

Mediating role of self-compassion, emotional regulation on the relationship between, and Psychological Distress

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Abstract: Objective: University students experience higher levels of psychological distress compared to the general population. Clark and Watson (1991) introduced the Tripartite Model, proposing that psychological distress is operationalised by depression, anxiety and stress. Although self-compassion and emotional regulation have been shown to be associated with lower levels of psychological distress, the relationship between these variable has been vastly understudied. **Method:** The study employed a cross-sectional design using online questionnaires measuring emotional regulation, self-compassion and psychological distress (depression, anxiety and stress). Data were collected from 89 Australian university students. **Results:** As predicted, bivariate correlations found that self-compassion, emotional regulation, and psychological distress (depression, anxiety and stress), were all significantly correlated. Regression analyses highlighted that self-compassion significantly accounted for 44% of the variance of psychological distress; emotional regulation did not significantly account for variance of psychological distress. Following this, three single mediations based on significant correlations were conducted. Mediation analyses found that emotional regulation mediated the relationship between self-compassion and depression. However emotional regulation did not mediate the relationship between self-compassion and anxiety, or self-compassion and stress. **Conclusions:** The results highlight the mediating role of emotional regulation on self-compassion and depression. Future research is warranted to better understand the role of emotional regulation the depression–intrusion relationship, which may shed light on the clinical applicability of self-compassion targeted intervention for enhancing emotional regulation in university students experiencing depression.

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INTRODUCTION

University students experience higher levels of psychological distress than the general population, which consequently identifies this population as high-risk for mental health problems (Stallman, 2010). Stressors which increase psychological distress among university students include demands to academic examination performance, financial strain, and anxiety regarding future employment (Bayram & Bilgel, 2008; Al-Hroub & Ycaza, 2017). Clark and Watson Tripartite Model (1991) postulates that psychological distress is operationalised by depression, anxiety, and stress (Lovibond & Lovibond, 1995).

Empirical research shows higher levels of self-compassion significantly associated with lower levels of psychological distress (Neff, 2003a). However, some studies have found that emotional regulation mediates this relationship, as psychological disorders (including depression, anxiety and stress) can be the result of disordered emotional regulation (Raes, 2010). Cognitive emotional regulation strategies including self-

blame, rumination, and low positive appraisal have been associated with higher levels of depression, anxiety, and stress (Martin & Dahlen, 2005). Gratz and Roemer (2004) illustrate the relationship between emotional regulation and psychological distress through their multidimensional model. This model postulates that individuals who have difficulty utilising effective coping strategies report lower levels of emotional regulation.

Finlay-Jones, Rees and Kane (2015) have further developed Gratz and Roemer's (2004) by theorising that emotional regulation mediates the relationship between self-compassion and stress. The validity of this theory has only been investigated through a unidimensional perspective (Raes, 2010). Therefore, the current study aims to examine and delineate the mediating role of emotional regulation on self-compassion and psychological distress within an Australian university student sample, employing a multidimensional perspective.

Self-compassion has been shown to have a significant negative association with psychological

distress; where higher levels of self-compassion were associated with lower levels of psychological distress (Baer, Lykins & Peters 2012). Self-compassion is comprised of self-kindness, common humanity, and mindfulness (Neff, 2003a). Self-kindness refers to adopting a non-judgemental attitude towards oneself (Neff, 2003b). Common humanity is the ability to understand that personal struggles are a part of the human experience (Neff, 2003b). Mindfulness is defined as maintaining a balanced awareness of negative emotions (Neff, 2003b).

Previous research examining the direct relationship between self-compassion and psychological distress based on a unidimensional perspective found that levels of self-compassion were significantly higher for non-depressed individuals than clinically depressed individuals (Krieger et al., 2013). Furthermore, Neff, Kirkpatrick and Rude (2007) found that individuals with high self-compassion experienced less anxiety than those with low self-compassion. Bluth et al. (2016) found that adolescents who reported higher levels of self-compassion reported lower levels of stress compared adolescents with low self-compassion.

These studies are further supported by research conducted based on a multidimensional perspective. For instance, Dam et al. (2011) examined the predictive capacity of self-compassion and found that self-compassion significantly accounted for 10 to 27% of anxious and depressive symptoms. MacBeth and Gumley (2012) conducted a meta-analysis and found that higher levels of self-compassion were associated with significantly lower levels of depression, anxiety, and stress. This literature review highlights that self-compassion has a significant negative association with psychological distress, and its components, depression, anxiety, and stress.

