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ORIGINAL ARTICLE

The Mediating Role of Self-compassion in Student Psychological Health

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Objective: Self-compassion is an adaptive emotion-regulation strategy characterised by self-kindness, common humanity, and mindfulness. This cross-sectional study examined the mediating role of self-compassion in student psychological health.
Method: An international sample of 306 tertiary students completed measures of self-compassion, well-being (satisfaction with life, flourishing, and positive affect), and distress (stress, negative affect, burnout, and depression).
Results: Correlational analyses indicated that higher self-compassion was associated with higher well-being and lower distress. A series of multiple regression analyses indicated that self-compassion mediated the relationships between stress and depression, negative affect and depression, burnout and depression, and aggregate distress and aggregate well-being.
Conclusion: Overall, the findings suggest that self-compassion may be a useful addition to interventions aimed at mitigating student distress and improving student well-being.

Key words: affect; burnout; distress; psychological health; self-compassion; well-being.

What is already known on this topic

1 Stress, including that experienced by university students, can result in burnout.
2 Psychological health can be enhanced by self-compassion.
3 Self-compassion can buffer the negative effects of depression.

What this paper adds

1 Self-compassion has an important role in the relationship between distress and depression.
2 Students who are more self-compassionate experience more well-being and less distress as a result of their studies.
3 As such, self-compassion may be useful in interventions offered by educational institutions looking to assist students experiencing burnout and its associated negative outcomes.

University life can be highly challenging and stressful. Students may find themselves juggling increasing responsibility and competing demands in the different areas of their lives, including academic, work, family, social, and personal interests (Ross, Niebling, & Heckert, 1999). In addition to academic pressure, some students experience the strains of relocating to study, culture shock, homesickness, relationship difficulties, and working while studying. Thus, many university students experience substantial distress (Dyrbye, Thomas, & Shanafelt, 2005).

Student Distress

Student distress can manifest as elevated levels of stress, negative affect, burnout, and depression. These conditions can contribute to poor academic performance, substance abuse, and suicide (Dyrbye et al., 2005). Individuals experience stress when they perceive that a stressor taxes or exceeds their coping capacity (Cohen, Kessler, & Gordon, 1995). Life stressors can increase the risk of depression, with most depressive episodes preceded by stressful life events (Mazure, 1998; Paykel, 2003; Tennant, 2002). Negative affect is a form of subjective distress characterised by aversive mood states, such as shame, guilt, and fear (Watson, Clark, & Tellegen, 1988). Negative affect has been found to be associated with and predictive of depression (Anderson & Hope, 2008; Crawford & Henry, 2004; Watson, Gamez, & Simms, 2005).

In educational settings, excessive and prolonged stress can contribute to burnout. Burnout is characterised by feelings of incompetence as a student, and exhaustion and cynicism regarding schoolwork (Schaufeli, Martinez, Marques Pinto, Salanova, & Bakker, 2002). This phenomenon has been more extensively studied in health care-related fields. For example, burnout affects at least half of medical students (IsHak et al., 2013), and is associated with thoughts of dropping out of university (Dyrbye et al., 2010) and suicide (Dyrbye et al., 2008). Research from work settings suggests that burnout and depression are associated, but distinct constructs. For example, in a 7-year longitudinal study of 1,964 Finnish dentists, burnout was

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found to predict depression from Time 1 to Time 2 and Time 2 to Time 3 (Hakanen & Schaufeli, 2012). However, depression did not prospectively predict burnout. This suggests that, like stress and negative affect, burnout may precede depression.

Depression is widely viewed as a disorder of impaired emotion regulation (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Joormann & Gotlib, 2010). High negative affect and low positive affect are characteristic symptoms of depression. Emotion regulation involves conscious and nonconscious processes that individuals use to manage their emotional responses to environmental stressors (Gross, 1998; Rottenberg & Gross, 2003). Individuals who cannot effectively regulate their emotional responses to daily stressors experience more severe and persistent periods of distress that could develop into depression (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Furthermore, certain emotion-regulation strategies are considered to be maladaptive. For example, a meta-analytic review of emotion-regulation strategies found that rumination and avoidance were most strongly related to depression (Aldao et al., 2010).

In Australia, 26% of 16- to 24-year-olds have experienced a mental disorder (Australian Bureau of Statistics [ABS], 2007) and suicide remains the leading cause of death in 15- to 34-year-olds (ABS, 2010). Most individuals (76%) who experience mental disorders will first develop a disorder before 25 years of age (ABS, 2013). Mental disorders in young people can have detrimental effects on their development, relationships, education, and employment. These figures further emphasise the need to identify protective factors and interventions for student distress. Although many studies have been conducted to understand the manifestations and consequences of student distress, it is also important for educational institutions to develop, implement, and evaluate programmes that promote student well-being (Dyrbye et al., 2005).

