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Running head: SELF-COMPASSION AND WELL-BEING

Don’t be so hard on yourself! Changes in self-compassion during the first year of university are associated with changes in well-being

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Abstract

Introduction. Well-being declines during the first year of university. We examined if change in self-compassion was indirectly related to change in well-being through change in psychological need satisfaction during the first year of university.

Methods. First year university students (*N*=189, 77.2% female) completed self-report questionnaires at the beginning of the first semester and approximately five months later. Path analysis and bootstrapping procedures were used to examine residualized change scores.

Results. Change in self-compassion was positively related to (*p*s<.05) change in psychological need satisfaction (β=.49) and negatively related to change in negative affect (β=-.24). Change in psychological need satisfaction was positively associated (*p*s< .05) with change in vitality (β=.58) and change in positive affect (β=.52) and negatively associated with change in negative affect (β=-.29). Change in self-compassion was indirectly related to change in vitality (b=.56, 95% bootstrapped bias corrected confidence interval (BcCI)[.38, .77]), positive affect (b=.41, 95%BcCI [.27, .58]), and negative affect (b=-.26, 95%BcCI[-.41, -.13]) through change in psychological need satisfaction.

Conclusions. During the first year of university, change in self-compassion was associated with change in well-being because self-compassion enhanced psychological need satisfaction. Results highlight the potential of enhancing self-compassion during first year university to help mitigate student declines in well-being.

Key words: self-compassion; Self-determination theory; mental health; longitudinal; college; post-secondary; well-being

Introduction

The first year of university study is often accompanied by marked changes in responsibility, identity, lifestyle, social milieus, and sometimes living arrangements (Gall, Evans, & Bellerose, 2000; Terry, Leary, & Mehta, 2013). Coinciding with these changes, first year university students often experience a rapid decline in psychological and social well-being as well a rapid increase in psychological distress and cognitive-affective vulnerabilities (Conley, Kirsch, Dickson, & Bryant, 2014). Although these negative setbacks in psychological health tend to plateau over time, they do not return to baseline levels over the course of the first year of university (Conley et al., 2014). Consequently, there is a clear need for research that helps to identify key mechanisms that can be used to mitigate declines in well-being during the first year of postsecondary study.

Self-compassion is one approach with potential to assist students in managing the challenges that often accompany the first year of university (Fong & Loi, 2016; Hope, Koestner, & Milyavskaya, 2014; Terry et al., 2013). Self-compassion is relevant during times of suffering or setbacks and involves offering support and understanding to the self (Neff, 2003a). It is comprised of three components: (1) *self-kindness*, which represents the ability to be caring and kind to ourselves rather than excessively critical, (2) *common humanity*, which represents an understanding that everyone makes mistakes and fails and our experience is part of a larger common experience, and (3) *mindfulness*, which represents being present and aware while keeping thoughts in balance rather than overidentifying (Neff, 2003a, 2003b). Researchers have demonstrated the favourable effects of first year university students having higher self-compassion. For example, when controlling for baseline levels of self-compassion, first year undergraduate students who had higher self-compassion experienced less homesickness and

depression at the end of the first semester (Terry et al., 2013). Others have shown that across the first year of university, students with higher self-compassion had favourable changes in life satisfaction, identity development, and negative affect (Hope et al., 2014). To date, however, researchers have yet to examine mediators that might be transmitting the positive effects of self-compassion to well-being.

One theory that can be used to understand the relationship between self-compassion and well-being is self-determination theory (SDT; Deci & Ryan, 2000). In SDT, Deci and Ryan contend that all humans have innate psychological needs that when fulfilled contribute to greater well-being. The three psychological needs are *competence* (i.e., the perception that one can complete personally challenging tasks), *autonomy* (i.e., the perception that one is in control of his/her behaviours and acting volitionally) and *relatedness* (i.e., the perception that one connects and belongs with important others; Deci & Ryan, 2000). Investigators have supported Deci and Ryan's (2011) assertions that psychological need satisfaction (PNS) serves as one mechanism linking self-related constructs to well-being outcomes (see Sheldon, Cheng, & Hilpert, 2011).

