HOW DO MINDFULNESS AND SELF-COMPASSION ELICIT UNFAVORABLE OUTCOMES? NO MODERATING EFFECT DETECTED

A thesis submitted in partial fulfillment
of the requirements for the degree of

MASTER OF ARTS

to the faculty of the

DEPARTMENT OF PSYCHOLOGY

of

ST. JOHN'S COLLEGE OF LIBERAL ARTS AND SCIENCES

at

ST. JOHN'S UNIVERSITY
New York
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Date Submitted 4/17/2024 Date Approved 4/19/2024

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ABSTRACT

HOW DO MINDFULNESS AND SELF-COMPASSION ELICIT UNFAVORABLE OUTCOMES? NO MODERATING EFFECT DETECTED

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This work investigated the interaction of mindfulness and self-compassion when predicting flourishing. Mindfulness and self-compassion have become increasingly popular for their benefits, but there is much to uncover about how these variables elicit favorable and unfavorable outcomes. We hypothesized that having high levels of mindfulness and self-compassion would elicit the strongest relationships with flourishing. We also hypothesized that having high levels of both mindfulness and self-compassion would prevent either variable from having negative relationships with flourishing. Our survey gauged the mindfulness, self-compassion, and flourishing levels of 180 participants from a large, urban, parochial university undergraduate pool. We used hierarchical linear regression to test for an interaction effect of mindfulness and self-compassion when predicting wellbeing, which would provide evidence for a moderating effect. Our results did not support the presence of this moderation; neither variable strengthened the relationship between the other and flourishing. Also, a lack of either variable did not reverse the relationship between the other and flourishing. Given that mindfulness and self-compassion can sometimes elicit deleterious effects on wellbeing,

this study provides evidence that a lack of mindfulness or self-compassion are not responsible for these adverse outcomes.

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INTRODUCTION

Mindfulness can be broadly defined as the awareness that arises from intentionally bringing one's attention to the present moment with non-judgment and acceptance (Kabat-Zinn, 2003). It has become a popular target for psychotherapeutic change in widespread psychological interventions such as acceptance and commitment therapy (Hayes et al., 2006), dialectical behavior therapy (Lynch et al., 2006), mindfulness-based stress reduction, and mindfulness-based cognitive therapy (Neff and Dahm, 2015). Like mindfulness, self-compassion has increased in popularity in recent years, as evidenced by the exponential growth in self-compassion research (Neff, 2023). Self-compassion refers to the practice of treating oneself with attentiveness, kindness, and connectedness during times of suffering, similar to how one might treat a loved one during a difficult time (Neff, 2023). A range of psychotherapeutic interventions now include this Buddhist-derived conception of compassion as their focus and tend to aid in cultivating self-awareness, care, and self-compassionate habits (Gilbert, 2014; Neff and Dahm, 2015).

Both self-compassion and mindfulness are associated with a host of encouraging benefits (Ferrari et al., 2019; Tomlinson et al., 2017), but it is important to consider the complete picture of potential effects, as mindfulness and self-compassion can also elicit unfavorable effects in some circumstances (Britton, 2019; Neff, 2003). This point is supported by exploratory analysis from an unpublished study by the author at St. John's University. The results suggested that mindfulness and self-compassion strengthen each other's relationships with wellbeing, and that having high levels of both variables prevents them from having negative relationships with flourishing (Katz, 2023).

Given the complicated nature of mindfulness and self-compassion, it makes sense that much work has attempted to uncover the mechanisms through which they elicit their effects (Baer, 2010). By clarifying the mechanisms of mindfulness and self-compassion's effects, this work can inform psychologists who administer and develop self-compassion and mindfulness interventions. Identifying the key mechanisms for change can help practitioners place their effort where it counts. Shedding light on how mindfulness and self-compassion elicit undesired effects might reveal ways of avoiding such outcomes. The present study proposes a model for mindfulness and self-compassion, which posits that high levels of both are required to maximize their benefits and prevent both from manifesting pathologically.

Mindfulness

Mindfulness: Skillset and Trait

Mindfulness might be achieved through various contemplative practices, but perhaps the most profound and most influential recognition of mindfulness comes from Buddhism (Kabat-Zinn, 2003). After centuries of practice in the East, mindfulness found its way to the West because of Western spiritual seekers and Eastern traveling Buddhists. Over decades, the West adopted mindfulness and brought it under the incisive lenses of clinical and medical investigation (Kabat-Zinn, 2003).

Mindfulness can be recognized as both a state and a trait. Practice might give rise to a state of intention, nonjudgment, and present-moment awareness, and long-term practice can instantiate long-lasting characteristics in practitioners, even outside of mindfulness exercises (Kabat-Zinn, 2003). Still, mindfulness is present in every individual to one degree or another, as people naturally vary in their expression of

intentionality, nonjudgement, and present-moment awareness. This is to say that while some individuals with high levels of mindfulness reached their status through practice, others naturally exhibit higher levels of *dispositional mindfulness*, which refers to the long-lasting mindful tendencies of people (Stevenson et al., 2018). Dispositional mindfulness will be the focus of the current study.

