Mindfulness, Self-compassion, Self-efficacy, and Gender as Predictors of Depression, Anxiety, Stress, and Well-being

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Abstract We examined facets of mindfulness (describing, awareness, non-judging, and non-reactivity), three dimensions of negative self-compassion (self-judgment, isolation, and overidentification), self-efficacy, and gender as predictors of depression, anxiety, stress, and well-being among 204 undergraduates in the USA. Although there is overlap across these phenomena, previous research has not examined them together. Describing, non-judging, and awareness (inversely), as well as isolation and self-judgment, predicted depression. Only mindful non-judging and non-reactivity predicted anxiety (inversely). Non-judging, awareness, and non-reactivity (inversely), as well as isolation, predicted stress. Mindful describing and non-judging, together with self-efficacy and gender, predicted well-being. After accounting for self-efficacy, self-compassion, and gender, facets of mindfulness contributed unique variance in predicting depression, anxiety, stress, and well-being. We confirmed the importance of mindful non-judging in predicting distress (inversely) and well-being and identified the particular contributions of mindful describing for depression (inversely) and well-being. We established the value of mindful non-reactivity (inversely) for anxiety and stress. Additionally, we confirmed the relevance of self-judgment and isolation for depression and of isolation for stress. Finally, we established self-efficacy and gender as predictors of well-being. The preceding findings speak to the importance of investigating mindfulness, self-compassion, self-efficacy, and gender together in predicting depression, anxiety, stress, and well-being.

Keywords Mindfulness · Self-compassion · Self-efficacy · Gender · Depression · Anxiety · Stress · Well-being

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Introduction

College students experience significantly higher levels of psychological distress (Bayram & Bilgel, 2008; Stallman, 2010) and lower levels of psychological well-being (Cooke et al., 2006) than the general population. Predictors of psychological distress include low levels of mindfulness (Cash & Whittingham, 2010), low self-compassion (Lightsey & Barnes, 2007), and low self-efficacy (Fry & Debats, 2002; Lightsey & Barnes, 2007). Predictors of well-being, on the other hand, include high levels of mindfulness (Brown & Ryan, 2003; Carmody & Baer, 2008; Howell et al., 2008), high self-compassion (Neely et al., 2009), and high self-efficacy (Yu et al., 2005). Undergraduates were less studied than other populations in research that addressed these phenomena. Given that researchers have not examined facets of mindfulness, dimensions of self-compassion, self-efficacy, and gender together as predictors of distress and well-being, we will investigate these relationships in undergraduates.

We turn first to mindfulness, a millennia-old concept that has its roots in Eastern philosophy and Buddhism. Mindfulness is defined as a heightened and deliberate awareness of both the internal and external experiences taking place in the present moment (Brown & Ryan, 2003; Kabat-Zinn, 1990). Definitions of mindfulness have varied in construct from one facet (Brown & Ryan, 2003) to multiple facets (Baer et al., 2006). Baer et al. (2006) identified five distinct facets of mindfulness: observing our sensations, perceptions, thoughts, and emotions; describing these experiences with words; acting with awareness rather than on autopilot; non-judging of these experiences; and non-reactivity to these experiences.

Researchers have studied the associations between mindfulness and well-being (Caldwell et al., 2011; Howell et al., 2011), as well as inverse relationships between mindfulness and psychological distress (Hinterman et al., 2012; Jimenez et al., 2010; Masuda & Tully, 2012; Palmer & Rodger, 2009;

Roberts & Danoff-Burg, 2010), in college students. Although there is literature on the associations between mindfulness and psychological outcomes in undergraduates, there is less work on predictive relationships utilizing facets of mindfulness as opposed to a unidimensional conceptualization of mindfulness in this population. In such a rare study with college students, Christopher and Gilbert (2010) identified mindful accepting as an inverse predictor of depressive symptoms and mindful observing as a predictor of life satisfaction.

Researchers examining the five facets of mindfulness have focused on adult populations, not undergraduates. Baer et al. (2008) found that describing, awareness, non-judging, and non-reactivity predicted well-being, while observing did not. On the other hand, de Bruin et al. (2012)) revealed that non-judging, non-reactivity, and awareness inversely predicted psychological symptoms. Cash and Whittingham (2010) reported a narrower range of mindfulness facets that predicted psychological outcomes: non-judging predicted depression, anxiety, and stress inversely and well-being positively, while awareness inversely predicted depression. Bohlmeijer et al. (2011)) found that awareness and non-judging were inversely associated with depression and anxiety and positively with well-being, making them the shared associates of psychological outcomes; describing was associated with both depression (inversely) and positive mental health, perhaps connecting the cognitive features of language and mental health. It appears that different populations (e.g., meditators versus non-meditators; clinical versus community populations) used facets of mindfulness in unique ways, just as demographic groups based on age and gender differed in their use of coping strategies (Woodhead et al., 2013). Identifying the ways in which facets of mindfulness predict psychological outcomes among undergraduates is, therefore, of interest.