Neff (2003b) demonstrated that self-compassion was associated with PNS insofar as having higher self-compassion can lead one to be authentic and pursue true self-esteem (versus contingent self-esteem; Neff, 2003a). Having higher self-compassion can enhance perceived autonomy because it encourages one to be kind to oneself, pursue behaviours driven by a sense of enjoyment, learn new and challenging skills, and find happiness (Neff & Dahm, 2015). Having higher self-compassion can enhance perceived competence because it promotes an adaptive self-attitude that could enhance perceptions of competence through viewing experiences as part of a larger human experience, self-kindness, and emotional balance (Neff, Hsieh, & Dejitterat, 2005). Conversely, having lower self-compassion can lead to self-critical thoughts that

undermine perceived competence (Neff et al., 2005). Finally, having higher self-compassion can facilitate perceptions of relatedness because it allows recognition that one's own needs are as valid and worthy of attention as the needs of others (Yarnell & Neff, 2013). In other words, having higher self-compassion can serve to enhance relationships because it encourages one to take the perspective of a close friend to enhance self-kindness, thereby fostering interpersonal perspective taking (Yarnell & Neff, 2013).

Research Question and Hypothesis

Despite the theoretical and empirical evidence that self-compassion is linked to the fulfillment of psychological needs (Ghorbani, Watson, Chen, & Norballa, 2012; Hope et al., 2014; Neff, 2003b; Neff et al., 2005), researchers have yet to examine if having higher self-compassion is associated with enhanced well-being because it provides opportunities to fulfill psychological needs. Therefore, the purpose of this investigation was to examine if changes in self-compassion were indirectly related to changes in well-being through changes in PNS during the first year of university. First year students represent an ideal population to examine the research question because researchers have shown that the first year of university is characterized by changes in well-being (Gall et al., 2000; Terry et al., 2013). Based on SDT (Deci & Ryan, 2011) and previous research (Ghorbani et al., 2012; Neff, 2003b; Neff et al., 2005), it was hypothesized that (H1) increases in self-compassion would be associated with increases in PNS, vitality, and positive affect and decreases in negative affect, (H2) increases in PNS would be associated with increases in vitality, and positive affect and decreases in negative affect, and (H3) the relationships between increase in self-compassion and well-being indicators would be transmitted through PNS.

Methods

Participants and Procedure

Participants were 189 (77.2% female) part-time or full-time first year university students, recruited during their first semester of study at a Canadian university [university name withheld for peer-review]. Most students were single/never married (99.5%). About half lived on campus in residence (50.3%), followed by off-campus (46.5%) and on campus in a non-residence building (3.2%). About half knew the people they lived with (49.2%) whereas just under half did not know the people they lived with prior to that year (45.5%). Participants described themselves using multiple descriptors such as white (n = 81, 42.86%), Chinese (n = 51, 26.98%), Asian (n = 35, 18.52%), Southeast Asian (n = 10, 5.29%), Filipino (n = 7, 3.70%), Aboriginal (n = 5, 2.64%), black (n = 4, 2.12%), or other (n = 28, 14.83%)[1].

Ethical approval to conduct the study was obtained by [withheld for peer review]. Participants were recruited to complete an online questionnaire within the first month of beginning university at Time 1 (T1). Participants were emailed a second online questionnaire at Time 2 (T2), approximately five months later. Recruitment took place via announcements at the start of 1st year university courses and links on course websites. Posters were placed around campus and researchers set up recruitment booths at first year events.

Measures

Demographic information. Participants indicated where and who they were living with and their gender. Participants reported a mix of race and ethnicities. To ensure participants were in their first year of university, they were asked how many university courses they had completed and if they were in their first year of university.

[1] Note participants could provide more than one description, therefore percentages exceed 100%.