Emotional regulation is defined as an internal process whereby individuals' manipulate their emotional intensity and arousal to cope effectively with stressful stimuli (Neff, 2003a). To operationalise cognitive emotional regulation Garnefski, Kraaij, and Spinhoven (2001) outline nine primary components. Self-blame, blaming, acceptance, refocus on planning, positive refocusing, rumination, positive reappraisal, putting into perspective, and catastrophizing. How these strategies are used indicates how effectively emotional regulation occurs. For instance, strategies including self-blame, catastrophizing and rumination contribute to an ineffective emotional regulation process (Garnefski et al., 2001). Conversely, strategies such as positive reappraisal, putting into perspective, and positive refocusing contribute to effective coping (Garnefski & Kraaij, 2006).

Martin and Dahlen (2005) identified that depressive symptoms were predicted by catastrophizing,

accepting outcomes, self-blame, rumination, and low positive appraisal strategies. Anxiety symptoms were predicted by catastrophizing, rumination, low positive appraisal, and self-blame strategies (Martin & Dahlen, 2005). Stress-related symptoms were positively predicted by low positive appraisal, self-blame, and rumination strategies (Martin & Dahlen, 2005). These associations support that higher levels of emotional regulation strategies were associated with lower levels of psychological distress. Research by Raes (2010) found that rumination significantly mediated the relationship between self-compassion and depression, and self-compassion and anxiety. Finlay-Jones et al. (2015) model suggests that high levels of self-compassion predict low levels of stress, and that emotional regulation mediates this relationship. This model is somewhat limited by its focus on stress, rather than on psychological distress with its components of depression, anxiety, and stress.

The current study aims to further develop the model proposed by Finlay-Jones et al. (2015) by investigating which elements of psychological distress (depression, anxiety, and stress) are influenced by self-compassion and emotional regulation. The proposed model is illustrated in Figure 1. This is the first study to examine the relationship between self-compassion and psychological distress, as mediated by emotional regulation within an Australian university student population.

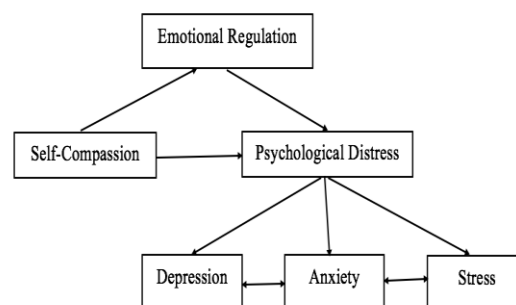


Figure 1 Proposed model of self-compassion and psychological distress, depression, anxiety, and stress mediated by emotional regulation.

The following hypotheses were proposed:

1. It is predicted that a significant positive correlation between self-compassion and emotional regulation, and a significant negative correlation between self-compassion and psychological distress (including depression, anxiety, and stress)
2. Self-compassion and emotional regulation would account for a significant amount of variance in psychological distress.
3. Emotional regulation would significantly mediate the relationship between self-compassion, and depression, anxiety, stress, with increased emotional regulation improving the positive

influence of self-compassion on depression, anxiety, and stress.

METHOD

Participants

Through social media, 89 university students were recruited consisting of 12 males (13.5%), and 77 females (86.5%) aged between 18 and 60 years.

Measures

Self-Compassion

The Self Compassion Scale (SCS; Neff, 2003) measures how compassionate an individual is towards themselves. This scale comprises of 26 items, organised into six subscales: self-kindness, self-judgement, common humanity, isolation, mindfulness, and over-identification. The SCS holds excellent psychometric properties and is considered an appropriate measurement of self-compassion (Neff, 2003b).

Psychological Distress

The Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995) measures how an individual experiences psychological distress (depression, anxiety, and stress). This scale comprises of 21 items, organised into three subscales: depression, anxiety, and stress. Higher scores represent higher levels of psychological distress (Lovibond & Lovibond, 1995). Antony et al. (1998) demonstrated that the DASS-21 has excellent psychometric properties.

Cognitive Emotional Regulation

The Cognitive Emotional Regulation Questionnaire Short (CERQ-short; Garnefski & Kraaij, 2006) is comprised of 18 items and measures an individuals' ability to regulate emotions. Items are organised into nine subscales: self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and other blame. The CERQ-short has adequate reliability and validity. (Garnefski & Kraaij 2006).

Procedure and Design

The current research was a cross-sectional, within-subjects design. The predictor variables included emotional regulation and self-compassion. The criterion variable was psychological distress with three levels (depression, anxiety, and stress).

RESULTS

Analyses

G Power Analyses found that a sample size of 88 participants was required to conduct multiple linear regression model with $\alpha = .05$, an effect size $f^2 = .15$, and power of .90. To conduct statistical analyses, Statistical Package for Social Sciences 24.0 (SPSS) was employed. To determine statistical significance, $\alpha = .05$ was maintained throughout all analyses.

