

## Discussion

The aim of this study was to examine the effects of whether a previous meditation experience led participant into having more environmentally conscious values, and whether those particular participants would be more likely to support environmental policies, compared to those without any prior meditation experience.

To test these assumptions, I collected self-reported survey data from undergraduate college students, who reported on their prior meditation experience (if any), and their self-compassion (as measured with the SCS\_SF; Raes, F et al., 2011), trait-mindfulness as measured with two subscales of the FFMQ (Baer et al., 2008), environmental value orientations measured by the VOS (De Groot & Steg, 2007), and an environmental policy support measure adapted from Konisky, Milyo, & Richardson (2008) for this study. The target was to see whether there is something unique about meditation specifically that would lead individuals into being more other oriented, which I assumed would translate into an altruistic or biospheric value orientation and greater support for both humanistic and non-humanistic environmental policies.

I found a positive correlation between the self-compassion and trait-mindfulness scales. This positive correlation suggests that those who scored higher on self-compassion also scored higher on trait-mindfulness measures. This was what I expected based on prior literature (Baer, Lykins, & Peters, 2012b; Evans et al., 2017; Kabat-Zinn, 2003). Interestingly, my results showed that self-compassion was negatively correlated with environmental policy support for non-humans, which was opposite of my hypothesis. I am unsure of what to take away from this finding, as I had previous thought those who had more self-compassion for themselves would be more likely to care of others environmentally. The literature mainly suggests that self-compassion should correlate with increased environmental attitudes and intentions, for both

humans and non-humans given that self-compassion focuses on developing an ethic of care and outward concern for all creation, given the interconnectedness felt during compassion meditations (Bannon, 2013; Goetz et al., 2010; Kaza, 2014; McMahan & Estes, 2015; Nisbet & Zelenski, 2013; Sandifer, Sutton-Grier, & Ward, 2015, as cited in Lumber et al., 2017, p.1). However, this was not the case in my results. Also contrary to my hypothesis was the finding that self-compassion negatively correlated with biospheric value orientation.

One basis for the negative correlation found in the current research is the fact that self-compassion is oriented towards the individual providing love, positive thoughts and feelings, and understanding of challenges, for themselves. It is by definition *self*-compassion not, other compassion and this might be one reason for negative correlational finding. Specifically, I am postulating that in some way, focusing solely on caring for oneself, might initially orient the practitioner to only care about oneself and one's own individualistic needs. If this is true, then maybe focusing on caring for oneself by being self-compassionate does not lead to caring for the natural world, as maybe these individuals see nature as separate from their own individualistic compassionate practice? If so, a more important practice would be practicing compassion generally, focusing on sending compassion to others, including oneself but not focusing only on oneself.

It is also likely that the practitioners in my study were new to meditation and that novice meditators may start at an inwards self-focus then potentially shift to an other-focus mindfulness over time, although this information is unknown and should be considered for future research studies. Hildebrandt et al. (2017) research indicates that focusing on a regular and consistent attentional meditation practice alone was not enough to elicit a significant increase in (self)compassionate after three months of practice. However, the odd aspect of the previous

literature's findings is that an intentional 3-month practice of loving-kindness, gratitude, compassion, prosocial motivation, and accepting challenging emotions (all qualities of practicing loving-kindness/compassion meditations) did lead to significant changes in compassion measures (Hildebrandt et al., 2017). Since only 8 participants in my study selected that they have previously practiced loving-kindness meditations, and they did not indicate if they regularly practice it during their meditations, a lack of consistent self-compassion meditations may be a reasoning behind the negative correlation I found between self-compassion and outward measures of caring for others (as demonstrated through selecting to support more environmentally supportive values and policy supports).