Well-being

Well-being refers broadly to optimal individual functioning and experience (Ryan & Deci, 2001). This multifaceted construct has been conceptualised and operationalised according to two distinct yet related viewpoints: hedonism and eudaimonism. Hedonic well-being refers to the experience of pleasure and the avoidance of pain (Kahneman, Diener, & Schwarz, 1999). Some researchers have referred to hedonic well-being as subjective well-being, defined in terms of greater positive affect, lesser negative affect, and satisfaction with life (e.g., Diener, Suh, Lucas, & Smith, 1999). Eudaimonic well-being refers to fulfilling one's true potentials (Waterman, 1993). Some researchers have referred to eudaimonic well-being as psychological well-being, defined in terms of flourishing, autonomy, competence, relatedness, life purpose, personal growth, and self-acceptance (e.g., Diener et al., 2010; Ryan & Deci, 2000; Ryff, 1989).

Henceforth, subjective and psychological well-being will be collectively referred to as *well-being*. Stress, negative affect, burnout, and depression will be collectively referred to as *distress*. Greater well-being and lower distress will be collectively referred to as *psychological health*. The present study aimed to examine whether an emerging emotion-regulation strategy—self-compassion—would play a protective role in student psychological health.

Self-compassion

Compassion involves being receptive to and affected by the suffering of others, such that one desires to alleviate their suffering (Neff, 2003b). Self-compassion is simply compassion directed inwards (Germer & Neff, 2013). However, in times of pain and failure, many individuals tend to be self-critical and ruminative. Neff (2003a) posited that, rather than reacting negatively when faced with hardship, individuals could benefit from practising self-compassion.

According to self-compassion theory, self-compassion is a healthy form of self-acceptance that consists of three bipolar components: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification (Neff, 2003a). Self-kindness entails treating oneself with empathy, kindness, and forgiveness rather than harsh self-judgment. Individuals high in self-kindness engage in self-soothing in the face of hardship. Common humanity involves recognising that one's adverse experiences are an unavoidable part of the human condition. Common humanity promotes a sense of connectedness with others, thereby lessening feelings of isolation. Mindfulness enables individuals to hold painful thoughts and feelings in nonjudgmental awareness. Mindfulness helps individuals to face and learn from painful thoughts and feelings, thereby lessening avoidance and over-identification. During times of distress, self-compassion acts as an adaptive emotion-regulation strategy that promotes psychological health by reducing self-judgment, self-criticism, feelings of isolation, rumination, and avoidance of painful experiences, thoughts, and emotions (Neff, 2003a).

Correlates of Self-compassion

In piloting the Self-Compassion Scale (SCS), Neff (2003b) found that self-compassion was associated with greater life satisfaction, and lower levels of anxiety, neurotic perfectionism, rumination, and depression. Using a single index of well-being aggregated from five well-being measures (purpose in life, satisfaction with life, self-mastery, intrusive thoughts, and perceived stress), Neely, Schallert, Mohammed, Roberts, and Chen (2009) found that self-compassion correlated strongly with aggregate well-being. Furthermore, self-compassion accounted for variation in aggregate well-being over and above that accounted for by perceived stress, goal regulation, and social support. MacBeth and Gumley (2012) conducted a meta-analytic review to estimate the strength of association between self-compassion and common psychopathology (stress, anxiety, and depression). They found a large aggregate effect size ($r = -.54$), indicating that higher self-compassion was associated with fewer mental health symptoms.

In an academic context, self-compassion was found to be associated with more adaptive learning goals (Neff, Hsieh, & Dejitterat, 2005). Learning goals can be differentiated in terms of mastery (motivated by growth and understanding) and performance (motivated by fear of underperformance and desire to validate one's abilities; Grant & Dweck, 2003). Self-compassionate students reported less fear of failure and adopted mastery-oriented versus performance-oriented learning goals. Moreover, in the face of academic failure, self-compassionate

students used more emotion-focused than avoidance-focused coping strategies (Neff et al., 2005).

Self-compassion may also help students adjust better when transitioning to university life (Terry, Leary, & Mehta, 2013). Four to six weeks before beginning university, students completed Neff's SCS. A few weeks before the end of their first semester, they completed measures of homesickness, depression, satisfaction with social life, satisfaction with academic life, and satisfaction with their decision to attend university (decision satisfaction). Compared with students with lower self-compassion, students with higher self-compassion were less homesick and depressed, and reported greater decision satisfaction. More importantly, self-compassion moderated the relationship between satisfaction with social and academic lives, and homesickness and decision satisfaction. When students with low self-compassion were dissatisfied with their social lives, they experienced greater homesickness and less decision satisfaction. In comparison, highly self-compassionate students were less affected by social difficulties (Terry et al., 2013).

Leary, Tate, Adams, Allen, and Hancock (2007) examined how self-compassionate individuals managed unpleasant events, compared with persons low in self-compassion. When asked to recall negative events, self-compassionate individuals reported less negative affect. Similarly, after watching a video of themselves or someone else performing an embarrassing task, self-compassionate individuals reported more positive affect and less negative affect. Furthermore, self-compassion moderated negative affect in response to receiving neutral performance feedback (unrelated to actual performance), particularly among participants with low self-esteem. In the final study, participants reflected on negative personal experiences. Individuals in the self-compassion induction group reported significantly less negative affect than those in the self-esteem induction, writing control, and true control groups. Consistent with self-compassion theory, these studies suggest that self-compassion may facilitate resilience by regulating emotional responses to distressing situations (Leary et al., 2007).