Pearson's r was used to examine bivariate correlations between variables as a preliminary investigation. Table 1 shows significant negative correlation between self-compassion and psychological distress, depression, anxiety, and stress. Emotional regulation also demonstrated a significant negative correlation with psychological distress (including depression, anxiety, and stress). A significant positive relationship was found between self-compassion and emotional regulation, where higher scores of emotional regulation were associated with higher scores of self-compassion. As expected, there were significant positive relationships between psychological distress and depression, anxiety, and stress.

Regression Analyses

A hierarchical regression was conducted to examine the predictability of self-compassion and emotional regulation on psychological distress. Table 2 illustrates a summary of the regression analysis, including unstandardised predicted values with 95% confidence intervals, and studentised residuals, with the R^2_{change} statistic. At step one, self-compassion was entered as the predictor variable and psychological distress was entered as the criterion variable. Self-compassion significantly uniquely accounted for 44% of the variance in psychological distress, $R^2_{\text{change}} = .44$, $F_{\text{change}}(1, 87) = 68.56$, $p < .001$. From this, self-compassion was identified as a significant negative predictor of psychological distress. Analyses demonstrated that for every 1.00 standard deviation (SD) increase in self-compassion, psychological distress decreased by 0.66 SD. At step two, after controlling for the effects of self-compassion, emotional regulation was entered into the regression model. Emotional regulation uniquely accounted for a further 2.1% variance of psychological distress, $R^2_{\text{change}} = .02$, $F_{\text{change}}(1, 86) = 3.30$, $p < .07$.

Table 1 Pearson's Correlation Coefficients between Self-Compassion, and Emotional Regulation, Psychological Distress, Depression, Anxiety, and Stress with Mean (M) and Standard Deviation (SD) Scores (N=89)

Variable	1	2	3	4	5	6	M	SD
1. Self-Compassion	-						79.92	18.43
2. Emotional Regulation	.70*	-					61.55	8.98
3. Psychological Distress	-.66*	-.56*	-				75.41	20.42
4. Depression	-.53*	-.56*	.85*	-			23.17	8.78
5. Anxiety	-.47*	-.35*	.83*	.57*	-		21.39	7.07
6. Stress	-.67*	-.51*	.85*	.59*	.59*	-	30.85	8.27

Note. N = Number of participants, * $p < .001$.

Table 2 Coefficients for Hierarchical Multiple Regression Model (Self-Compassion, and Emotional Regulation; N = 89)

	R	ΔR^2	B	β	SE	95% CI for B
Step 1	.66*	.44				
Constant			134.18		7.28	[119.71, 148.66]
Self-Compassion			-0.74	-.66*	.09	[-0.91, -0.56]
Step 2	.68	.02				
Constant			149.85		11.22	[127.56, 172.16]
Self-Compassion			-0.58	-.53*	0.12	[-0.82, -0.34]
Emotional Regulation			-0.45	-.20	0.25	[-0.95, 0.04]

Note. N= Number of participants. SE = standard error. CI = confidence intervals. * $p < .001$.

Although emotional regulation did not demonstrate a significant explained variance, this may be due to the entry method used. For instance, self-compassion was entered into the regression model first, followed by emotional regulation. From the applied entry method, results may indicate that self-compassion and emotional regulation work in conjunction with each other, rather than separately, to explain the variance of psychological distress. Self-compassion and emotional regulation explained a combined variance of 46.1% of psychological distress. Self-compassion demonstrated the highest amount of variance explaining psychological distress.

Mediation Analyses

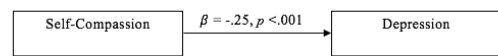
Based on Pearson's r correlation analyses illustrated in Table 2, three separate mediations were conducted to further explore how self-compassion predicts the components of psychological distress (depression, anxiety, and stress), as mediated by emotional regulation. Bootstrapping methods were appropriate for the following mediation analyses (Preacher & Hayes, 2008).