Second, we examine self-compassion, which is defined as being kind toward oneself when facing difficulties, inadequacies, and failure (Neff, 2003a; Neff et al., 2007). Neff et al. (2007) conceptualized self-compassion as having three positive dimensions and three negative counterparts: self-kindness versus self-judgment, which involves viewing oneself with warmth rather than with criticism; common humanity versus isolation, which requires acknowledging that suffering is universal rather than personal; and mindfulness versus overidentification, which refers to a balanced approach to negative experiences that includes awareness without over-involvement. Neff's conceptualization of self-compassion is based on her research with undergraduates, making her work especially pertinent to our study. Researchers have established associations between self-compassion and life satisfaction (Wei et al., 2011) and well-being (Neely et al., 2009), as well as inverse associations with depression (Raes, 2011) and anxiety (Neff et al., 2005), in college student samples. Clearly, self-compassion was a useful predictor of psychological outcomes in college student populations.

Van Dam et al. (2011)) found that the self-compassion dimensions of isolation and overidentification strongly predicted anxiety and worry, while self-judgment and isolation most strongly predicted depression (positively) and well-being (inversely) in a noncollege sample. Dimensions of self-compassion may reflect aspects of coping strategies, which differ across age and gender (Ólafsson & Jóhannsdóttir, 2004). It is, therefore, of interest to investigate the particular dimensions of self-compassion that predict psychological outcomes in college students.

Third, we focus on self-efficacy, which involves a judgment of one's ability to complete a task. The higher the level of confidence, the more likely it is that a person will persevere until the task is completed (Bandura, 1993). Sherer et al. (1982) defined general self-efficacy as an overarching, as opposed to domain-specific, confidence in one's abilities across a broad array of tasks. Bandura (2006) found that possessing a strong sense of self-efficacy contributed to psychological well-being. Conversely, others have found that self-efficacy inversely predicted psychological distress (Fry & Debats, 2002), depressive symptoms (Chen et al., 2010), and anxiety (Endler et al., 2001).

Regarding undergraduate populations, Tong and Song (2004) and Yu et al. (2005) found that students with stronger general self-efficacy reported higher levels of well-being. On the other hand, Quimby and O'Brien (2006) and Lightsey and Barnes (2007) revealed that self-efficacy inversely predicted psychological distress among college students. Researchers have not examined the combined effects of mindfulness, self-compassion, self-efficacy, and gender in predicting psychological distress and well-being in undergraduates.

Fourth, researchers have begun studying the combined effects of mindfulness and self-compassion in predicting psychological outcomes. In this regard, Van Dam et al. (2011) investigated the relative importance of unitary mindfulness and six dimensions of self-compassion in predicting depression, anxiety, worry, and quality of life. They found that overall self-compassion made a greater unique contribution to the prediction of the preceding outcomes than did unitary mindfulness. On the other hand, Hollis-Walker and Colosimo (2011) examined the five facets of mindfulness and six dimensions of self-compassion and found that, when examined separately, all five facets of mindfulness and four dimensions of self-compassion predicted well-being. When they examined the facets of mindfulness and self-compassion together, however, they found that only the mindfulness facets of describing and awareness (positively) and the self-compassion facet of isolation (inversely) predicted well-being, indicating that some facets of mindfulness and dimensions of self-compassion have conceptual overlap. Similarly, Baer et al. (2012) investigated composites of the five facets of mindfulness and six dimensions of self-compassion and found that common humanity/mindfulness dimensions of self-compassion

and mindful describing and non-judging/non-reactivity predicted well-being. The combined predictive value of the facets of mindfulness and dimensions of self-compassion, together with self-efficacy and gender, is of particular interest to us in this study.

Present Study

Extending previous research, we propose that the mindfulness facets of non-judging and awareness may be shared in the prediction of psychological distress and well-being (Bohlmeijer et al., 2011; Cash & Whittingham, 2010; de Bruin et al., 2012). In addition, the use of describing may speak to the cognitive features of depression and well-being, while non-reactivity may address the autonomic arousal of stress and anxiety. Similarly, in keeping with Van Dam et al. (2011), the self-compassion dimensions of self-judgment and isolation may predict depression and well-being, while isolation and overidentification may predict anxiety and stress. Furthermore, just as coping strategies varied by gender in predicting psychological outcomes (Ólafsson & Jóhannsdóttir, 2004; Woodhead et al., 2013), mindfulness, self-compassion, and self-efficacy may vary by gender in predicting depression, anxiety, stress, and well-being in undergraduates. We will investigate specific facets of mindfulness and dimensions of self-compassion, together with self-efficacy and gender, in predicting depression, anxiety, stress, and well-being among college students.