My findings on trait-mindfulness also did not line up with the previous literature. I found that trait-mindfulness negatively correlated with environmental policy support for humans. Kaza (2014) suggested that there ought to be a connection between increased mindfulness meditation that intuitively leads to an increase to pro-environmental attitudes and care. Kaza (2014) supports Fischer et al. (2017) supports Kaza (2014) assumptions, given Fischer et al. (2017) results that demonstrate positive correlations between a mindfulness practice as studied with a trait-mindfulness scale (FFMQ Baer et al., 2006) prompting more sustainable consumer behaviors. I am not sure why my negative correlation finding occurred and think that maybe the two subscales I used in the trait-mindfulness scale; acting with awareness, and non-judgment of inner experience, are not the aspects of trait mindfulness one would expect to be connected to care and concern for others, beyond being aware and equanimous of one's own inner experiential circumstances.

Trait-mindfulness, as measured by two of the FFMQ subscales; acting with awareness, and nonjudging of inner experiences, was also negatively correlated with environmental policy

for non-humans, which was opposite of my original hypothesis, but it does connect to the theory that western-oriented meditation is a self-oriented practice, unlike Buddhist-oriented meditation which is explicitly focused on interconnectedness and intrinsic compassion for all beings (Neff & Dahm, 2014). With this distinction in mind, perhaps having higher trait-mindfulness would be centered on the self, not on non-human species or on how their individual actions may affect the natural world. This finding may explain why people who have high awareness of the present moment may not act towards supporting political policies that are aimed at mitigating non-human environmental concerns. I was surprised that, trait-mindfulness was not correlated to altruism. Given Rahula (1959) view about how mindfulness in the Buddhist interpretation, is a path towards less ego attachment, and more awareness of the interrelatedness of humanity, which should be demonstrated through altruistic values if trait mindfulness is equivalent to the Buddhist mindfulness, we ought to have seen a positive connection. My negative correlation between mindfulness and altruism suggests that these are not the same and that simple being aware of one's own self, may not be inherently aligned with values that support other humans.

I did find support for my hypothesis that higher egotistical value orientation would be negatively correlated with non-human environmental policy support. This is in line with the literature suggesting that being less self-centered and more mindful of others in a present and aware way will lead to consideration of how others are impacted by our climate actions, and that this leads to supportive pro-environmental actions and behaviors to mitigate climate change (Baer et al., 2006).

Based on Kaza (2014) who argues that developing care and concern for others should lead to people feeling an increased relational responsibility to care about the health of our environment, I had hypothesized that altruistic value orientation and biospheric value orientation

would be positively correlated. This was supported by my findings. This suggests that being more concerned about others relates to being more concerned about the natural world which makes sense given both are other-oriented perspectives. Along the same line of thought proposed by Kaza (2014) about the link between caring for all of creation in an other-serving way includes caring for the natural world, I had hypothesized that altruistic value orientation would positively correlate with humanistic environmental policy support, which was marginally supported by my results. Despite it being a marginal correlation, I think it is of value to connect that altruistic values, which are centered on caring for other people, was marginally correlated to caring for other people as demonstrated by supporting humanistic environmental policies.

I also hypothesized, and found, that a higher biospheric value orientation would be positively correlated support for non-human environmental policy. This relationship makes sense intuitively, as those who value the natural world in their values should ideally also respond in a way that demonstrates support for environmental policies that are aimed at the non-humanistic care and concern. Human centered environmental policy support also correlated positively with non-human environmental policy support. This makes sense as those who care about the environment usually care about it both because they care about the environment for themselves and how a deteriorating planet affects them (human centered environmental policy support) and because they care about the environment for the plants and animals' livelihoods and the way the deteriorating planet affects their ecosystems (non-human centered environmental policy support).