Depression single mediation

The first mediation examined the relationship between self-compassion and depression, as mediated by emotional regulation. Overall, the total effect of the model was significant, as when unmediated by emotional regulation, self-compassion was a significant negative predictor of depression, whereby with every 1.00 SD increase in self-compassion, there was a decrease of 0.25 SD in depression. As demonstrated in Figure 2, pathway A of the model was significant and self-compassion was a significant positive predictor of emotional regulation, as every 1.00 SD increase in self-compassion was associated with a 0.34 SD increase of emotional regulation. Pathway B was also significant as emotional regulation was identified as a significant negative predictor of depression, whereby with every 1.00 SD increase of emotional regulation, there was a 0.35 SD decrease in depression. The mediated model showed a significant relationship when self-compassion and depression was mediated by emotional regulation. A decrease in the β value was demonstrated as a reduction of $-.25$ to $-.14$ was found. This illustrates that when the relationship

between self-compassion and depression was mediated by emotional regulation, emotional regulation significantly improves depression, as bias-corrected confidence interval boundaries did not cross zero (lower 95% CI = $-.22$, higher 95% CI = $-.04$).

a) Unmediated Model



b) Mediated Model

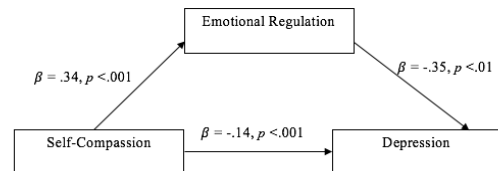


Figure 2 Direct and mediated pathways of self-compassion, emotional regulation, and psychological distress.

Anxiety single mediation

The second mediation examined the relationship between self-compassion and anxiety, as mediated by emotional regulation. The unmediated model demonstrated a significant positive direct relationship on self-compassion and anxiety, whereby with every 1.00 SD increase in self-compassion, there was a 0.18 SD decrease in anxiety. As illustrated in Figure 3, pathway A was significant as self-compassion was found to be a significantly positive predictor of emotional regulation, whereby an increase of 1.00 SD self-compassion indicates an increase of 0.33 SD of emotional regulation. Pathway B was not significant as the indirect effect was not completed due to the mediator variable (emotional regulation) not significantly predicting the criterion variable (anxiety). Therefore, emotional regulation did not mediate the relationship between self-compassion and anxiety.

Stress single mediation

A third single mediation was conducted to examine whether emotional regulation mediated the relationship between self-compassion and stress. From the unmediated model pathway C was significant as self-compassion had a significant positive direct effect on stress, as with every 1.00 SD increase in self-compassion, there was a 0.30 SD decrease in stress. As demonstrated through Figure 5, pathway A was significant as with every

1.00 SD increase in self-compassion, there was a 0.33 SD increase in emotional regulation. Pathway B was not significant as emotional regulation did not have a direct effect on stress. Therefore, it was concluded that emotional regulation did not mediate the relationship between self-compassion and stress

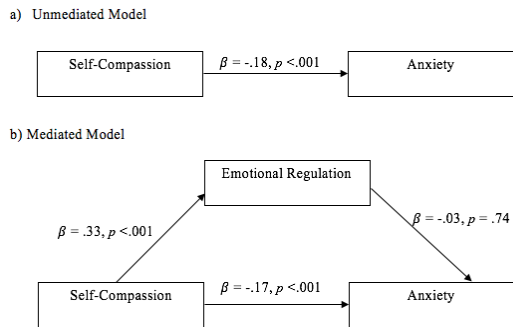


Figure 3 Direct and mediated pathways of self-compassion, emotional regulation, and anxiety

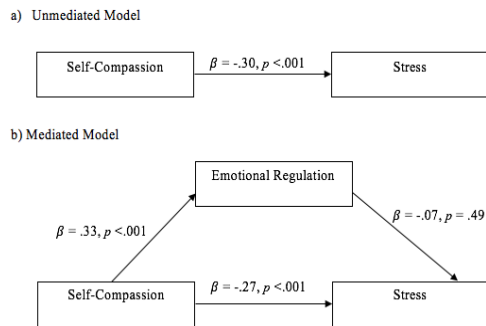


Figure 4 Direct and mediated pathways between self-compassion, emotional regulation, and stress.

DISCUSSION

The aim of this study was to further develop the model proposed by Finlay-Jones et al. (2015) to encompass psychological distress as a multidimensional construct as per the Tripartite model (Clark & Watson, 1991). This allowed for further analysis to determine whether emotional regulation mediates the relationship between self-compassion and depression, anxiety, and stress.

The first hypothesis proposed predicted a significant positive correlation between self-compassion and emotional regulation. This hypothesis was supported and suggests that higher levels of self-compassion were associated with higher levels of emotional regulation. The second hypothesis proposed a significant negative correlation between self-compassion and psychological distress (and its components depression, anxiety, and stress). This hypothesis was also supported. All variables were found to be significantly correlated with one another. These findings support previous research as lower levels of self-compassion have been associated with

higher levels of psychological distress and its components of depression (MacBeth & Gumley, 2012), anxiety (Neff, et al., 2007), and stress (Raes, 2010). Previous research has also demonstrated a significant relationship between emotional regulation and psychological distress (Martin & Dahlen, 2005).