In another study, Kyeong (2013) found that self-compassion moderated the relationships between burnout and psychological well-being, and burnout and depression among Korean cyber university students. One way in which self-compassion may buffer against depression is via its positive effects on rumination. Self-compassion was found to be more negatively correlated with brooding than reflective rumination (Raes, 2010). Brooding rumination, considered the more maladaptive form of rumination, mediated the relationship between self-compassion and depression.

In adolescents and young adults, self-compassion was found to be strongly associated with aggregate well-being (depression, anxiety, and social connectedness; Neff & McGehee, 2010). Family factors (maternal support, family functioning, and attachment style) significantly predicted individual differences in self-compassion. Notably, self-compassion mediated the relationships between family factors and aggregate well-being. This suggests that self-compassion may be a beneficial intervention target to help adolescents and young adults cope with the challenges of growing up. Moreover, increased self-compassion may be particularly beneficial for individuals who come from dysfunctional families (Neff & McGehee, 2010).

Self-compassion may also play a protective role in adolescent trauma-related psychopathology. In a longitudinal study of adolescents who experienced a potentially traumatising natural disaster, higher self-compassion prospectively predicted lower severity of post-traumatic stress, panic, depression, and suicidality from Time 1 to Time 2 and Time 2 to Time 3 (Zeller, Yuval, Nitzan-Assayag, & Bernstein, 2015). Using multilevel mediation modelling, self-compassion was found to mediate the effects of time on post-traumatic stress, panic, and suicidality. Self-compassion did not mediate the effect of time on depression, as time was not found to have a significant effect on depression. However, in the nonlagged model, the effect of time on depressive symptoms neared significance ($p = .06$), with self-compassion accounting for this effect. Collectively, these findings suggest that self-compassion may be a protective factor for trauma-related psychopathology. Thus, self-compassion may be a useful target for trauma-related interventions for adolescents and young adults (Zeller et al., 2015).

Study Objectives

This study aimed to examine associations between self-compassion, well-being, and distress. We hypothesised that self-compassion would correlate positively with well-being (satisfaction with life, flourishing, and positive affect) and negatively with distress (stress, negative affect, burnout, and depression).

Research suggests that self-compassion is an adaptive emotion-regulation strategy in times of distress. Few studies have investigated the potential mediating role of self-compassion on the relationships between factors that contribute to depression (e.g., stress) and depression. Given the prevalence of depression and risk of suicide among adolescent and young adult populations (ABS, 2007, 2010, 2013), such research is important and may inform applied interventions for these populations. Thus, the primary objective of this study was to examine the potential mediating role of self-compassion on the relationships between distress factors and depression. We hypothesised that self-compassion would mediate the relationships between (a) stress and depression; (b) negative affect and depression; and (c) burnout and depression. To our knowledge, these mediation models have not been examined previously. We further hypothesised that self-compassion would mediate the relationship between distress and well-being. Composite indices of well-being and distress were computed for this hypothesis.

Method

Power Analysis

To determine the minimum sample size required for multiple regression analyses, an a priori power analysis was conducted using G*Power 3.1.7 (Faul, Erdfelder, Buchner, & Lang, 2009). Assuming a medium effect size ($f^2 = .15$; Cohen, 1992), an α of .05, target power of .80, and 13 predictors, G*Power 3.1.7 indicated that a minimum of 131 participants were required for this study.

Table 1 Participant Demographics (*N* = 306)

Variable	*n*	%
Sex		
Male	66	21.6
Female	239	78.1
Study level		
First-year undergraduate	48	15.7
Second-year undergraduate	57	18.6
Third-year undergraduate	89	29.1
Honours	35	11.4
Masters	42	13.7
Doctoral	16	5.2
Other	19	6.2
Nationality		
Australian	114	37.3
American	48	15.7
British	40	13.1
Asian	34	11.1
Canadian	24	7.8
New Zealander	22	7.2
European	15	4.9
Other	9	2.9

Participants

A total of 306 tertiary students participated in the study: 66 male and 239 female students aged 18–59 years ($M = 25.17$, standard deviation (SD) = 8.19). Participant demographics are summarised in Table 1.

Measures

The online survey battery consisted of 123 questions. Demographic questions were presented first. Measures were counterbalanced to reduce potential priming and order effects.

Self-compassion

The 26-item SCS (Neff, 2003b) measures self-compassion using six subscales: (1) self-kindness (e.g., "I'm kind to myself when I'm experiencing suffering"); (2) self-judgment (e.g., "I'm disapproving and judgmental about my own flaws and inadequacies"); (3) common humanity (e.g., "I try to see my failings as part of the human condition"); (4) isolation (e.g., "When I fail at something that's important to me, I tend to feel alone in my failure"); (5) mindfulness (e.g., "When something upsets me I try to keep my emotions in balance"); and (6) over-identification (e.g., "When something upsets me I get carried away with my feelings"). Responses are scored on a 5-point scale from 1 (*almost never*) to 5 (*almost always*). The self-judgment, isolation, and mindfulness subscales are reverse-scored before deriving the overall scale mean, which ranges from 1 to 5. Higher means indicate higher self-compassion. The SCS demonstrated excellent reliability ($\alpha = .92$; Neff, 2003b) and convergent validity against well-being measures (Barnard & Curry, 2011). Internal reliability for the current sample was excellent ($\alpha = .95$).