Hypothesis 1 is that facets of mindfulness (non-judging, awareness, and describing), dimensions of self-compassion (self-judgment and isolation), general self-efficacy, and gender, together, will predict depressive symptoms. In hypothesis 2, we propose that facets of mindfulness (non-judging, awareness, and non-reactivity), dimensions of self-compassion (isolation and overidentification), general self-efficacy, and gender, together, will predict anxiety symptoms. Hypothesis 3 is that facets of mindfulness (non-judging, awareness, and non-reactivity), dimensions of self-compassion (isolation and overidentification), general self-efficacy, and gender, together, will predict stress symptoms. In hypothesis 4, we suggest that facets of mindfulness (non-judging, awareness, and describing), dimensions of self-compassion (self-judgment and isolation), general self-efficacy, and gender, together, will predict well-being.

Method

Participants

Full-time undergraduates from a public 4-year university (males $n = 74$, females $n = 130$) aged 18 years or older participated in this study. Most participants were between 18 and 20 years of age (82.5 %), 12.1 % were between 21 and 25 years old, 1.9 % were between 26 and 30 years old, and 3.4 % were older than 31 years old. Participants predominantly identified as White non-Hispanic (85.4 %), while 7.3 % identified as White Hispanic, 3.4 % as African American, 2.4 % as Asian, 1.0 % as American Alaskan, and 0.5 % as Hawaiian or Pacific Islander.

Participants were recruited through the Psychology Subject Pool as well as through the Psychology Department faculty offering extra credit to students in other classes. All participants had the opportunity for alternate assignments, either to meet the partial research requirement for the Psychology Subject Pool or for extra credit.

Materials

Demographics

We devised a demographic form for the present study. In addition to obtaining basic information, the form was used to confirm the eligibility of participants in the study. Questions included age, gender, number of course credits for the semester, and ethnicity.

Mindfulness

The Five Facet Mindfulness Questionnaire (Baer et al., 2006) assesses mindful observing, describing, awareness, non-judging, and non-reactivity. It consists of 39 items that are scored on a five-point scale, ranging from 1=never or very rarely true to 5=very often or always true. Higher scores indicate higher levels of mindfulness. All subscales have eight items, except non-reactivity, which has seven. Cronbach's alphas for subscales ranged from 0.68 to 0.88. Mean subscale scores were computed by dividing the subscale totals by the number of items to allow subscale comparisons.

Self-compassion

The Self-compassion Scale: Short Form (Raes et al., 2011) is a shortened version of the original long version (Neff, 2003b). We used it to assess self-compassion on three (of the six) dimensions: self-judgment, isolation, and overidentification (Cronbach's alphas, 0.55–0.70). The items are scored on a five-point scale with two items per subscale. Response options range from 1=almost never to 5=almost always.

Self-efficacy

Researchers use the Self-efficacy Scale (Sherer et al., 1982) to assess general expectations of self-efficacy that are not tied to specific situations or behaviors. We used the 17-item subscale assessing general self-efficacy (Cronbach's alpha=0.86).

Each item is scored on a five-point scale, with response choices ranging from 1=disagree strongly to 5=agree strongly. Higher scores indicate higher levels of general self-efficacy.

Distress

The Depression, Anxiety, and Stress Scales-21 (DASS-21; Lovibond & Lovibond, 1995) is a shortened version of the original 42-item measure of distress, the DASS. We used it to assess levels of distress on three subscales: depression, anxiety, and stress. It consists of 21 items with seven items per subscale, scored on a four-point scale ranging from 0=did not apply to me at all to 3=applied to me very much or most of the time. The total score is the summation of all the items. Higher scores indicate higher levels of distress. Cronbach's alphas for subscales ranged from 0.79 to 0.84.

Well-being

The Warwick–Edinburgh Mental Well-being Scale (Tennant et al., 2007) contains 14 items that are scored on a five-point scale, ranging from 1=strongly disagree to 5=strongly agree. The total score is the summation of all the items. Higher scores indicate greater well-being. Cronbach's alpha was 0.91 for this scale.

Procedure

This study was approved by the Human Subjects Review Board of our institution. The protocol consisted of six questionnaires, presented in the following order: demographic form; Five Facet Mindfulness Questionnaire; Self-compassion Scale: Short Form; Self-efficacy Scale; DASS-21; and the Warwick–Edinburgh Mental Well-being Scale. Participants were assessed in a group setting and took 30–45 min to complete the protocol.