Self-compassion. Self-compassion was assessed with the Self-Compassion Scale (SCS; Neff, 2003b). The SCS has six subscales to assess the three components of self-compassion: (1) mindfulness (e.g., "When something upsets me I try to keep my emotions in balance") as opposed to over-identification (e.g., "when I'm feeling down I tend to obsess and fixate on everything that's wrong"), (2) self-kindness (e.g., " I try to be loving towards myself when I'm feeling emotional pain") as opposed to self-judgement (e.g., "I'm disapproving and judgmental about my own flaws and inadequacies"), and (3) common humanity (e.g., "when things are going badly for me, I see the difficulties as part of a life that everyone goes through") as opposed to isolation (e.g., "when I'm feeling down, I tend to feel like most other people are probably happier than I am"). Items were rated on a scale of 1 (*almost never*) to 5 (*almost always*) based on how often they behave in a similar manner. Scale scores can be operationalized as six correlated subscales or as one overall self-compassion score (Neff, 2003b, 2015).

Psychological Need Satisfaction (PNS). The Basic Psychological Need Satisfaction scale (BPNS; Gagné, 2003) was used to assess perceptions of competence (e.g., "most days, I feel a sense of accomplishment from what I do"), autonomy (e.g., "I feel like I can pretty much be myself in my daily situations"), and relatedness (e.g., "I really like the people I interact with"). Participants read the items indicated how true the statement was for them. Response options were 1 (*not at all true*) to 7 (v*ery true*). The BPNS contained 21-items which were positively and negatively worded. Given the recent advances in theory and measurement of PNS, combined with the documented problems with the original scale (Johnston & Finney, 2010; Sheldon & Hilpert, 2012) and the negatively worded items (Gunnell, Bélanger, & Brunet, 2016; Johnston & Finney, 2010), the negatively worded items (n=9) were removed from further analysis. The factor structure of BPNS scores without negatively worded items (Gunnell et al.,

2016) has been supported. To reduce model complexity and enhance power and parsimony, an overall PNS variable was calculated by averaging the means of competence, autonomy, and relatedness.

Well-being. A combination of well-being indicators was used. Vitality was assessed with the 7-item Subjective Vitality Scale (SVS; Ryan & Frederick, 1997). Participants responded to each item based on how true the items are in their life in general on a scale of 1 (*not at all true*) to 7 (*very true*). An example item is "I feel alive and vital". Score validity and reliability evidence for the SVS have been documented (Ryan & Frederick, 1997). Positive and negative affect were assessed with the short positive and negative affect schedule (PANAS; Mackinnon et al., 1999; Watson, Clark, & Tellegen, 1988). Participants rated the extent to which they felt various feelings and emotions (e.g., distressed, excited) over the past few weeks. Response options were 1 (*very slightly or not at all*) to 5 (*extremely*). Score validity and reliability for the PANAS has been documented (Mackinnon et al., 1999; Watson et al., 1988).

Data Analysis

Preliminary analysis. In SPSS, participants were matched by their email addresses at T1 and T2. Next, screening took place to ensure all participants had completed the first questionnaire within the first month of commencing university (T1) and within one month of receiving the T2 questionnaire. Further screening eliminated participants who indicated that they were not first year students in their first program and semester of study at time of initial recruitment. Next, after reverse coding the negative self-compassion subscales (i.e., isolation, self-critical, and over-identification) an overall mean self-compassion score was created. Estimates of internal consistency were calculated for each variable at each time point. The expectation maximum algorithm estimation (Schafer & Graham, 2002) was then used to impute

missing values on subscale scores. Finally, T2 variables were regressed on their respective T1 variables and unstandardized residuals were saved to represent residualized change scores (Zumbo, 1999).

Main Analysis. Given that the main research question focused on multiple dependent variables in one model, we ran path analysis on the manifest residualized change scores in Mplus 7.3 using robust maximum likelihood estimation (MLR). To examine H1 and H2, change in vitality, positive affect, and negative affect were regressed on change in PNS and change in self-compassion. Change in PNS was regressed on change in self-compassion. To examine H3, the model was re-estimated using bootstrapping procedures to test for indirect effects (Preacher & Hayes, 2008). In this model, maximum likelihood estimation was used because MLR is not available with bootstrapping. 5000 bootstraps were requested and 95% bias corrected confidence intervals (BcCI) that did not cross zero were interpreted as a significant indirect effect.

