreted with caution. However, based on the available literature, we argue for the directionality that mindfulness increases engagement in pro-environmental behaviors because mindfulness intensifies experiences and connectedness with nature, which then may regulate environment-specific behavior. Because data was only collected at one time-point, the cross-sectional nature of the data collected also limits the ability to make directional claims. Future research could employ experimental research designs or longitudinal research designs to test the correlational model suggested in the current research. Further research is needed to determine causation in respect to the relationship between mindfulness and connectedness to nature.

5. Conclusion

The current research adds to the broader literature on pro-environmental behavior. We assume the conceptualization of mindfulness as a form of behavioral regulation, and bridge prior work examining the relationship between mindfulness and nature connectedness and the relationship between mindfulness and pro-environmental behavior into a cohesive model. Two independent studies support, and replicate, the hypothesized model, which demonstrates that connectedness to nature indirectly affects the relationship between total mindfulness—and specifically, the *observing* facet—and engagement in daily pro-environmental behavior. Our findings suggest that mindfulness intensifies experiences with the natural environment, which may foster a stronger connection with the natural world, and in turn, may regulate behavior by making sustainable options more salient. Application of mindfulness theory to pro-environmental behavior can provide researchers with novel avenues of research and can afford a better understanding of the psychological processes underlying pro-environmental behavior. Mindfulness theory may also provide future directions for research regarding behavior change, more generally, by increasing specific awareness and connection to the behavioral target.

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