Satisfaction with life

The Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a 5-item happiness measure (e.g., "I am satisfied with my life"). Responses are scored on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Scores range from 7 to 35. Higher scores indicate greater life satisfaction. In a meta-analysis of 62 articles, the mean SWLS reliability was found to be adequate ($\alpha = .78$; Vassar, 2008). The SWLS possesses convergent validity against other well-being measures (Pavot & Diener, 2008). Internal reliability for the current sample was excellent ($\alpha = .91$).

Flourishing

The Flourishing Scale (FS; Diener et al., 2010) is an 8-item measure of social-psychological well-being (e.g., "I lead a purposeful and meaningful life"). Responses are scored on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Scores range from 8 to 56. Higher scores indicate greater well-being. In the initial validation study, the FS demonstrated good reliability ($\alpha = .87$) and convergent validity against established well-being measures (Diener et al., 2010). Internal reliability for the current sample was excellent ($\alpha = .91$).

Positive and negative affect

The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) measures positive affect (PA) with 10 emotive words (e.g., "enthusiastic") and negative affect (NA) with another 10 emotive words (e.g., "distressed"). Respondents rate their experience of each emotion during the past week on a 5-point scale from 1 (*very slightly or not at all*) to 5 (*very much*). For both PA and NA, scores range from 10 to 50, with higher scores indicating higher PA/NA. The PANAS demonstrated good reliability ($\alpha_{PA} = .89$ and $\alpha_{NA} = .85$), and convergent validity against measures of anxiety and depression (Crawford & Henry, 2004). In the current sample, reliabilities were high ($\alpha_{PA} = .91$ and $\alpha_{NA} = .88$).

Stress

The 10-item Perceived Stress Scale (PSS–10; Cohen & Williamson, 1988) assesses how often one's life was perceived as stressful during the past month (e.g., "In the last month, how often have you felt nervous and "stressed"?). Responses are scored on a 5-point scale from 0 (*never*) to 4 (*very often*). Negatively-worded items are reverse-scored before deriving the total. Scores range from 0 to 40. Higher scores indicate greater perceived stress. The PSS–10 demonstrated good reliability ($\alpha = .89$) and convergent validity against measures of anxiety and depression (Roberti, Harrington, & Storch, 2006). Internal reliability for the current sample was good ($\alpha = .89$).

Burnout

The Maslach Burnout Inventory—Student Survey (MBI–SS; Schaufeli et al., 2002) is a 15-item measure of academic burnout with three subscales: (1) emotional exhaustion (e.g., "I feel emotionally drained by my studies"); (2) cynicism (e.g., "I doubt the significance of my studies"); and (3) academic efficacy (e.g.,

"In my opinion, I am a good student"). Responses are scored on a 7-point scale from 0 (*never*) to 6 (*always*). High exhaustion and cynicism, combined with low efficacy, indicates burnout. Negatively worded items are reverse-scored before deriving the overall scale mean, which ranges from 0 to 6. Higher means indicate greater burnout. The MBI–SS demonstrated good reliability (subscale αs > .80), and convergent validity against other measures of student burnout (Maroco & Campos, 2012). In the current sample, the total scale reliability was good (α = .89).

Depression

The Center for Epidemiological Studies Depression Scale—Revised (CESD–R; Eaton, Muntaner, Smith, Tien, & Ybarra, 2004) is a 20-item screen for depression that measures symptoms as per the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; American Psychiatric Association, 2000) for a major depressive episode (e.g., anhedonia: "Nothing made me happy"). Responses are scored on a 5-point scale from 0 (*not at all or less than one day a week*) to 4 (*nearly every day for 2 weeks*). Scores range from 0 to 60. Higher scores indicate greater depressive symptomatology. Scores below 16 are considered subclinical. The CESD–R criteria for major depressive episode is defined as anhedonia or dysphoria nearly every day over 2 weeks, concurrent with symptoms in four other symptom groups (e.g., sleep, fatigue, thinking/concentration, worthlessness, or suicidal ideation), reported as occurring nearly every day over 2 weeks. The CESD–R demonstrated excellent reliability (α = .92), and convergent validity against measures of anxiety and negative affect (Van Dam & Earleywine, 2011). Internal reliability for the current sample was excellent (α = .94).

Social desirability

The 13-item Marlowe–Crowne Social Desirability Scale—Form C (MC–C; Reynolds, 1982) assesses socially desirable responding. Respondents answer true or false to each item (e.g., "I have never deliberately said something that hurt someone's feelings"). Negatively-worded items are reverse-scored before deriving the total, which ranges from 0 to 13. Higher scores indicate greater social desirability bias. The MC–C has adequate reliability (α = .76) and concurrent validity with Edwards Social Desirability Scale (Reynolds, 1982). Internal reliability for the current sample was acceptable (α = .70).

Procedure

The online survey battery was built using Qualtrics software (Qualtrics, Provo, UT, USA). Following approval from the University of New England's (UNE) Human Research Ethics Committee, the survey link was placed on UNE's online learning platform and psychology research participation websites. Participants were also invited via email, word-of-mouth, and messages posted on social networking webpages (e.g., Facebook pages of various universities, university student unions, and university student groups). All participants accessed the study via Qualtrics' secure site (http://www.qualtrics.com).