Results

Preliminary Analysis

After removing ineligible participants (n=13) based on the questions determining first year status, 189 students who were in their first semester of university were included in this study. Of these 189 students missing data ranged from 2.6-3.2% at T1 and 11.6-12.7% at T2 on manifest variables. Descriptive statistics and estimates of internal consistency are presented in Table 1. For T1 and T2 manifest variables, skewness and kurtosis values were below |.65| and z-scores were below |3.29|. For residualized change score variables, skewness values were below |.46|, kurtosis values were below |2.92|, and z-scores were below |4.57|. Although some *z*-values fell outside recommended guidelines of |3.29| (Tabachnick & Fidell, 2007), in the interest of retaining a higher sample size, students with a z-score over 3.29 (n = 5) were not removed

because (a) MLR estimation was used to account for the non-normality in the data and (b) visual inspection did not indicate the presence of data entry errors. Bivariate correlations between residualized change scores are presented in Table 2.

Main Analysis

Results of the main path analysis indicated that increases in self-compassion were associated with decreases in negative affect and increases in PNS (see Figure 1). Increases in PNS were associated with increases in vitality and positive affect and decreases in negative affect. Overall, changes in self-compassion and PNS accounted for 39%, 29%, and 21% of the variance in vitality, positive affect, and negative affect, respectively. Given that the path model was fully identified, fit indices were not available. Nonetheless, parameter estimates fell within normal ranges. Results of the indirect effects with bootstrapping indicated that increases in self-compassion were associated with increases in vitality and positive affect because of increases in PNS (see Table 3). Further, increases in total self-compassion were associated with decreases in negative affect because of PNS (see Table 3).

Discussion

It is important to understand how to mitigate the decline in well-being during the first year of university (Gall et al., 2000; Terry et al., 2013) given that lower well-being may be related to school dropout (Alarcon & Edwards, 2013). We found that increases in self-compassion over two time points during the first year of university were associated with increases in favourable well-being indicators and that change in PNS meditated this relationship. That is, increases in self-compassion over the first year of university were related to increases in satisfaction of the needs to feel effective during personally challenging tasks (i.e., competent), feel a sense of ownership over one's behaviours (i.e., autonomy), and feel as though one belongs

and connects with important others (i.e., relatedness).These results highlight the potential key role PNS plays in transmitting the effect of self-compassion to well-being. As such, knowledge users (e.g., school counsellors, teachers) would do well to foster self-compassion such that students experience greater perceptions of competence, autonomy, and relatedness and in turn, favourable changes in well-being during the first year of university.

Our findings are consistent with theory (Deci & Ryan, 2000, 2011; Neff, 2003a), our hypotheses, and past research (Ghorbani et al., 2012; Neff, 2003b). A novel aspect of our study is that it extends previous cross-sectional findings (Ghorbani et al., 2012; Neff, 2003b) to demonstrate that changes in self-compassion are associated with changes in PNS and well-being. Nevertheless, our study design does not afford causal claims and as such results cannot be taken to suggest that self-compassion causes increases in PNS or well-being. Although, we tested a model that is consistent with theory and empirical evidence (Deci & Ryan, 2000, 2011; Neff, 2015; Ng et al., 2012; Zessin, Dickhäuser, & Garbade, 2015), there is some evidence to suggest that self-compassion could be an antecedent to well-being indicators such as affect (Sirois, Kitner, & Hirsch, 2015). Future research with more time points is needed to disentangle the potentially mutually reinforcing relationship between self-compassion, PNS and well-being. Future experimental work is also needed to determine if enhancing self-compassion through self-compassion induction interventions (Germer & Neff, 2013) causes increases in perceived PNS and well-being.