Data Analysis

We used hierarchical regression analyses to test each hypothesis. In the first step of the hierarchical regression, we entered general self-efficacy for all the analyses. Two dimensions of self-compassion were entered in the second step. When testing the hypotheses on depression and well-being, we used self-judgment and isolation as predictors. For anxiety and stress, we used isolation and overidentification as predictors. In the third and final step, we entered three facets of mindfulness. For the analyses testing depression and well-being, we entered non-judging, awareness, and describing as predictors. When testing the hypotheses for anxiety and stress, we used non-judging, awareness, and non-reactivity. Gender was entered in every step for all analyses (men=0, women=1).

Results

See Table 1 for the descriptive statistics of mindfulness, self-compassion, self-efficacy, depression, anxiety, stress, and well-being, as well as gender analyses.

Hypothesis 1

Hierarchical regression analyses yielded partial support for hypothesis 1 (see Table 2). General self-efficacy inversely predicted depression in the first step and continued to be significant along with self-judgment and isolation (negative self-compassion) in the second step. In the final step, however, describing, non-judging, and awareness (mindfulness) inversely, as well as isolation and self-judgment (negative self-compassion), significantly predicted depression and accounted for almost all of the predicted variance (40 %). Gender was not significant in any step. Describing was the strongest unique predictor of depression based on sr^2, followed by non-judging, isolation, awareness, and self-judgment. Cohen's f^2 reflected at least a medium effect size for the addition of dimensions of self-compassion in the second step and facets of mindfulness in the third step (see Table 2).

Hypothesis 2

Hierarchical regression analyses partially supported hypothesis 2 (see Table 3). General self-efficacy inversely predicted anxiety only in step 1. The addition of dimensions of self-compassion in the second step led to overidentification predicting anxiety. In the final step, however, only non-judging and non-reactivity (mindfulness) inversely predicted anxiety, accounting for most of the predicted variance (27 %). Gender was not significant in any step. Non-judging was the strongest unique predictor of anxiety, based on sr^2. Cohen's f^2 reflected a medium effect size for the addition of dimensions of self-compassion in the second step and facets of mindfulness in the third step (see Table 3).

Hypothesis 3

Our hierarchical regression analyses revealed partial support for hypothesis 3 (see Table 4). As with anxiety, general self-efficacy inversely predicted stress only in step 1. On the other hand, unlike in anxiety, both isolation and overidentification (negative self-compassion) predicted stress in step 2. In the third step, non-judging, awareness, non-reactivity (mindfulness; inversely) and isolation (negative self-compassion) accounted for most of the predicted variance (39 %). Gender was not significant in any step. Non-judging was the strongest unique predictor of stress based on sr^2, followed by awareness, isolation, and non-reactivity. Cohen's f^2 reflected at least a medium effect size for the addition of dimensions of self-

Table 1 Descriptive statistics for mindfulness, self-compassion, self-efficacy, distress, and well-being

Predictors	Overall, $N=204$		Men, $n=74$		Women, $n=130$	
	M	SD	M	SD	M	SD
Mindfulness						
Describing	3.45	0.72	3.36	0.72	3.51	0.72
Awareness	3.29	0.71	3.35	0.64	3.25	0.75
Non-judging	3.49	0.83	3.48	0.76	3.49	0.87
Non-reactivity	2.87	0.54	3.01	0.49	2.80	0.56
Self-compassion						
Self-judgment	5.89	2.07	5.74	1.90	5.98	2.15
Isolation	6.50	2.07	6.38	2.02	6.56	2.10
Overidentification	7.11	1.94	7.00	1.89	7.18	1.97
Self-efficacy						
General self-efficacy	62.64	9.92	64.91	9.85	61.35	9.77
Psychological outcomes						
Depression	4.68	4.08	4.78	3.88	4.62	4.20
Anxiety	5.62	4.40	5.07	3.64	5.93	4.77
Stress	7.82	4.60	7.19	4.29	8.18	4.75
Well-being	49.87	9.37	51.86	9.43	48.73	9.19

Subscale scores for mindfulness were divided by the number of items in each subscale to create mean subscale scores to facilitate inter-subscale comparability. A factorial analysis of variance (ANOVA) gender×distress found a gender×distress interaction $F(2, 404)=3.02$, $p=0.05$, indicating that levels of depression, anxiety, and stress varied by gender. Regarding general self-efficacy and well-being, independent sample t tests identified gender differences in both, with $t(202)=2.49$, $p<0.05$ for general self-efficacy and $t(202)=2.32$, $p<0.05$ for well-being, where men reported more self-efficacy and well-being than women. On the other hand, factorial ANOVAs examining gender differences in the four facets of mindfulness (describing, awareness, non-judging, and non-reactivity) and three dimensions of self-compassion (self-judgment, overidentification, and isolation) did not find either a main effect of gender or interactions

compassion in the second step and facets of mindfulness in the third step (see Table 4).