Mindfulness Facets

Baer et al. (2006) identify five major facets, or aspects, of mindfulness. *Observation* refers to the extent to which one notes their present-moment experiences. An individual with high observational mindfulness might make note of their bodily sensations, the timbre of their thoughts, or the richness of their meal more frequently than an individual with low observational mindfulness. An individual with low observational mindfulness might be in an irritated mood, have an elevated heart rate, or have a frustrated thought pattern but fail to acknowledge these symptoms with explicit awareness.

Nonreactivity reflects one's ability to recognize and let go of one's engagement with thoughts, feelings, and impulses without becoming overly fixated on them (Baer et al., 2006). Someone with low nonreactivity would be reactive to thoughts and feelings. When experiencing shame, an individual with low nonreactivity might compulsively engage with their feelings, exacerbating the distress with shameful thoughts and self-blame. Another individual with low nonreactivity might compulsively think of self-consoling thoughts aimed at suppressing the unpleasant feelings. Contrarily, someone with high mindful nonreactivity might acknowledge their feelings and shameful thoughts

before letting them go, intentionally redirecting their attention without compulsive thinking.

Baer et al. (2006) identify *acting with awareness* as another component of mindfulness. Although it is common for the mind to wander and daydream while completing tasks (Jha et al., 2010), a person with high action-oriented awareness would do so less than an individual with low action-oriented awareness. A person with low levels of this mindfulness facet might do the dishes or walk their daily commute "on autopilot" while their attention is tied up in their thoughts, worries, or daydreams. On the other hand, a person with high levels of this facet experiences less mind-wandering, pays more attention to the tasks and activities they are engaged in and has thoughts related to their activities.

Describing refers to one's ability to identify one's feelings, sensations, and mental activity with words (Baer et al., 2006). An individual with low describing mindfulness might have a clenched jaw, high arousal, and violent thoughts and might be able to identify that they are unhappy. An individual with high describing mindfulness might have an easier time putting words to their experiences, using more description. They might not only identify anger but also note undertones of anxiety and guilt. People with low describing mindfulness would have a more challenging time giving words to how they are feeling or describing the content of their subjective experience.

Lastly, Baer et al. (2006) include nonjudgment, which describes people's tendency to take a nonevaluative stance toward their present-moment experiences (Peters et al., 2013). People who are low in this facet and tend to judge might tell themselves they should not be thinking their thoughts or feeling their emotions. They tend to place

thoughts and emotions in categories of good and bad. Contrarily, a person high in the nonjudgment facet might not assign such value to their thoughts and feelings, viewing them as more neutral mental events.

Benefits of Mindfulness

Researchers have associated a host of benefits with mindfulness. Increasing individuals' levels of dispositional mindfulness through training appears to improve their emotion regulation (Tomlinson et al., 2017). Both experimental and correlational studies have demonstrated an inverse relationship between mindfulness and maladaptive emotion regulation techniques such as thought suppression and experiential avoidance (Hedman et al., 2017; Baer et al., 2006). Individuals with mindful nonreactivity tend to observe and let go of distressing thoughts or images without compulsively engaging with them. Indeed, mindfulness appears to have inverse relationships with health anxiety symptoms (Hedman et al., 2017), negative thinking (Lo et al., 2014), and rumination, a well-known maintaining factor for depression (Tomlinson et al., 2017; Gallant, 2016). According to a review by Tomlinson et al. (2017), ample evidence supports the inverse relationship between dispositional mindfulness and symptoms of depression and anxiety.

Mindfulness has also been associated with benefits beyond emotion regulation. Mindfulness is positively associated with the executive function of inhibition, which is used to tune out distractions (Oberle et al., 2012; Gallant, 2016). Moore and Malinowski (2009) observed that mindfulness levels predicted scores in cognitive flexibility in meditators and non-meditators. Physiological changes also appear to accompany mindfulness. Meditation practice seems to increase neuroplasticity (Guidotti et al., 2021;

Alverez et al., 2023) and interoceptive awareness, which is the capacity to attend to bodily sensations (Garland et al., 2015).

Adverse Mindfulness Effects

Despite these benefits, it is important to look at the complete picture when it comes to the effects of mindfulness. For example, mindfulness helps to increase self-awareness (Garland et al., 2015), but it should be noted that increased self-awareness can result in negative affect (Phillips & Silvia, 2005; Silvia & Duval, 2003). Phillips and Silvia (2005) find that when people turn their attention toward the self, they often see that they fall short of their ideals and experience symptoms of depression. Further, mindfulness, especially the observation facet, has been associated with a decreased capacity to tolerate pain, increased anxiety, and increased depression (Britton, 2019). Though the tendency of mindfulness to increase awareness of bodily sensations has been associated with various benefits, this tendency can also have undesirable effects, such as increased emotional arousal, traumatic flashbacks, and panic (Britton, 2019). These effects were reported during mindfulness training.