Psychological Need Satisfaction as a Mediator

Although researchers have previously demonstrated that self-compassion is associated with indicators of well-being during the first year of university (Hope et al., 2014; Terry et al., 2013), an examination of *why* self-compassion is associated with well-being had yet to occur. A

novel aspect of our study was that we used SDT (Deci & Ryan, 2000) to examine if PNS was a key mechanism, or mediator, transmitting the effect of self-compassion to well-being. We found that an increased satisfaction of psychological needs is one possible mechanism that links self-compassion to enhanced well-being. This finding is novel and provides theory-based support for how and why self-compassion may be a protective factor for first year university students. Our findings are also promising given that PNS has been previously linked to both physical and mental health outcomes in meta-analytic findings (e.g., smoking abstinence, physical activity, glycemic control, healthy diet, depression, anxiety, quality of life; Ng et al., 2012). Researchers may wish to examine if PNS mediates the link between self-compassion and other health outcomes such as body image (Wasylkiw, MacKinnon, & MacLellan, 2012), symptoms of depression (Krieger, Altenstein, Baettig, Doerig, & Holtforth, 2013) and health-enhancing behaviours such as sleep and exercise (see Sirois, Kitner, & Hirsch, 2015).

Practical Implications

Researchers should empirically test the effectiveness of self-compassion interventions (e.g., Germer & Neff, 2013) for increasing well-being during the first year of university. Such knowledge will provide guidance for those in the education sector looking to enhance the well-being of first year university students. Self-compassion interventions have shown positive results for eating behaviours (Adams & Leary, 2007), student resilience (Smeets, Neff, Alberts, & Peters, 2014), psychopathology (MacBeth & Gumley, 2012) and sport-related rumination (Mosewich, Crocker, Kowalski, & Delongis, 2013). Our results suggest that targeting self-compassion through interventions could lead to increases in PNS and in turn, enhanced well-being. Universities occupy a unique sphere in students' lives because they have large reach and can influence a large body of students though campus-wide initiatives to increase self-

compassion (Fong & Loi, 2016). Knowledge users such as school counsellors, teachers, administrators, physicians, residence assistants, and support staff may wish to augment student self-compassion through self-compassion exercises, inductions, or workshops. Finally, our results highlight that particularly students with low self-compassion could benefit from self-compassion initiatives given that decreases in self-compassion represented a risk factor for increases in negative affect.

Limitations and Future Directions

There are limitations to this study that should be considered alongside interpretation of the results. First, all variables were assessed via self-report questionnaires which could lead to biased parameter estimates. Second, given the small sample size, we were unable to examine latent variable models and therefore, our parameters estimates may be attenuated by error. Relatedly, an *a priori* power analysis was not undertaken prior to the collection of data for this study. Researchers interested in expanding on the current findings are encouraged to conduct power analysis to ensure their results have sufficient statistical power. Third, our results may not generalize to other samples of first year university students and researchers would do well to replicate our findings across multiple universities and colleges in different countries. Finally, we examined one possible model based on theory. Researchers should explore other theoretically relevant models with complementary variables. For example, a lack of PNS is not equivalent to the active frustrating of psychological needs (Deci & Ryan, 2000). PNS and psychological need frustration independently contribute to well-being and ill-being outcomes (Chen et al., 2015). As such, researchers could examine if a lack of self-compassion, manifested as self-judgement, isolation, and over-identification, might lead to higher psychological need frustration which in turn negatively impacts well-being. Finally, researchers could examine more time points to

disentangle within-person and between-person variations in change. Such approaches might help to identify key timeframes for interventions or the provision of support for students undertaking their first year of university.

Conclusion

Increases in self-compassion during the first year of university were associated with increases in well-being and decreases in negative affect because students experienced increases in perceptions of competence, autonomy, and relatedness. Enhancing students' self-compassion during the first year of university represents a viable option for university initiatives seeking to positively affect the well-being of students.

Table 1

Descriptive Statistics, Pearson Correlations and Estimates of Internal Consistency for Manifest Variables at Time 1 and Time 2