Hypothesis 4

Hierarchical regression analyses partially supported hypothesis 4 (see Table 5). General self-efficacy inversely predicted well-being in every step. In the second step, self-judgment (negative self-compassion) also inversely predicted well-being. In the final step, general self-efficacy (inversely), gender (negative beta value requires a subtraction for women), and the mindfulness facets of describing and non-judging (inversely) accounted for most of the variance in well-being (34 %). Describing contributed the strongest unique variance based on sr^2, followed by general self-efficacy, non-judging, and gender. Cohen's f^2 reflected a medium–low effect size for the addition of dimensions of self-compassion in step 2 and a

Table 2 Hierarchical regression with self-efficacy, self-compassion, mindfulness, and gender as predictors of depression

	$N=204$				
	β	95 % CI	r^2	sr^2	p value
Step 1					
General self-efficacy	−0.36	[−0.20, −0.10]	0.122	0.128	<0.001
Gender	−0.08	[−1.81, 0.42]	0.000	0.007	NS
Step 2					
General self-efficacy	−0.23	[−0.14, −0.04]	0.122	0.044	<0.001
Gender	−0.08	[−1.70, 0.31]	0.000	0.007	NS
Self-judgment (SCsj)	0.27	[0.26, 0.79]	0.191	0.052	<0.001
Isolation (SCi)	0.24	[0.20, 0.75]	0.192	0.041	≤0.001
Step 3					
General self-efficacy	−0.10	[−0.09, 0.01]	0.122	0.007	NS
Gender	−0.04	[−1.30, 0.61]	0.000	0.002	NS
Self-judgment (SCsj)	0.14	[−0.01, 0.55]	0.191	0.011	0.05
Isolation (SCi)	0.16	[0.05, 0.58]	0.192	0.017	<0.05
Describing (Md)	−0.19	[−0.22, −0.05]	0.163	0.029	<0.01
Non-judging (Mnj)	−0.18	[−0.20, −0.03]	0.207	0.021	≤0.01
Awareness (Ma)	−0.15	[−0.21, −0.01]	0.217	0.014	<0.05

$R^2=0.40$, $F(7, 196)=18.31$, $p<0.001$, $f^2=0.67$, $\lambda=136.68$. Step 1 to step 2: $\Delta R^2=0.17$, $\Delta F(2, 199)=24.61$, $p<0.001$, $f^2=0.24$ (medium–high effect size). Step 2 to step 3: $\Delta R^2=0.09$, $\Delta F(3, 196)=10.19$, $p<\text{p}.001$, $f^2=0.17$ (medium effect size).

R^2 proportion of outcome variable variance explained by predictors, r^2 proportion of variance explained by each predictor (including shared variance), sr^2 semi-partial r^2 which is the proportion of unique variance attributable to a predictor, Md, Mnj, and Ma mindfulness facets of describing, non-judging, and awareness, SCi and $SCsj$ self-compassion aspects of isolation and self-judgment

medium effect size for the addition of facets of mindfulness in step 3 (see Table 5).

Discussion

Researchers have examined the five facets of mindfulness as predictors of well-being (Cash & Whittingham, 2010). In addition, they have investigated the combined impact of unitary mindfulness and the six dimensions of self-compassion in predicting depression, anxiety, worry, and life satisfaction (Van Dam et al., 2011). Furthermore, they have studied the combined value of the five facets of mindfulness and six dimensions of self-compassion in predicting well-being (Baer et al., 2012; Hollis-Walker & Colosimo, 2011). Our study extended this work and appears to be the first to include particular facets of mindfulness, dimensions of self-compassion, self-efficacy, and gender, together, in predicting depression, anxiety, stress, and well-being.

We found that undergraduate self-reports of the four facets of mindfulness (describing, awareness, non-judging, and non-

Table 3 Hierarchical regression with self-efficacy, self-compassion, mindfulness, and gender as predictors of anxiety

	$N=204$				
	β	95 % CI	r^2	sr^2	p value
Step 1					
General self-efficacy	−0.26	[−0.17, −0.05]	0.070	0.063	<0.001
Gender	0.05	[−0.78, 1.70]	0.009	0.250	NS
Step 2					
General self-efficacy	−0.12	[−0.12, 0.01]	0.070	0.011	NS
Gender	0.06	[−0.65, 1.72]	0.009	0.003	NS
Isolation (SCi)	0.14	[−0.08, 0.65]	0.104	0.010	NS
Overidentification (SCoi)	0.22	[0.10, 0.92]	0.134	0.025	<0.05
Step 3					
General self-efficacy	−0.05	[−0.09, 0.04]	0.070	0.002	NS
Gender	0.05	[−0.71, 1.56]	0.009	0.002	NS
Isolation (SCi)	0.08	[−0.17, 0.52]	0.104	0.004	NS
Overidentification (SCoi)	0.04	[−0.32, 0.51]	0.134	0.001	NS
Non-judging (Mnj)	−0.31	[−0.30, −0.11]	0.186	0.066	<0.001
Awareness (Ma)	−0.13	[−0.22, 0.01]	0.128	0.011	NS
Non-reactivity (Mnr)	−0.15	[−0.31, −0.02]	0.037	0.019	<0.05