Upon accessing the survey, participants were presented with an information sheet that explained the purpose of the study and potential risks involved in participation. Participants were informed that their responses were anonymous and confidential, that they could withdraw from the study at any time without consequence, and that clicking on the "Proceed to study" button constituted their informed consent. The survey took approximately 15 min to complete.

Results

Statistical Analyses

Statistical analyses were performed using IBM SPSS Statistical Software version 22.0 (2013). Correlations were examined using Pearson correlation coefficients. Mediation analyses were run using the PROCESS macro (Hayes, 2013), which generates bootstrap confidence intervals to estimate indirect effects. This nonparametric resampling method is recommended over the causal steps method (Baron & Kenny, 1986) as it has greater power and entails fewer assumptions (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). The underlying structure of aggregate well-being and aggregate distress were explored using principal axis factoring. This factor analysis method is recommended for data that violate assumptions of normality (Fabrigar, Wegener, MacCallum, & Strahan, 1999), which was the case in the present study.

Assumption Testing

Analyses comparing data with and without multivariate outliers, and data with univariate outliers versus data with recoded univariate outliers (next highest score ± one) revealed no difference in outcomes. Additionally, there was no reason to presume that any participant was not a valid member of the population. Thus, outliers were retained.

Satisfaction with life, flourishing, negative affect, burnout, depression, aggregate well-being, and aggregate distress exhibited skewed distributions. Square root and $\log_{10}$ transformations normalised the distributions. Analyses comparing raw and transformed data revealed no difference in outcomes. Thus, raw data were used for all analyses.

The regressions did not exhibit multicollinearity or sequential dependence. However, residuals scatterplots exhibited slight skews, mild nonlinearity, and heteroscedasticity. Given these violations, bootstrapping was employed for all regressions (Field, 2013).

Descriptive Statistics

Means, *SD*s, and correlations for continuous variables are presented in Table 2. Sex differences were not examined because of the low proportion of male participants. Generally, higher age was significantly associated with higher self-compassion, higher flourishing, and lower distress. Higher social desirability was significantly associated with higher self-compassion, higher well-being, and lower distress. These associations represented small-to-medium effect sizes (Cohen, 1992).

Sixty-two per cent of participants scored below the CESD–R cut-off of 16, indicating depressive symptomatology of no clinical significance (Eaton et al., 2004). Twenty participants (6.6%) met the CESD–R criteria for major depressive episode. Apart from the medium-sized correlation between positive and negative affect,

Table 2 Descriptive Statistics and Correlations

Variable	1	2	3	4	5	6	7	8	9	10
1. Age	—									
2. MC–C	.08	—								
3. SCS	.29	.36	—							
4. SWL	.05	.28	.55	—						
5. Flourishing	.15	.30	.59	.76	—					
6. PA	.04	.18	.46	.54	.62	—				
7. NA	–.28	–.30	–.60	–.53	–.53	–.34	—			
8. Stress	–.16	–.33	–.74	–.66	–.65	–.51	.71	—		
9. Burnout	–.17	–.33	–.48	–.53	–.60	–.48	.52	.61	—	
10. Depression	–.20	–.25	–.65	–.60	–.61	–.46	.74	.71	.51	—
M	25.17	6.40	2.86	22.53	42.52	31.19	22.53	19.64	2.22	16.86
SD	8.19	2.90	0.87	7.46	9.01	8.36	8.16	6.88	0.94	13.95
Range	18–59	0–13	1–4.66	5–35	9–56	10–50	10–48	2–39	0.13–5.73	0–57

Note. MC–C, social desirability; SCS, self-compassion; SWL, satisfaction with life; PA, positive affect; NA, negative affect; *SD*, standard deviation.Correlations ≥ .19 are significant at $p < .001$.

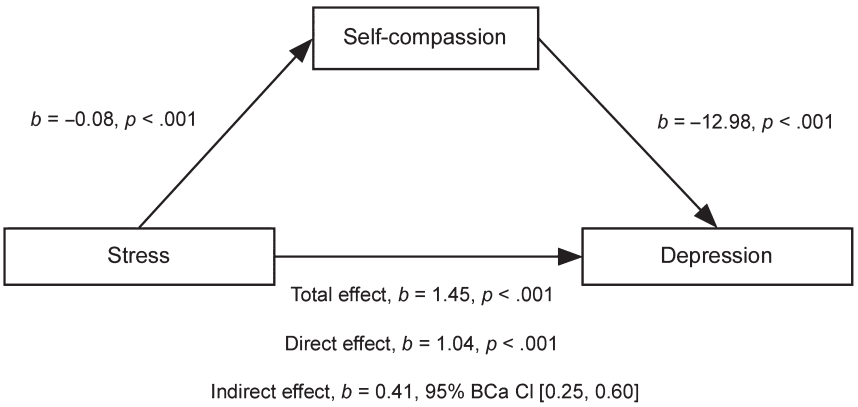

Figure 1 Mediating role of self-compassion between stress and depression (*b*, unstandardized beta coefficient; BCa CI, bias-corrected and accelerated bootstrap confidence intervals).

well-being measures had large negative correlations with distress measures. As hypothesised, higher self-compassion was associated with higher well-being and lower distress. These associations represented large effect sizes (Cohen, 1992).