Self-compassion

Self-compassion: Skillset and Trait

Like mindfulness, self-compassion can be understood as both a practice and a trait. While one can explicitly practice self-compassion and develop a skillset for it, people naturally vary in the degree to which they exhibit the traits of a self-compassionate person (Neff, 2023). Much of the operationalization of self-compassion was led by Neff (2003), who noted a subtle but crucial distinction between the Western and Buddhist conceptions of compassion (Neff, 2023). In the West, compassion tends to

be defined as the feeling that arises from witnessing another's suffering, which increases one's motivation to help them (Neff, 2023). The Buddhist conception of compassion applies not only to others but also to one's inward experiences of suffering. Thus, Neff (2003) observed the need for a Western construct apart from compassion to measure this idea of "compassion…turned inward" (Neff, 2023).

Self-compassion is similar to but distinct from Ellis's unconditional self-acceptance. As highlighted by Crisan et al. (2023), both views promote mindfulness and accepting one's shortcomings and flaws. Further, self-compassion and unconditional self-acceptance appear to operate through similar mechanisms, evidenced by their similar effects on variables such as self-blame, shame, and guilt (Crisan et al., 2023). Still, they differ in their emphases. Crisan et al. (2023) point out that self-compassion encourages cognitions about other people and the universal human experience of suffering, while unconditional self-acceptance does not.

Self-compassion Facets

Neff (2003) operationalized self-compassion using three main elements paired with their respective opposing elements. For example, one element, self-kindness, is paired with its opposing element, self-judgment. Next, common humanity is paired with its opposite, isolation. Last, Neff (2003) includes mindfulness and its opposite, overidentification. High levels of self-kindness, common humanity, and mindfulness and low levels of their opposites reflect high levels of overall self-compassion.

Expressing compassion for another person involves patience, understanding, and tenderness (Neff, 2023). Thus, *self-kindness* reflects how much an individual extends patience, understanding, and tenderness to themselves when facing difficulties. During a

difficult time, a person with self-kindness would have a patient attitude with themselves, forgive themselves for their shortcomings, and seek ways of caring for themselves. On the other end of the spectrum is *self-judgment*, which reflects a person's tendency to be critical and condemning of themselves, exhibiting self-punishing attitudes when their shortcomings manifest.

Another tendency of people to express compassion involves a sense of interpersonal connection. The expression of compassion is interpersonal in nature and connects two people through the common, universal experience of suffering (Neff, 2023). Thus, *common humanity* reflects the tendency to turn an understanding of the human experience inward. A person high in common humanity might remind themselves that everybody experiences failure, feelings of inadequacy, and suffering, thereby cultivating feelings of connectedness with humanity. This challenges the idea that the person's failures and faults are unique and excessive. Its opposite is *isolation*, which is the tendency to feel alone and disconnected from others during times of suffering and failure.

Next, Neff (2003) includes *mindfulness* in her operationalization of self-compassion. This operationalization of self-compassionate mindfulness is explicitly mindfulness of negative thoughts and feelings (Neff and Dahm, 2015). Neff (2023) asserts that mindfulness is necessary for turning compassion toward the self. Mindfulness allows people to notice when they are uncomfortable and prevents people from becoming overly fixated on unpleasant experiences. *Overidentification* is the opposing element of mindfulness and reflects the tendency of people to become absorbed in their negative thoughts and feelings. The use of "identification" in overidentification refers to a lack of self-distancing between the self and one's mental experiences (Neff, 2003).

Beneficial Self-Compassion Effects

Research has identified various positive implications of self-compassion. In terms of psychopathological symptoms, self-compassion inversely correlates with depression, anxiety, and stress (Ferrari et al., 2019). In terms of emotion regulation, self-compassion appears to decrease maladaptive coping mechanisms such as worry, emotional avoidance, and rumination (Ferrari et al., 2019; Finlay-Jones, 2017). In social situations, self-compassion is associated with altruism, forgiveness for others' faults, standing up for oneself, less anger toward others, and less shyness (Dzwonkowska & Żak-Łykus, 2015). Physiologically, Gilbert (2014) posits that the impact of self-compassion on stress can be explained by the biological inhibition of threat-detection systems and the activation of affiliative systems.

Adverse Self-compassion Effects

Like with mindfulness, it is important to consider the full picture of potential effects. Self-compassion can sometimes devolve into pathological forms that correlate inversely with wellbeing. Neff (2003) warns that high levels of mindfulness and low levels of overidentification protect self-compassion from becoming self-pity. Self-pity is associated with anger-rumination, low self-efficacy, neuroticism, and loneliness (Stöber, 2003). Neff and Dahm (2015) also warn that mindfulness prevents self-compassion from serving as a form of experiential avoidance. This maladaptive coping strategy has been associated with unfavorable behavioral consequences, including the maintenance of anxiety disorders (Eustis et al., 2016).