$R^2 =0.27$, $F(7, 196)=10.26$, $p<0.001$, $f^2 =0.37$, $\lambda =72.52$. Step 1 to step 2: $\Delta R^2 =0.09$, $\Delta F(2, 199)=10.73$, $p<0.001$, $f^2 =0.11$ (medium effect size). Step 2 to step 3: $\Delta R^2 =0.11$, $\Delta F(3, 196)=9.46$, $p<0.001$, $f^2 =0.15$ (medium effect size)

R^2 proportion of outcome variable variance explained by predictors, r^2 proportion of variance explained by each predictor (including shared variance), sr^2 semi-partial r^2 which is the proportion of unique variance attributable to the predictor, Mnj, Ma, and Mnr mindfulness facets of non-judging, awareness, and non-reactivity, SCi and $SCoi$ self-compassion aspects of isolation and overidentification

reactivity) and three dimensions of negative self-compassion (self-judgment, isolation, and overidentification) investigated in this study did not vary by gender. On the other hand, there was a gender difference in self-efficacy, where men reported higher levels than did women. Furthermore, levels of depression, anxiety, and stress varied by gender, where the greatest difference occurred in the report of stress, with women reporting more stress than men. Finally, men reported better well-being than women. Overall, college women reported lower psychological health than their male counterparts regarding these particular outcomes. Given the gender differences in these psychological outcomes, our examination of their potentially gendered prediction was pertinent. Our results shed light on baseline levels of mindfulness, self-compassion, self-efficacy, depression, anxiety, stress, and well-being among undergraduate men and women.

Depression

In keeping with Quimby and O'Brien (2006) and Lightsey and Barnes (2007), where self-efficacy inversely predicted psychological distress among college students, we found that self-efficacy inversely predicted depression when examined alone, as well as together with self-judgment and isolation (negative self-compassion). This finding added to that of Van

Dam et al. (2011) who established that, among the six dimensions of self-compassion, self-judgment and feeling isolated in suffering were the strongest predictors of depression. When the facets of mindfulness were introduced in our study, however, describing, non-judging, and awareness (mindfulness) inversely, together with self-judgment and isolation (negative self-compassion) positively, predicted depression. Gender and self-efficacy did not contribute significant variance in predicting depression when examined together with mindfulness and self-compassion.

Some of the facets of mindfulness that contributed to depression in our study were also found to be relevant in others, although not in undergraduates. Some researchers found that non-judging and awareness inversely predicted depression (Cash and Whittingham, 2010), and others established that they inversely predicted psychological distress (de Bruin et al., 2012). We identified describing with words as the strongest unique predictor of depression among undergraduates, followed by non-judging, when the facets of mindfulness and dimensions of self-compassion were studied together with self-efficacy and gender in predicting depression. This offers a different perspective than that of Van Dam et al. (2011), who found that overall self-compassion contributed greater unique variance to the prediction of depression when examined together with unitary mindfulness. Our study

Table 4 Hierarchical regression with self-efficacy, self-compassion, mindfulness, and gender as predictors of stress

| | $N=204$ | | | | |
	β	95 % CI	r^2	sr^2	p value
Step 1					
General self-efficacy	−0.30	[−0.20, −0.08]	0.095	0.086	<0.001
Gender	0.05	[−0.78, 1.78]	0.011	0.003	NS
Step 2					
General self-efficacy	−0.12	[−0.12, 0.01]	0.095	0.011	NS
Gender	0.06	[−0.56, 1.75]	0.011	0.004	NS
Isolation (SCi)	0.28	[0.26, 0.97]	0.214	0.042	≤0.001
Overidentification (SCoi)	0.22	[0.13, 0.93]	0.211	0.025	≤0.01
Step 3					
General self-efficacy	−0.03	[−0.07, 0.05]	0.095	0.000	NS
Gender	0.05	[−0.57, 1.60]	0.011	0.003	NS
Isolation (SCi)	0.22	[0.16, 0.82]	0.214	0.026	<0.01
Overidentification (SCoi)	0.03	[−0.34, 0.46]	0.211	0.000	NS
Non-judging (Mnj)	−0.28	[−0.28, −0.10]	0.228	0.052	<0.001
Awareness (Ma)	−0.23	[−0.30, −0.08]	0.225	0.035	≤0.001
Non-reactivity (Mnr)	−0.11	[−0.28, 0.00]	0.036	0.012	≤0.05