Mediation Analyses

Multiple regression analyses were run to determine whether self-compassion mediated the relationships between a distress factor (independent variable; IV) and depression (dependent variable; DV). Analyses were conducted with and without covariates (sex, age, nationality, study level, and social desirability). Indirect effects were estimated using 95% bias-corrected and accelerated bootstrap confidence intervals (BCa CIs) based on 5,000 replications. The indirect effect was deemed significant if the 95% BCa CI did not span zero (Hayes, 2009). κ^2 effect sizes are reported for analyses without covariates. PROCESS does not generate κ^2 effect sizes for analyses with covariates. Thus, unstandardized and completely standardised indirect effects are reported for analyses with covariates (Preacher & Kelley, 2011).

Stress

As shown in Figure 1, the indirect effect of stress on depression through self-compassion was significant, $b = 0.41$, 95% BCa CI [0.25, 0.60]. This represented a medium-to-large effect, $\kappa^2 = .20$, 95% BCa CI [.13, .27] (Preacher & Kelley, 2011). When covariates were controlled for, the indirect pathway remained significant, $b = 0.37$, 95% BCa CI [0.21, 0.55], with a completely standardised indirect effect of $b = 0.18$, 95% BCa CI [0.10, 0.25]. The relationship between stress and depression decreased after controlling for the effects of self-compassion. These results support the hypothesis that self-compassion mediates the relationship between stress and depression.

Negative affect

As shown in Figure 2, the indirect pathway from negative affect to depression was significant, $b = 0.34$, 95% BCa CI [0.24, 0.45]. This represented a large effect, $\kappa^2 = .24$, 95% BCa CI [0.18, 0.29] (Preacher & Kelley, 2011). When covariates were controlled for,

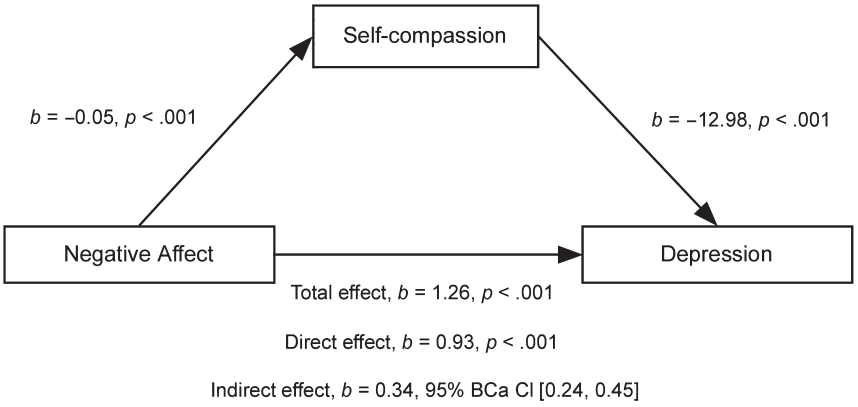

Figure 2 Mediating role of self-compassion between negative affect and depression (*b*, unstandardized beta coefficient; BCa CI, bias-corrected and accelerated bootstrap confidence intervals).

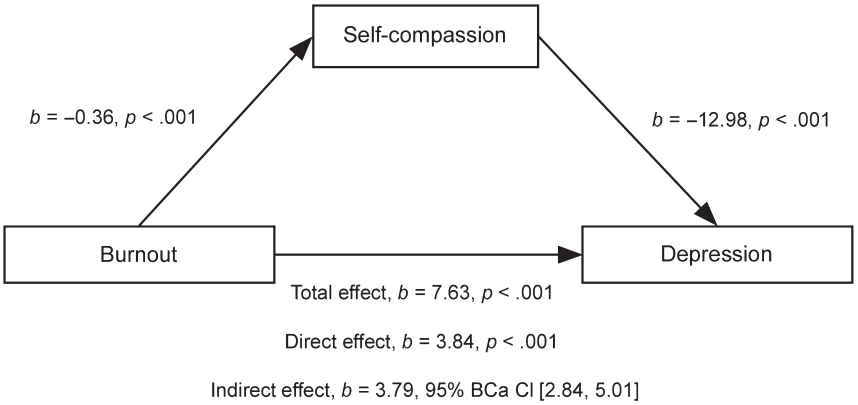

Figure 3 Mediating role of self-compassion between burnout and depression (*b*, unstandardized beta coefficient; BCa CI, bias-corrected and accelerated bootstrap confidence intervals).

the indirect pathway remained significant, $b = 0.30$, 95% BCa CI [0.22, 0.41], with a completely standardised indirect effect of $b = 0.17$, 95% BCa CI [0.12, 0.22]. The relationship between negative affect and depression decreased after controlling for the effects of self-compassion. These results support the hypothesis that self-compassion mediates the relationship between negative affect and depression.