Hypotheses

Self-compassion Relies on Mindfulness

Neff (2023) asserts that mindfulness is the pillar upon which self-compassion rests. Self-compassion is not only a trait but also a skill set (Neff, 2023; Ferrari et al., 2019). Theoretically, people must recognize situations that call for the application of self-compassion skills to apply them. Thus, the ability to recognize opportunities to apply self-compassion might be necessary to fully benefit from it.

Mindfulness might serve to improve practitioners' ability to recognize these situations. Mindfulness reflects people's ability to notice and identify their thoughts and feelings, let them pass without engaging with them, and think flexibly (Tomlinson et al., 2017; Baer et al., 2006). Thus, mindfulness might allow people to notice thoughts and feelings that call for applying self-compassion skills, letting go of pathological thinking, and shifting to more self-compassionate thinking patterns. We employ hierarchical linear regression to quantify mindfulness's influence on self-compassion's relationship with wellbeing. This study hypothesizes that mindfulness will strengthen the relationship between self-compassion and flourishing.

Because of the importance of mindfulness in eliciting the benefits of self-compassion, we also tested Neff's (2003) assertion that mindfulness prevents self-compassion from devolving into self-pity. Mindfulness allows people to let go of their negative thoughts and feelings. Without it, people become fixated on their suffering. If an individual is high in self-kindness and common humanity, they might self-soothe and recognize the universal nature of suffering but fail to let go of their fixation in an adaptive way. This can lead to self-pity and avoiding unpleasant experiences under the guise of

self-compassion (Neff, 2003; Neff and Dahm, 2015). Therefore, we also hypothesize that high levels of self-compassion but low levels of mindfulness will reverse the relationship between self-compassion and flourishing, such that they are inversely related.

Mindfulness: "Dis-heartened" from East to West

Over decades, Buddhist mindfulness was adopted by the West and largely stripped of its philosophical and cultural contexts (Garland et al., 2015). It is unclear what might have been lost in the translation. Neff and Dahm (2015) note the tendency of the Western culture to struggle with warmth toward the self. Potentially, this tendency is present in the Western adaptation of mindfulness. Pervasive mindfulness expert Kabat Zinn (2003) warns that adapting mindfulness to clinical or medical contexts runs the risk of ignoring or dismissing deep and important features. He points out that, in Asian languages, including those spoken by the historical Buddha, the words for heart and mind are the same. It is possible that, in the journey from East to West, the aspect of mindfulness that was "*heartfulness*" was deemphasized.

We suspect that this conceptual hole could be filled by Neff (2003) through the operationalization of self-compassion. Given the sometimes adverse effects of mindfulness, it is possible that a lack of "heartfulness," or self-compassion, is the cause. Indeed, Neff and Dahm (2015) report that some studies find a mediational effect of self-compassion on the relationship between mindfulness interventions and their outcomes, suggesting an interdependence between mindfulness and self-compassion. Therefore, this study hypothesizes that self-compassion will strengthen the relationship between mindfulness and flourishing. High levels of both mindfulness and self-compassion are expected to enhance the positive relationship between mindfulness and flourishing. On

the other hand, high levels of mindfulness with low levels of self-compassion are expected to result in a negative relationship between mindfulness and flourishing.

METHOD

Participants

Participants included 180 undergraduate psychology students from St. John's University's human subject pool. Participants were rewarded with credit toward completing their psychology courses for completing the study (0.25 SONA Credits). Participants reflected a fair range of racial backgrounds and incomes. 49% of participants identified as White or Caucasian, 23% as Black or African American, 21% as other, 17% as Asian, 2% as American Indian/Native American or Alaska Native, 1% as Native Hawaiian or other Pacific Islander, and 1% preferred not to say. 33% of the sample identified as being of Spanish, Hispanic, or Latino origin. 31% of participants chose not to disclose their household income, 15% reported $50,000-$74,999, 14% reported less than $25,000, 12% reported $25,000-$49,999, 11% reported $75,000-$99,999, 9% reported $100,000-$149,999, 7% reported $150,000 or more, and 1% did not respond. One hundred seventy-seven participants were between 18 and 24 years old, one individual was between 25 and 34 years old, and two individuals were between 35 and 44 years old.

Measures

The Flourishing Scale

Diener et al.'s (2009) Flourishing Scale assessed participants' wellbeing. It is an 8-item self-report measure that reflects participants' perceived wellbeing across dimensions of relationships, optimism, competence, and purpose. It is intended as a brief general measure of perceived wellbeing and does not include subscales. It has been well-

validated as a measure of wellbeing (Hone et al., 2014), though some researchers report a negative skew (Perera et al., 2018; Schotanus-Dijkstra et al., 2016).

Five Facet Mindfulness Questionnaire – 15-Item Version

The Five Facet Mindfulness Questionnaire 15-item version (FFMQ-15) assessed participants' dispositional mindfulness levels. The FFMQ-15 is a validated measure of dispositional mindfulness and includes Observing, Describing, Nonjudgment, Nonreactivity, and Acting with Awareness subscales. There is some inconsistency regarding the factor structure of the FFMQ-15, specifically regarding the observation facet (Gu et al., 2016). While this inconsistency has been attributed to differences in how meditators and nonmeditators understand the observation items (Gu et al., 2016), the present study does not measure participants' meditation experiences. Because of this inconsistency, the present analysis uses the FFMQ-15 only to measure an overarching mindfulness factor and does not include the individual facets of mindfulness as variables for consideration.