	Time 1			Time 2			1	2	3	4	5	6	7	8	9	10	11
	M	SD	α	M	SD	α											
1. Vitality	4.53	1.08	.87	4.25	1.13	.90	--	.75	-.41	.73	.37	.41	.40	-.35	-.39	-.47	.51
2. Positive Affect	3.52	.75	.81	3.17	.76	.84	.68	--	-.27	.63	.34	.35	.24	-.26	-.30	-.30	.37
3. Negative Affect	2.43	.86	.82	2.40	.82	.84	-.32	-.24	--	-.51	-.33	-.27	-.28	.49	.43	.50	-.49
4. PNS	4.98	.76	.84	4.88	.78	.89	.67	.57	-.43	--	.47	.52	.38	-.46	-.54	-.53	.61
5. Mindfulness	3.20	.72	.71	3.15	.69	.74	.34	.32	-.21	.41	--	.67	.61	-.54	-.49	-.49	.79
6. Self-Kindness	2.91	.80	.82	2.89	.76	.86	.29	.20	-.07†	.38	.63	--	.57	-.52	-.75	-.53	.84
7. Common Humanity	3.09	.86	.77	3.00	.80	.82	.37	.27	-.13	.34	.60	.58	--	-.33	-.39	-.39	.68
8. Over Identification	3.06	.88	.74	3.10	.87	.77	-.27	-.14	.49	-.42	-.44	-.40	-.27	--	.65	.64	-.79
9. Self-Judgement	3.17	.85	.81	3.18	.80	.80	-.29	-.18	.36	-.50	-.41	-.59	-.28	.64	--	.69	-.84
10. Isolation	3.12	.89	.74	3.17	.87	.81	-.36	-.26	.49	-.59	-.41	-.35	-.31	.64	.64	--	-.80
11. Self-compassion	2.98	.62	.92	2.93	.63	.94	.43	.30	-.40	.59	.76	.77	.67	-.76	-.80	-.76	--

Note. $^{\dagger}p>.05$.All other bivariate correlations are statistically significant $p<.05$. Because missing data were imputed on variables and not indicators, estimates of internal consistency (α) have n's that range from 159-184. All Means (M), Standard deviations (SD), and correlations have an *n* of 189.

Table 2

Pearson Correlations among Residualized Change Variables

	1	2	3	4	5	6	7	8	9	10
1. Vitality	--									
2. Positive Affect	.52									
3. Negative Affect	-.38	-.16								
4. PNS	.62	.54	-.41							
5. Mindfulness	.26	.32	-.24	.33						
6. Self-Kindness	.25	.36	-.25	.32	.56					
7. Common Humanity	.29	.17	-.32	.39	.49	.45				
8. Over Identification	-.21	-.13	.33	-.27	-.29	-.22	-.19			
9. Self-Judgement	-.24	-.23	.22	-.42	-.38	-.49	-.21	.51		
10. Isolation	-.32	-.15	.28	-.34	-.33	-.20	-.28	.50	.47	
11. Total self-compassion	.37	.29	-.38	.49	.71	.67	.64	-.64	-.70	-.67

Note. All correlations are $p<.05$. $n=189$.

Table 3

Unstandardized Results of the Bootstrap Indirect Effects

	Total Effect 95%[BcCI]	Direct Effect 95%[BcCI]	Indirect Effect 95%[BcCI]
SC→PNS→ Vitality	0.72[0.37, 1.01]	0.16[-0.12, 0.42]	0.56[0.38, 0.77]*
SC→ PNS→ Positive Affect	0.47[0.20, 0.71]*	0.07[-0.19, 0.32]	0.41[0.27, 0.58]*
SC→ PNS→ Negative Affect	-0.68[-0.93, -0.41]*	-0.43[-0.70, -0.14]*	-0.26[-0.41, -0.13]*

Note. * denotes statistical significance based on the 95% Bias Corrected Confidence Interval (BcCI). PNS = psychological need satisfaction, SC = self-compassion