The most counterintuitive and surprising finding was that there were no differences among any of the scales (self-compassion, trait-mindfulness, value orientation, or environmental policy support) shown through an independent t-test, between meditators and non-meditators. I have some speculation that this finding could be due to the small sample size (66 respondents),

or the fact that there were very few meditators who responded that they meditated daily (1 participant), or even a few times a week (3 participants) during the past six months. The majority of the participants who did meditate reported doing so a few times each month (24 participants), which is not indicative of a robust previous meditation practice. The frequency of previous meditation practice as labeled as “experienced meditators” is important to keep in mind when considering how representative my findings are. Lutz et al. (2004) research supports that there are substantial differences between experienced and novice meditators. Specifically, that those who meditate regularly or for long durations of time are more likely to have increased gamma waves, which is indicative of having more advanced brain coordination between attentional and affective processes (Lutz et al., 2004). Lutz et al. (2004) research supports that there are structural differences in the ways the brains work and communicate between experienced and novice meditators which may suggest that my participants may have less of a “meditative effect” on affect and attention, than if they were longer-term or more consistent meditators, which could explain the lack of significant correlation between the two groups in my study.

Additionally, of the participants who said they have previously meditated, 31 of them responded that they have practiced breathwork, 21 responded they have practiced body scans, 10 responded they have practiced guided imagery, 8 responded they have practiced loving-kindness meditations, and 3 responded they have practiced other forms of meditation (through yoga). With this information I wonder if my sample of participants as a group, may practice mindfulness meditation aimed at a self-oriented focus of breathwork and body scans, rather than other-oriented focus which is the objective of loving-kindness and compassion meditations. Perhaps meditating in a more western secularized format that focuses on self-awareness, non-reactivity of the personal experience, self-regulation of emotions, and self-acceptance does not confer the

benefits of expanding a sense of compassion and care outward. If this were to be true, which I do not know as a fact, it may make sense as meditation in this secularized self-oriented lens (compared to the Buddhist other-interconnected and compassionate perspective of meditation), may be building the ego within the meditation practitioner, and may be cultivating a less concerned individual who is less concerned about the natural world, in a value orientation way and in a way that supports environmental policies geared towards caring about others beyond oneself.

### **Caveats and limitations of the current research**

There are many protocol specific caveats with this research design. Self-selection bias is always a limitation to consider when analyzing the results of mindfulness research. Self-selection into research studies can be problematic because the data collected from these subjects may not be widely applicable or representative to a larger demographic. Self-selection bias may be due to already having pre-dispositions for neural pathways or responses that would indicate a more mindfulness or compassionate approach, separate from the meditation itself (Mascaro et al., 2013). Another concern is that individuals may have misinterpreted what constitutes mindfulness, which may have produced inaccurate responses to the survey questions. This concern was addressed in my study by using more specific examples in questions asking about mindfulness (e.g., “Over the last 6 months have you engaged in a mindfulness practice that does not include meditation (such as, Tai Chi, Qigong, yoga, prayer, breathwork, and/or other forms of contemplative practices)?”). However, despite the limitations, self-report of mindfulness meditation practice, even if self-selected, may be the most ideal option to collect larger amounts of research data on participants. It is also important to note that my study was completed during a

global pandemic where access to behavioral, observational, and physiological measures were not be as accessible as collecting self-reported survey data.

### **Sample size**

My sample size was,  $N = 66$  (29 men, 36 women, 2 preferred not to answer their sex). Although my sample size is small, there was enough power to find some statistically significant relationships, as seen in the correlations between scales. However, in some instances the sample size was problematically small, as it did not allow enough responses or variation between groups to exhibit any differences between previous meditation experience or having no type of prior meditation practice. Based on Fisher et al. (2017) mindfulness meditation (even without an explicit loving-kindness focus) should shift individual's values into being more socially oriented (which would be demonstrated through increases in the altruistic value orientation scale), and support more sustainable consumer consumption behaviors (which would be demonstrated through increases in support for the human pro-environmental support scale). I had hoped to also assess the distinction between participants with previous meditation practice with and without a compassion/loving-kindness focus. Unfortunately, I only had eight participants who indicated that they had practiced any compassion/loving-kindness meditation within the past six months, and therefore I could not assess type of meditation practice on value orientation or environmental policy support. Regardless of the constraints between groups, there were some positive and negative correlations, indicating that my sample size was powerful enough to demonstrate some relational effects between some trait-mindfulness, self-compassion, value orientation, and environmental policy support assessments.