The second hypothesis predicted that both self-compassion and emotional regulation would uniquely account for explained variance of psychological distress. This hypothesis was partially supported. self-compassion did account for a significant amount of variance of psychological distress. This lends support to previous research (Dam et al., 2011). However, unlike self-compassion, emotional regulation did not account for the variance of psychological distress in the current study. This finding was inconsistent with previous research (Martin & Dahlen, 2005). The reason for this result from the current study could be due to self-compassion and emotional regulation working in conjunction to explain psychological distress, rather than separately.

The third hypothesis predicted that emotional regulation would mediate the relationships between (1) self-compassion and depression, (2) self-compassion and anxiety, and (3) self-compassion and stress. This hypothesis was partially supported as the depression mediation was significant, whilst the anxiety and stress mediations were not. The significant finding of the depression mediation suggests that self-compassion in conjunction with emotional regulation can provide a more significant buffer against the experience of depression, than self-compassion alone. Furthermore, current findings support the extension of the theory proposed by Finlay-Jones et al. (2015) by illustrating that emotional regulation plays a mediating role in the relationship between self-compassion and psychological distress, in relation to depression. The current study has also built upon current knowledge by highlighting this relationship through multidimensional measures, rather than unidimensional measures utilised in previous research (Raes, 2010).

The anxiety and stress mediation analyses were found to be non-significant due to the pathway B being incomplete (Refer to Figure 3 and 4). Due to a paucity of research, this was the first study, to the authors’ knowledge, to examine the mediating role of emotional regulation on the relationship between self-compassion and anxiety. Therefore, this finding could not be compared with previous research. The non-significant mediation of self-compassion and stress was found to be inconsistent with previous research (Finlay-Jones et al., 2015).

It could be argued that these inconsistent findings were a reflection of the psychological measurements used. The CERQ-Short (Garnefski & Kraaij, 2006) and Depression-DASS subscale (Lovibond & Lovibond, 1995) focus exclusively on cognitive-related items. In contrast, the Anxiety-DASS and Stress-DASS subscales focus on the somatic symptoms (Lovibond & Lovibond, 1995). Therefore, the cognitive-based items of the CERQ-Short and Depression-DASS were incompatible with the somatic symptoms of the anxiety and stress subscales within the DASS-21.

Overall the findings of the current research highlights that Australian university students who report higher levels of self-compassion also report lower levels of psychological distress (depression, anxiety, and stress). Furthermore, Australian university students who report high levels of effective cognitive emotional regulation strategies also report lower levels of psychological distress (depression, anxiety, and stress). Mediation analyses further highlighted that university students who report high self-compassion and high emotional regulation are more likely to report experiencing lower levels of depression.

Although results from the current study further knowledge and understanding of the relationship between self-compassion and psychological distress, as mediated by emotional regulation, limitations are noted. Firstly, the psychometric measurements utilised demonstrated a level of incongruity. Specifically, the CERQ-Short and the depression-DASS subscale were formulated based on experienced cognitions (Garnefski & Kraaij, 2006; Lovibond & Lovibond, 1995). These scales were deemed incompatible with subscales used for anxiety-DASS and stress-DASS subscales, which were composed based on somatic symptoms (Lovibond & Lovibond, 1995). Secondly, the current study acknowledges the potential for casual inference as results are not conclusive of other variables which may explain a greater amount of variance of psychological distress than self-compassion or emotional regulation. From these limitations, it is recommended that future research investigate the relationship between self-compassion and psychological distress (including its' components depression, anxiety and stress), as mediated by emotional regulation using compatible, multidimensional measures.

The results from the current study provide preliminary support for Australian universities to incorporate self-compassion skills into student health programs to prevent and lower psychological distress, specifically in relation to depression. In addition to this, the current study shows support for university students to enhance their self-

compassion, and emotional regulation throughout their studies, as this may provide a protective barrier against depression.

In summary, the present study has found that the experience of psychological distress (and its components of depression, anxiety, and stress) can be predicted by self-compassion, where individuals who report higher levels of self-compassion are more likely to report lower levels of psychological distress. From this, self-compassion was identified as a protective factor against psychological distress (including depression, anxiety, and stress independently). Conversely, emotional regulation was not determined as a protective factor against anxiety or stress. The current findings lend support to extend the theory proposed by Finlay-Jones et al. (2015) to incorporate depression. Overall, the current study has furthered understanding regarding the relationship between self-compassion, emotional regulation, and psychological distress.

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