The Self-Compassion Scale

The Self-Compassion Scale is a 26-item scale which includes six subscales. There has been debate about the factor structure of the self-compassion scale, though substantial evidence supports the validity of a 6-factor structure, including the kindness, judgment, common humanity, isolation, mindfulness, and overidentification subscales (Neff, 2023). Given this evidence, the present study conducts exploratory analyses with the Self-compassion Scale's subscales.

Procedure

Participants chose this study, posted under the title, “Are You Flourishing?” from a list of other St. John’s affiliated studies on the SONA Systems’ website. The link directed participants to the Qualtrics website, where they indicated their informed consent and completed the survey. The survey took roughly ten minutes to complete and included the Flourishing Scale, Mindfulness Scale, Self-Compassion Scale, and standard demographics questions from the Qualtrics-certified library, in that order. After completing the survey, participants were rewarded with .25 SONA credits and debriefed on the purpose of the study. Participants’ responses were recorded anonymously and stored in Qualtrics as a CSV file.

RESULTS

Data Analysis Techniques

Data cleaning was performed in Microsoft Excel. Responses from participants who reported they were under the age of 18 were deleted and not included in the analyses. When participants completed the survey twice, only their first response was included in the analysis. Participants who did not complete one or more scales were excluded from the analysis. If participants did not respond to an item, the missing data points were imputed with the average response for the item to enable the performance of statistical techniques, such as linear regression, which do not permit missing data. Less than 0.5% of the data were imputed.

Demographic analyses were conducted in Microsoft Excel. Hierarchical linear regression and normality testing was performed in RStudio Version 2022.07.0 using the lm and shapiro.test functions included in the default, base R package. Normality testing was performed using the Correlation analyses, confirmatory factor analysis, and exploratory factor analysis were performed in JASP Version 0.18.3.0. For our exploratory factor analysis, our applied rotation method was Promax, an oblique rotation, and we included factors with eigenvalues greater than 1.

Hypothesis Testing

According to Shapiro-Wilkes tests, the distribution of scores for the Flourishing Scale ($W = 0.93$, $df = 178$, $p < .05$) and FFMQ-15 ($W = 0.98$, $df = 178$, $p < .05$) were not normal. The Flourishing Scale distribution had a negative skew of -0.988, indicating a bias toward positive scores. Thus, instead of using Pearson's Correlations, we used Spearman's Correlations, as suggested by Aron et al. (2013). Flourishing, mindfulness,

and self-compassion were all significantly and positively correlated. The results of these correlation tests, along with information for the self-compassion subscales, are available in Table 1.

Table 1

Spearman's Correlations for Flourishing, Mindfulness, and Self-compassion (with subscales)

Variable		Flourishing.T	FFMQ.T	SCS_TOTAL	SCKIND.T	SCJUD.RT	SCCMHU.T	SCISO.RT	SCMINDT	SCOVID.RT
1. Flourishing.T	Spearman's rho	—								
2. FFMQ.T	Spearman's rho	0.496***	—							
3. SCS_TOTAL	Spearman's rho	0.521***	0.584***	—						
4. SCKIND.T	Spearman's rho	0.429***	0.445***	0.725***	—					
5. SCJUD.RT	Spearman's rho	0.337***	0.470***	0.756***	0.404***	—				
6. SCCMHU.T	Spearman's rho	0.265***	0.316***	0.534***	0.581***	0.070	—			
7. SCISO.RT	Spearman's rho	0.433***	0.487***	0.810***	0.406***	0.790***	0.175*	—		
8. SCMINDT	Spearman's rho	0.396***	0.366***	0.626***	0.679***	0.208**	0.637***	0.214**	—	

Spearman's Correlations for Flourishing, Mindfulness, and Self-compassion (with subscales)

Variable		Flourishing.T	FFMQ.T	SCS_TOTAL	SCKIND.T	SCJUD.RT	SCCMHU.T	SCISO.RT	SCMINDT	SCOVID.RT
9. SCOVID.RT	Spearman's rho	0.306***	0.409***	0.742***	0.265**	0.734**	0.069	0.777**	0.223*	—

Note. *** = Correlation significant at p < .001.* ** = Correlation significant at p < .01.* * = Correlation significant at p < .05.* Flourishing.T = Total Flourishing Scale score; FFMQ.T = Five Facet Mindfulness Questionnaire Total score; SCS_TOTAL = Self-Compassion Scale Total score; SCKIND.T = Self-Compassion Scale Self-Kindness subscale score; SCJUD.RT = Self-Compassion Scale Self-Judgement subscale score; SCCMHU.T = Self-Compassion Scale Common Humanity subscale score; SCISO.RT = Self-Compassion Scale Isolation subscale score; SCMINDT = Self-Compassion Scale Mindfulness subscale score; SCOVID.RT = Self-Compassion Scale Overidentification subscale score.