Burnout

As shown in Figure 3, the indirect pathway from burnout to depression was significant, $b = 3.79$, 95% BCa CI [2.84, 5.01]. This represented a large effect, $\kappa^2 = .27$, 95% BCa CI [0.20, 0.33] (Preacher & Kelley, 2011). When covariates were controlled for, the indirect pathway remained significant, $b = 3.01$, 95% BCa CI [2.07, 4.12], with a completely standardised indirect effect of $b = 0.20$, 95% BCa CI [0.14, 0.26]. The relationship between burnout and depression decreased after controlling for the effects of self-compassion. These results support the hypothesis that self-compassion mediates the relationship between burnout and depression.

Aggregate distress

To test the hypothesis that self-compassion would mediate the relationship between aggregate distress (IV) and aggregate well-being (DV), composite indices of well-being and distress were created. *Z*-scores were computed for each measure. Principal axis factoring with direct oblimin rotation was run to explore the underlying structure of these measures. The SWLS, FS, NA, MBI–SS, and CESD–R exhibited skewed distributions. Given that principal axis factoring is fairly robust against violations of normality (Fabrigar et al., 1999), these deviations were not considered problematic. Communalities were above .40, indicating that all measures contributed substantial variance to the solution. A single factor with an Eigenvalue above 1 was extracted. This factor accounted for 59% of total variance in the data. The factor appeared to represent psychological distress: well-being measures loaded negatively while distress measures loaded positively (see Table 3). Aggregate well-being was computed by summing the *z*-scores of the SWLS, FS, and PA. Aggregate distress was computed by summing the *z*-scores of the PSS–10, NA, MBI–SS, and CESD–R (Cutter et al., 1999).

Table 3 Factor Loadings and Cronbach's Alphas for Measures of Well-being and Distress

Measure	Aggregate well-being (α = .84)	Aggregate distress (α = .86)
Flourishing	−.83	
Satisfaction with life	−.79	
Positive affect	−.63	
Stress		.86
Depression		.79
Negative affect		.74
Burnout		.70

Aggregate well-being correlated strongly and negatively with aggregate distress, $r(291) = -.73$, $p < .001$. Self-compassion correlated strongly and positively with aggregate well-being, $r(298) = .61$, $p < .001$, and strongly and negatively with aggregate distress, $r(290) = -.72$, $p < .001$.

As shown in Figure 4, the indirect pathway from aggregate distress to aggregate well-being was significant, $b = -0.10$, 95% BCa CI [−0.17, −0.05]. This represented a medium-to-large effect, $\kappa^2 = .14$, 95% BCa CI [0.06, 0.21] (Preacher & Kelley, 2011). When covariates were controlled for, the indirect effect remained significant, $b = -0.11$, 95% BCa CI [−0.18, −0.06], with a completely standardised indirect effect of $b = -0.14$, 95% BCa CI [−0.22, −0.07]. The relationship between aggregate distress and aggregate well-being decreased after controlling for the effects of self-compassion. These results support the hypothesis that self-compassion mediates the relationship between aggregate distress and aggregate well-being.

Discussion

Overall, our results are consistent with emotion regulation and self-compassion theory. Research suggests that depression may be a disorder of impaired emotion regulation (Joormann & Gotlib, 2010). Individuals who use maladaptive emotion-regulation strategies may experience more severe and persistent periods of distress, thereby increasing their risk of developing depression (Nolen-Hoeksema et al., 2008). Consistent with prior research, depression was strongly and positively associated with stress (Mazure, 1998), negative affect (Watson et al., 2005), and burnout (Hakanen & Schaufeli, 2012). This result suggests that individuals who experienced higher levels of stress, negative affect, and burnout tended to experience more symptoms of depression.

Individual differences in emotion regulation may explain why only some individuals who experience stress, negative affect, or burnout become depressed. For instance, habitual rumination and avoidance have been found to be strongly associated with depression (Aldao et al., 2010). Self-compassion facilitates psychological health by replacing maladaptive emotion-regulation strategies (i.e., self-judgment, isolation, rumination, and avoidance of painful thoughts, experiences, and emotions) with more adaptive strategies (i.e., self-kindness, common humanity, and mindfulness; Neff, 2003a). Consistent with reviews of the self-compassion literature (Barnard & Curry, 2011; MacBeth & Gumley, 2012), and in support of our hypothesis, higher self-compassion was strongly associated with higher well-being and lower distress. This result suggests that highly self-compassionate individuals tended to experience more well-being and less distress.

Results of mediation analyses supported the hypotheses that self-compassion would mediate the relationships between stress and depression, negative affect and depression, burnout and depression, and aggregate distress and aggregate well-being. The largest effect was observed in the burnout-depression model, followed by the negative affect-depression model, the stress-depression model, and the aggregate distress-aggregate well-being model. To our knowledge, these mediation models have not been examined previously. In a related study, Neff and McGehee (2010) found that self-compassion mediated the relationships between family factors (maternal support, family functioning, and attachment style) and aggregate well-being (depression, anxiety, and social connectedness) in high school and university students. Zeller et al. (2015) found that self-compassion mediated the effects of time on post-traumatic stress, panic, and suicidality in adolescents who had experienced a potentially traumatising natural disaster. Extending upon their findings, the present results provide further support for the protective role of self-compassion in student psychological health.