$R^2 =0.39$, $F(7, 196)=17.91$, $p<0.001$, $f^2 =0.64$, $\lambda =130.56$. Step 1 to step 2: $\Delta R^2 =0.18$, $\Delta F(2, 199)=23.99$, $p<0.001$, $f^2 =0.23$ (medium–high effect size). Step 2 to step 3: $\Delta R^2 =0.12$, $\Delta F(3, 196)=12.58$, $p<0.001$, $f^2 =0.20$ (medium effect size)

R^2 proportion of outcome variable variance explained by predictors, r^2 proportion of variance explained by each predictor (including shared variance), sr^2 semi-partial r^2 which is the proportion of unique variance attributable to the predictor, Mnj, Ma, and Mnr mindfulness facets of non-judging, awareness, and non-reactivity, SCi and $SCoi$ self-compassion aspects of isolation and overidentification

speaks to the value of examining specific facets of mindfulness and dimensions of self-compassion together in predicting depression and informs us that the inability to label emotional experience contributed to depression. This is in keeping with alexithymia, defined as difficulty describing emotions, which is associated with depression (Hendryx et al., 1991).

Anxiety

As with depression, self-efficacy inversely predicted anxiety, consistent with the finding of Quimby and O'Brien (2006) and Lightsey and Barnes (2007) that self-efficacy inversely predicted psychological distress among college students. The combination of self-efficacy, gender, overidentification, and isolation in our study, however, resulted in overidentification (negative self-compassion) alone predicting anxiety. Overidentification was a strong predictor of anxiety in the study of Van Dam et al. (2011) as well, when dimensions of self-compassion were examined alone in predicting anxiety. When the facets of mindfulness were added in the present study, only non-judging and non-reactivity (mindfulness) inversely predicted anxiety, while awareness, overidentification, isolation, gender, and self-efficacy did not.

In keeping with our findings, Cash and Whittingham (2010) found that mindful non-judging inversely predicted

anxiety and de Bruin et al. (2012) reported that mindful non-judging and non-reactivity inversely predicted psychological symptoms when they studied facets of mindfulness as the sole set of predictors, albeit, not in undergraduates. Our study confirmed non-judging as the primary predictor of anxiety, followed by non-reactivity, both facets of mindfulness, when mindfulness, self-compassion, self-efficacy, and gender were investigated together in predicting anxiety. This differs from Van Dam et al. (2011) who found that overall self-compassion accounted for greater unique variance in anxiety compared to unitary mindfulness. Our results demonstrate the benefits of investigating particular facets of mindfulness and dimensions of self-compassion together in predicting anxiety. Further, our findings suggest that judging and an inability to modulate cognitive reactivity in the moment predicted anxiety among college students.

Stress

Reflecting the pattern observed for anxiety, self-efficacy inversely predicted stress when examined alone, similar to the findings of Quimby and O'Brien (2006) and Lightsey and Barnes (2007) that self-efficacy inversely predicted psychological distress among college students. When (negative) self-compassion was introduced in our study, however, both

Table 5 Hierarchical regression with self-efficacy, self-compassion, mindfulness, and gender as predictors of well-being

	β	95 % CI	r^2	sr^2	p value
N=204					
Step 1					
General self-efficacy	0.40	[0.26, 0.50]	0.176	0.158	<0.001
Gender	−0.09	[−4.26, 0.70]	0.026	0.008	NS
Step 2					
General self-efficacy	0.34	[0.19, 0.44]	0.176	0.099	<0.001
Gender	−0.09	[−4.13, 0.67]	0.026	0.008	NS
Self-judgment (SCsj)	−0.23	[−1.69, −0.41]	0.114	0.040	≤0.001
Isolation (SCi)	−0.04	[−0.83, 0.48]	0.068	0.001	NS
Step 3					
General self-efficacy	0.23	[0.09, 0.35]	0.176	0.039	≤0.001
Gender	−0.14	[−5.02, −0.41]	0.026	0.018	<00.05
Self-judgment (SCsj)	−0.14	[−1.29, 0.07]	0.114	0.011	NS
Isolation (SCi)	0.03	[−0.48, 0.79]	0.068	0.001	NS
Describing (Md)	0.26	[0.22, 0.64]	0.155	0.054	<0.001
Non-judging (Mnj)	0.17	[0.04, 0.44]	0.136	0.019	<0.05
Awareness (Ma)	0.03	[−0.19, 0.30]	0.135	0.001	NS

$R^2 = 0.34$, $F(7, 196) = 14.09$, $p < 0.001$, $f^2 = 0.52$, $\lambda = 106.08$. Step 1 to step 2: $\Delta R^2 = 0.06$, $\Delta F(2, 199) = 7.81$, $p \leq 0.001$, $f^2 = 0.08$ (medium–low effect size). Step 2 to step 3: $\Delta R^2 = 0.09$, $\Delta F(3, 196) = 8.94$, $p < 0.001$, $f^2 = 0.15$ (medium effect size)