Before proceeding with hierarchical linear regression to test the hypotheses, modeling assumptions were tested to ensure the analyses' validity. According to a Shapiro-Wilkes test, the distribution of residuals for the first model was not normal (W = 0.90, df = 178, $p < .05$). Using bootstrapping to compensate for non-normality in the data is an approach with ample precedent and empirical support (Gu et al., 2016). Bootstrapping was performed using the *boot* package in RStudio (Canty & Ripley, 2017). Each bootstrapping procedure was conducted on 1,000 bootstrapping samples. Bootstrapping supported all results unless otherwise specified.

Hierarchical linear regression analyses tested a) the strength and direction of a moderating effect of mindfulness on the relationship between self-compassion and flourishing and b) the strength and direction of a moderating effect of self-compassion on the relationship between mindfulness and flourishing. If a variable representing the interaction of mindfulness and self-compassion were significant, it would have supported our hypothesis that a moderating effect is present.

First, Model 1 included self-compassion as a predictor for flourishing. This model demonstrated that self-compassion significantly accounts for 15% of the variance in flourishing $F(1, 178) = 32.67$, $p < .001$, $R^2 = 0.1551$. Self-compassion was a significant predictor of flourishing ($b = 5.0138$, $p < .001$).

Model 2 used self-compassion and mindfulness to predict flourishing. Together these variables significantly predicted flourishing, $F(2, 177) = 24.23$, $p < .001$, $R^2 = 0.2149$. Self-compassion predicted unique variance in flourishing ($b = 2.6003$, $t(177) = 2.424$, $p < .05$). Mindfulness also significantly predicted unique variance in flourishing ($b = 0.3849$, $t(177) = 3.673$, $p < .001$).

Model 3 used self-compassion, mindfulness, and the interaction of self-compassion and mindfulness to predict flourishing. The overall model did not significantly predict flourishing ($F(3, 176) = 16.5$, $p > .05$, $R^2 = 0.2195$). Self-compassion did not significantly predict flourishing ($b = 7.68369$, $t(176) = 1.497$, $p > .05$). The interaction of mindfulness and self-compassion did not significantly predict flourishing ($b = -0.10109$, $t(176) = -1.013$, $p > .05$). In the original dataset, mindfulness significantly predicted flourishing for this model ($b = 0.66459$, $t(176) = 2.250$, $p < .05$). However, using a bootstrapping analysis for this model, mindfulness did not predict flourishing with 95% confidence; the *p*-value's confidence interval for a confidence of 95% ranged from 0.00037 to 0.31668. With such an extensive range, there is little certainty that the true *p*-value is less than .05.

An ANOVA revealed that model 2 (mindfulness and self-compassion) explained more variance in flourishing than model 1 (self-compassion alone). The change in R^2 from model 1 to model 2 was significant ($F = 5.8762$, $p < .05$). The change in R^2 from

model 2 (mindfulness and self-compassion) to model 3 (mindfulness, self-compassion, and their interaction) was not significant ($F = 1.0258$, $p > .05$). These results do not support our hypotheses. The interaction between mindfulness and self-compassion was not significant, suggesting that no moderating effect is present. Our results do not support contemporary (Neff, 2023; Neff, 2015; Neff, 2003) ideas concerning the interactions of mindfulness and self-compassion.

FFMQ Factor Analyses

Because of the inconsistency in the factor structure for the FFMQ-15, we decided to conduct an exploratory analysis and contribute to the data surrounding the validity of the FFMQ-15 factor structure.

We conducted a confirmatory factor analysis in which items were loaded onto their respective subscales. We used the R lavaan Structural Equation Modeling program (Rosseel 2012), which can run on the JASP software platform (Goss-Sampson 2018; JASP 2018) using the DWLS estimation. The non-normality of the FFMQ-15 distribution supported our use of the DWLS estimation method. Fit indices included the comparative fit index, the root mean square error of approximation, the non-normed fit index, the standardized root mean square residual, and the Tucker-Lewis Index. As indicated in Table 2, none of these fit indices satisfied standard cutoffs (Gu et al., 2016), thereby providing evidence against a five-factor model for FFMQ-15.

Table 2

FFMQ-15 Confirmatory Factor Analysis Fit Indices for a Five-Factor Model

Metric	Value
Root mean square error of approximation (RMSEA)	0.107
RMSEA 90% CI lower bound	0.092

FFMQ-15 Confirmatory Factor Analysis Fit Indices for a Five-Factor Model

Metric	Value
RMSEA 90% CI upper bound	0.123
RMSEA p-value	2.664×10^{-9}
Standardized root mean square residual (SRMR)	0.110
Comparative Fit Index (CFI)	0.817
Bentler-Bonett Non-normed Fit Index (NNFI)	0.760
Tucker-Lewis Index	0.760

Furthermore, we did an exploratory factor analysis, which identified four factors with eigenvalues greater than 1. Items for the describing, nonjudgment, and nonreactivity facets loaded in separate facets. However, items for the observing and acting with awareness facets were split between other facets. Factor loadings can be seen in Table 3. Our results do not support the five-factor structure of the FFMQ-15.