The finding of a relatively smaller effect in the well-being model may be partly due to the aggregation of measures. Alternatively, self-compassion may actually have a stronger mediating effect when the outcome variable is depression rather than well-being. This interpretation is consistent with the core conceptualisation of self-compassion as a protective factor against distress (Neff, 2003a). Although self-compassion was strongly associated with well-being, it was more strongly associated with distress. As a reduction in distress does not necessitate an increase in well-being, individuals can be simultaneously low in distress and well-being. However, research suggests that stress (Mazure, 1998), negative affect (Watson et al., 2005), and burnout (Hakanen & Schaufeli, 2012) do indeed contribute to depression. Thus, a reduction in distress factors should reduce the risk of depression. Taken together, these findings suggest that the foremost benefit of self-compassion may be its protective effects in mitigating distress outcomes.

Clinical Implications

Results suggest that self-compassion may play a protective role in reducing distress outcomes. This indicates the potential benefit of targeting self-compassion to improve student psychological health. Sixty-two per cent of the sample had subclinical depressive symptomatology. However, a small but concerning proportion (6.6%) met the CESD–R criteria for major depressive episode. Most individuals (76%) who experience mental disorders first develop a disorder before 25 years of age (ABS, 2013). Mental disorders in young people can have detrimental short- and long-term effects on their development, relationships, education, and employment. Universities provide a unique opportunity to reach a large number of young individuals during a critical period in their lives. Many universities have existing student counselling and support

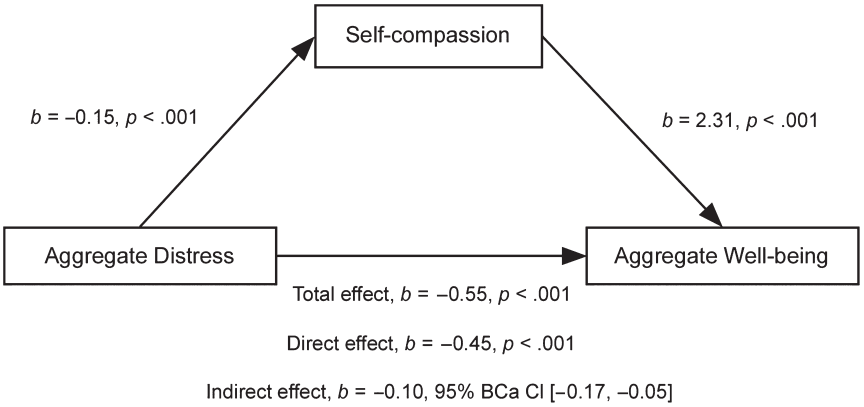

Figure 4 Mediating role of self-compassion between aggregate distress and aggregate well-being (*b*, unstandardized beta coefficient; BCa CI, bias-corrected and accelerated bootstrap confidence intervals).

services. Moreover, self-compassion interventions have been developed and have shown promising results in clinical (e.g., Gilbert & Procter, 2006; Laithwaite et al., 2009) and general (e.g., Diedrich, Grant, Hofmann, Hiller, & Berking, 2014; Neff & Germer, 2012; Smeets, Neff, Alberts, & Peters, 2014) populations. In light of the earlier, universities could consider introducing self-compassion programmes and interventions for their student populations. Such programmes and interventions help individuals to develop a healthy self-attitude and learn more adaptive ways of regulating their emotions during times of distress (Gilbert & Procter, 2006; Neff & Germer, 2012). Thus, the inclusion of these programmes and interventions in university and other clinical settings may have positive short- and long-term benefits for students in distress.

Limitations

The present study's cross-sectional and correlational design limits conclusions on directionality and causality among the variables (Meltzoff, 2011). Furthermore, it does not rule out the influences of other variables. These limitations extend to the mediation models, as they are based on correlational pathways. The present study utilised self-report measures, which are more prone to bias (Meltzoff, 2011). The majority of participants were nonclinically depressed female undergraduates aged 18–25 years, which limits generalizability. Additionally, a small proportion of participants were aged 34–59 years, which limits generalizability of the findings to younger students.

Future Research

The present findings do not imply that self-compassion is the only mediator of the relationships between stress and depression, negative affect and depression, burnout and depression, and aggregate distress and aggregate well-being. Although these relationships decreased after controlling for the effects of self-compassion, they remained significant. Therefore, other variables are likely to be involved in explaining these relationships. For instance, brooding rumination has been found to mediate the relationship between self-compassion and depression (Raes, 2010). According to social mentality theory, our early attachments influence our ability to feel compassion for ourselves as well as others (Gilbert, 1989). Thus, attachment style may also mediate the aforementioned relationships. Future research could investigate multiple mediation models that include self-compassion and other proposed mediators, thus allowing an examination of how these mechanisms may jointly impact upon psychological health. Longitudinal studies could be conducted to elucidate the temporal relations between self-compassion, well-being, and distress. Experimental studies could be conducted to evaluate the relative effectiveness of the various self-compassion interventions in fostering psychological health.

Conclusion

The present study confirmed previous associations between self-compassion, well-being, and distress. Additionally, it extends previous research by providing support for the protective role of self-compassion in student psychological health. Results of mediation analyses indicated that self-compassion attenuated the relationships between distress factors (stress, negative affect, and burnout) and depression, and aggregate distress and aggregate well-being. In terms of potential clinical implications, these findings suggest that self-compassion interventions may be useful additions to interventions that target psychological health in university students.

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