R^2 proportion of outcome variable variance explained by predictors, r^2 proportion of variance explained by each predictor (including shared variance), sr^2 semi-partial r^2 which is the proportion of unique variance attributable to a predictor, Md, Mnj, and Ma mindfulness facets of describing, non-judging, and awareness, SCi and $SCsj$ self-compassion aspects of isolation and self-judgment

isolation and overidentification predicted stress, while self-efficacy and gender did not. Van Dam et al. (2011) also found that isolation and overidentification predicted worry. With the addition of facets of mindfulness in the present study, non-judging, awareness, and non-reactivity inversely, together with the (negative) self-compassion dimension of isolation, predicted stress, while overidentification, self-efficacy, and gender did not.

Similarly, Cash and Whittingham (2010) found that mindful non-judging inversely predicted stress and de Bruin et al. (2012) revealed that mindful non-judging, non-reactivity, and awareness inversely predicted psychological distress in populations other than undergraduates. We confirmed non-judging as the strongest predictor of stress, followed by awareness, both facets of mindfulness, when mindfulness, self-compassion, self-efficacy, and gender were examined together in predicting stress. Once again, this is unlike Van Dam et al. (2011) who found that overall self-compassion contributed more unique variance in predicting worry than unitary mindfulness. Furthermore, our study confirmed commonalities in the prediction of stress and anxiety, suggesting a stress–

anxiety continuum. Given that stress is a common report among undergraduates (Bayram & Bilgel, 2008) and our finding that it was the highest reported of the types of distress, identification of these predictors is of special importance.

Well-being

In keeping with Tong and Song (2004) and Yu et al. (2005), we found that self-efficacy contributed to psychological well-being among college students. When the self-judgment and isolation dimensions of (negative) self-compassion were introduced in our study, self-efficacy and self-judgment (inversely) predicted well-being. This adds to the finding of Van Dam et al. (2011) that self-judgment and isolation were the strongest predictors of quality of life among the six dimensions of self-compassion. When facets of mindfulness were added in the present study, describing and non-judging (mindfulness), self-efficacy, and gender predicted well-being. In our study, this was the only instance in which self-efficacy and gender contributed unique variance, together with facets of mindfulness, in predicting a psychological outcome. On the other hand, as in the prediction of depression, describing was the strongest predictor of well-being, followed by non-judging.

Our results add to previous research. Cash and Whittingham (2010) found that mindful non-judging predicted well-being. In addition, Baer et al. (2012) reported that describing and the mindfulness composite of non-judging/non-reactivity and the self-compassion composite of common humanity/mindfulness contributed to predicting well-being. Further, Hollis-Walker and Colosimo (2011) established that mindful describing and awareness (positively), together with the self-compassion dimension of isolation (inversely), predicted well-being. Finally, Van Dam et al. (2011) found that, overall, self-compassion contributed greater unique variance to the prediction of quality of life than did unitary mindfulness. Extending these findings, our study demonstrates the value of examining specific facets of mindfulness and dimensions of self-compassion in predicting well-being. A unique contribution of our study is that both self-efficacy and gender predicted well-being in addition to facets of mindfulness, when examined together with dimensions of self-compassion.

Limitations

Although we identified self-efficacy and gender as predictors of well-being, we acknowledge that our sample size was relatively small. In addition, we had a larger sample of women than men. Future work could examine the multiple factors that constitute mindfulness, self-compassion, and self-efficacy in a larger, gender-balanced sample. Furthermore, future research with undergraduates could control for meditation practice.

Conclusion

We extended the current literature by examining the facets of mindfulness, dimensions of self-compassion, self-efficacy, and gender, together, in one sample of undergraduates in predicting depression, anxiety, stress, and well-being. In so doing, we accounted for potential conceptual overlap between mindfulness and self-compassion and identified both shared and unique predictors of distress and well-being among our sample of undergraduates. After accounting for self-efficacy and dimensions of self-compassion, the facets of mindfulness contributed unique variance in predicting depression, anxiety, stress, and well-being. This demonstrates the value of examining the specific facets of mindfulness and dimensions of self-compassion, rather than examining them as unidimensional constructs.

Future researchers could build on our findings and further examine the importance of mindful non-judging in predicting both distress and well-being, the particular contributions of describing with words for depression and well-being, and the importance of non-reactivity for anxiety and stress. In addition, the relevance of the negative self-compassion dimensions of self-judgment and isolation for depression and isolation for stress needs further exploration. The identification of self-efficacy and gender as pertinent to well-being is particularly informative. These results could inform clinical interventions designed to differentially decrease distress and enhance well-being among undergraduates.

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