Table 3

Factor Loadings for Exploratory Factor Analysis with Items of the FFMQ-15

	Factor 1	Factor 2	Factor 3	Factor 4	Uniqueness
Q2_4REV	0.997				0.301
Q2_9REV	0.900				0.353
Q2_14REV	0.811				0.415
Q2_3REV	0.571				0.568
Q2_13REV	0.409				0.484
Q2_2		0.731			0.390
Q2_12		0.707			0.464
Q2_7REV		0.562			0.366
Q2_6		0.442			0.617
Q2_10			0.801		0.473
Q2_15			0.722		0.580
Q2_5			0.588		0.588
Q2_1				0.820	0.549
Q2_11				0.596	0.586
Q2_8REV					0.550

Note. The applied rotation method is promax. Correlations less than 0.4 are not shown.

Self-compassion Mindfulness Subscales

Neff and Dahm (2015) report that the self-compassion's mindfulness subscale measures a specific kind of mindfulness aimed at negative thoughts and feelings. To test this empirically, we conducted hierarchical linear regression with the mindfulness subscale, the overidentification subscale, and the FFMQ-15. The mindfulness subscale, overidentification subscale, and FFMQ-15 had moderate positive relationships, as seen in Table 1.

A hierarchical linear regression model used the FFMQ-15, the self-compassion mindfulness subscale, and the overidentification subscale to predict self-compassion with the two mindfulness subscales removed from the calculation of the total Self-compassion scale. The overall model significantly predicted self-compassion without mindfulness subscales ($F(1, 176) = 143.3$, $p < .05$, $R^2 = 0.7095$). The FFMQ-15 ($b = 0.027236$, $t(176) = 5.588$, $p < .001$), mindfulness subscale ($b = 0.337818$, $t(176) = 8.924$, $p < .001$), and overidentification subscale ($b = 0.335151$, $t(176) = 9.880$, $p < .001$) all predicted unique variance in self-compassion with mindfulness scales removed. This suggests that the FFMQ-15 and the mindfulness subscale of the Self-compassion Scale measure different constructs that predict unique variance in self-compassionate kindness and common humanity.

We also tested whether the results of our hypothesis testing would change if we used the Self-compassion Scale's mindfulness subscale as the measure of mindfulness instead of the FFMQ-15. The model included the mindfulness subscale, self-compassion, and their interaction to predict flourishing. The overall model significantly predicted flourishing ($F(3, 176) = 11.82$, $p < .001$, $R^2 = 0.1676$). However, mindfulness (b = -

1.2223, $t(176) = -0.501$, $p > .05$), self-compassion ($b = 1.1376$, $t(176) = 0.392$, $p > .05$), and their interaction ($b = 0.8802$, $t(176) = 1.089$, $p > .05$) all still failed to significantly predict flourishing. Our hypotheses were still not supported when using the Self-compassion Scale's mindfulness subscale instead of the FFMQ-15 to measure mindfulness.

DISCUSSION

The current study hypothesized that mindfulness and self-compassion would interact to enhance their relationships with flourishing. Additionally, we hypothesized that mindfulness and self-compassion prevent each other from manifesting pathologically such that they have negative relationships with flourishing. Our model including mindfulness, self-compassion, and their interaction did not significantly predict flourishing. Controlling for their interaction did not significantly reverse either variable's relationship with flourishing. As such, our results did not support our hypotheses.

Mindfulness as a moderator

We explain the lack of support for our hypotheses in various ways. First, our results might correctly disprove our hypotheses. Mindfulness and self-compassion might not have beneficial interaction effects. Neff (2023) asserts that mindfulness is the pillar upon which self-compassion rests, and that it prevents self-compassion from devolving into self-pity (Neff, 2003) or experiential avoidance (Neff and Dahm, 2015). However, there is hardly empirical support to be found for these theories.

Our study provides an empirical investigation into this putative moderating effect of mindfulness on the benefits of self-compassion. We provide evidence against this effect. Our results suggest that mindfulness does not improve the extent to which self-kindness and common humanity promote wellbeing, which violates the assertion by Neff and Dahm (2015) that mindfulness, self-kindness, and common humanity all interact to enhance each other's effects. Our findings also suggest that self-kindness and common humanity are not adversely transformed into self-pity or experiential avoidance through a

lack of mindfulness. Optimistically, this might mean that one can safely practice self-kindness and common humanity even if mindfulness skills are unavailable.

Because Neff and Dahm (2015) explain that the mindfulness subscale of the Self-compassion Scale is distinct from ordinary mindfulness, we conducted an exploratory analysis to see if our results changed when using the Self-compassion Scale's mindfulness subscale to measure mindfulness. The FFMQ-15, the mindfulness subscale, and the overidentification subscale from the Self-compassion Scale all predicted unique variance in self-compassion. This supports Neff and Dahm's (2015) assertion that the mindfulness subscales measure a unique kind of mindfulness. Nonetheless, including the mindfulness subscale in the analyses did not change support for our hypotheses.