### **Future Directions**



Future research should look into the goal or orientation of their meditation practitioners to discern if this speculation is true or not. My unexpected results may also be an avenue for future research to explore more about the relationship between an independent mental practice of mindfulness meditation and environmental care, along with care for others.

It is important to continue to explore the possible connection between having an established meditation practice and its effects on environmental concern. Given the sample size (and the likelihood that even those grouped as mediators in the current study were novices as they mainly meditated only a few times each month) it would be beneficial to compare those with a long-term meditation practice to non-practitioners, to see if there is a difference in environmental policy support as well as with different value orientations.

Additionally, future research should consider altering the scales used. I used the FFMQ acting with awareness and non-judging of inner experiences subscales, rather than using the full 39-item long-form scale or a short form version of the scale with all the five facet subscales included in Baer et al. (2006) FFMQ. It may be of value to consider using all the five facet subscales (observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience) in future work, whether in the long or short form of the scale. It would be of value to use all five facet subscales, as it presents a more holistic understanding of the multiple layers of mindfulness as it is psychologically understood. By using all the subscales, researchers may have a better understanding of state-level aspects of mindfulness such as observing and describing subscales, in addition to the later developed trait-mindfulness subscales of acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience.

I also used the self-compassion (Neff, 2003) scale which measures *self*-compassion, not compassion. It may be useful to have future research add a scale that measures outwards

compassion, such as the *Compassion Scale* (CS) by Pommier et al. (2011). The CS is a reliable, 24-item scale comprising four subscales: greater kindness, common humanity, mindfulness, and lessened indifference. The CS represents a general factor of compassion more broadly than Neff's (2003) Self-Compassion Scale (Pommier et al., 2020) which may be the important key in understanding environmental concern and care.

Another consideration for future work would be potentially adding in a narcissism scale to assess if egotistical values and trait-mindfulness or compassion builds up egoism in a way that is maladaptive in a self-absorbed narcissistic way. This could be of value to further assess the outcome measures of meditation on a range of factors that could have negative effects.

Finally, future research should consider how developmentally there may be differences in cognitive load and in stress-responses of the participants who responded in my study, compared to older adult populations. Emerging adults who are college-aged students in their early 20's may present differences in caring for others than older adult populations. Older adult populations values might be shifted in a legacy-concerned mindset or in a way that considers family responsibilities and community implications of supporting others. Which may differ from younger population in the emerging adult class who may be more focused on themselves, and having higher egotistical values, as they are starting their higher education journeys and focusing on starting their professional career paths, more so than focusing on family responsibilities and community obligations. To assess if there are differences due to age, future research may want to include older and younger populations to the sample.

## **Conclusion**

In conclusion, my findings suggests that policy makers should be aware that increasing self-compassion and trait-mindfulness may not initially lead to positive changes in

environmentally conscious values or policy support. Important implications from my results indicated neither higher trait mindfulness or having a previous meditation practice necessarily leads to socially beneficial outcomes, such as caring for the environment and supporting environmental policies. This is valuable to note, as it demonstrates how little psychologists know about how meditation and mindfulness works and its impacts on human behaviors, attitudes, intentions, and values. My study also opens up the conversation that mindfulness can have negative correlations with prosocial outcome measures such as supporting environmental policies that are geared towards supporting non-humans. My findings also reveal that self-compassion is not the same as compassion, and that while self-compassion may be necessary in order to build and cultivate compassion, it is insufficient alone to demonstrate an other-oriented care that is not centered within the self's interests. More research should be done in order to understand the relationship between western oriented mindfulness meditation and Buddhist oriented loving-compassion meditations, and their effects on self-compassion, trait-mindfulness, value orientation, and environmental policy support.