We did not conduct analyses with the FFMQ-15's subscales because of mixed results regarding its factor structure (Gu et al., 2016), and our factor analyses with the FFMQ-15 added to this uncertainty. Our results undermine claims that the FFMQ-15 subscales serve as reliable measures of what they purport to measure. Future work should further clarify the validity of the FFMQ-15's subscales and develop more reliable short-form measures of Baer et al.'s (2006) five mindfulness facets.

In summary, our results indicate that self-compassion researchers should reconsider the pivotal role of mindfulness in eliciting the benefits of self-compassion. We find that mindfulness does not strengthen or reverse the relationship between self-compassion and its outcomes. Future work should investigate the mechanisms that are responsible for enhancing or corrupting self-compassion.

Self-Compassion as a Moderator

Unlike the lack of evidence for the effect of mindfulness on the relationship between self-compassion and its benefits, there has been substantial support for the role of self-compassion in bringing about the benefits of mindfulness. Neff and Dahm (2015) highlight the work of Shapiro, Astin, Bishop, and Cordova (2005) and Kuyken et al. (2010), who found mediational effects of self-compassion on the relationship between mindfulness and its benefits. Tingaz et al. (2021) also concluded that self-compassion mediates the benefits of mindfulness. Still, Baer (2010) finds that the evidence for self-compassion's mediational effect on mindfulness is weak and calls for more rigorous testing.

The present study tested for a moderating effect of self-compassion on the relationship between mindfulness and flourishing. Our results indicate that self-compassion does not improve or change the direction of the relationship between mindfulness and its benefits. Similarly, Tingaz et al. (2021) report finding no moderating effect of self-compassion, despite detecting a mediational effect. Our results replicate these null findings and support Baer's (2010) assertion that the evidence for self-compassion's effect on the outcomes of mindfulness is weak. While mixed results from other studies indicate that self-compassion might be an avenue through which mindfulness derives its benefits, our results suggest that it does not strengthen the outcomes of mindfulness or reverse the relationship between mindfulness and its outcomes.

Our results leave room for work to be done. Mindfulness can have negative consequences (Britton, 2019). We theorized that a lack of self-compassion would explain

what causes mindfulness to elicit pathological outcomes, but our results do not support our theory. Thus, future work should continue to investigate what moderators cause the relationship between mindfulness and wellbeing to become negatively associated. Such work can protect mindfulness practitioners from unfavorable effects and reveal the most potent mechanisms of mindfulness practice.

Type 2 Error

We might also explain the lack of support for our hypotheses as a type 2 error. Afterall, a lack of evidence for an effect is not conclusive evidence that there is no effect (Fayers, 2011). Our results could be muddled by our sample, which presents a negatively skewed distribution of scores for the Flourishing Scale. The first encounter participants had with our study was from a link titled, "Are You Flourishing?" This title could have deterred participants who might have scored low on the Flourishing Scale. It could be the case that most of the participants who chose to complete this survey were eager to answer questions about whether or not they were flourishing. People who might have scored lower on the Flourishing Scale might have declined to participate in a survey that required them to answer such questions. Alternatively, this skew could reflect a bias with the Flourishing Scale, as other researchers attained a similar skew for Flourishing Scale scores (Perera et al., 2018; Schotanus-Dijkstra et al., 2016).

Regardless of its cause, a skewed distribution of scores for a dependent variable reduces statistical power and increases the chances of type 2 errors (Fayers, 2011). In other words, the skewed nature of our dataset increased the chances that we incorrectly concluded that the moderating effect was not present. With an increased probability of Type 2 error, the interaction effect between self-compassion and mindfulness could have

been present in the dataset, but our skewed sample might have decreased our statistical power such that we could not detect it. Theoretical and empirical backing for an interaction of mindfulness and self-compassion supports this interpretation of our results.

This study finds a lack of support for an interaction effect between mindfulness and self-compassion when predicting wellbeing. If accurate, these findings violate claims from Neff (2023), calling into question the theoretically crucial role of mindfulness in eliciting the benefits of self-compassion. We also provide evidence against Neff (2003) and Neff and Dahm's (2015) assertions that mindfulness prevents self-compassion from devolving into self-pity and experiential avoidance. Furthermore, we replicate results from Tingaz et al. (2021) that self-compassion does not moderate the relationship between mindfulness and its outcomes. Mindfulness and self-compassion can elicit adverse effects, and our work suggests that these adverse effects do not occur through a lack of mindfulness or self-compassion. Optimistically, we find that mindfulness and self-compassion are two practices that can independently improve wellbeing. Engaging in one practice without the other does not seem to lead to any undesirable effects based on our results. Future work should investigate moderators of mindfulness, self-compassion, and their relationships with wellbeing to illuminate what might cause adverse effects to occur.

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