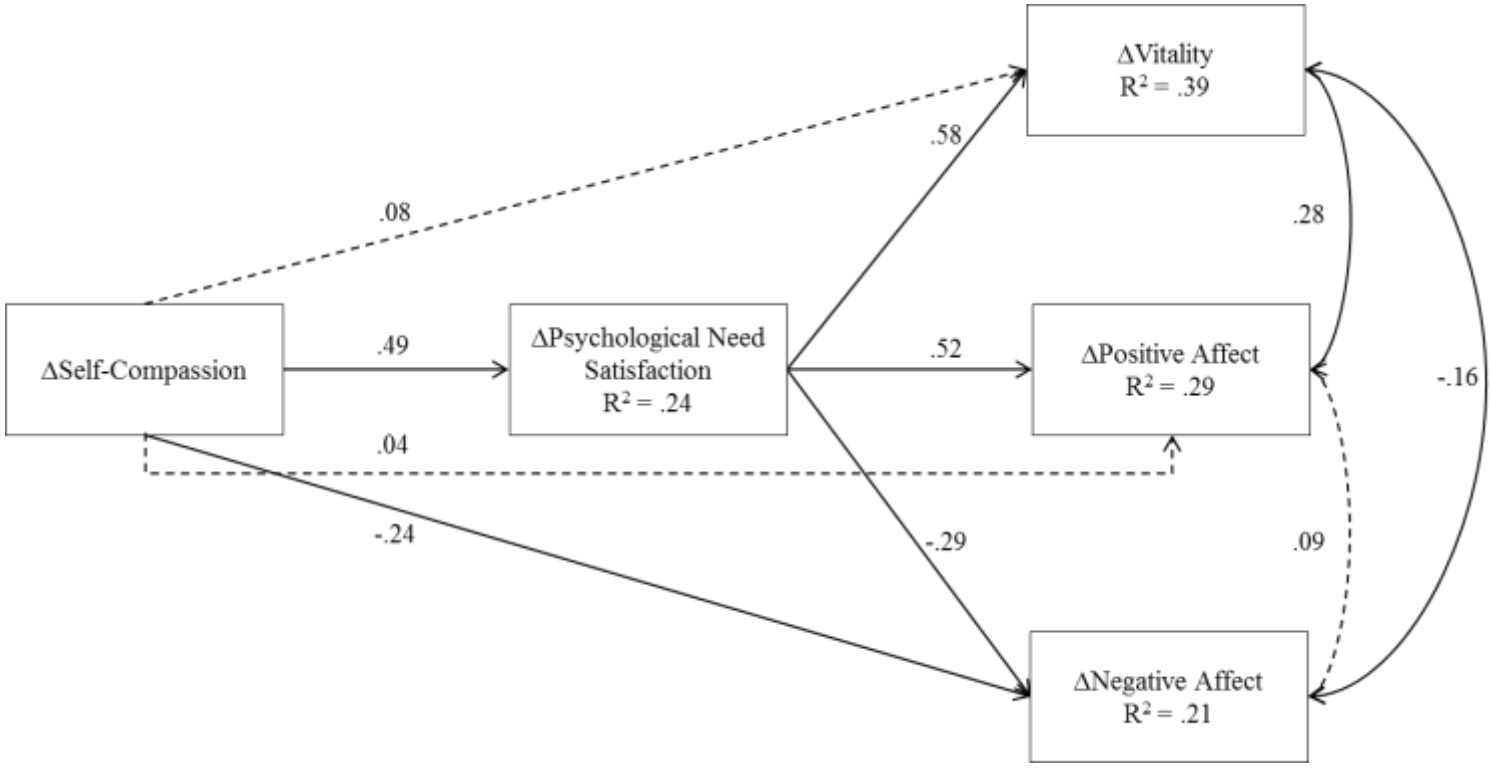

Figure 1. *Changes in Self-Compassion, Psychological Need Satisfaction and Indicators of Well-Being*

Note. Standardized values presented. Solid lines $p<.05$. Dashed lines $p>.05$.

References

Adams, C. E., & Leary, M. R. (2007). Promoting self-compassionate attitudes toward eating among restrictive and guilty eaters. *Journal of Social and Clinical Psychology*, *26*(10), 1120–1144. https://doi.org/10.1521/jscp.2007.26.10.1120

Alarcon, G. M., & Edwards, J. M. (2013). Ability and motivation: Assessing individual factors that contribute to university retention. *Journal of Educational Psychology*, *105*(1), 129–137. https://doi.org/10.1037/a0028496

Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Kaap-Deeder, J. V. der, … Verstuyf, J. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion*, *39*(2), 216–236. https://doi.org/10.1007/s11031-014-9450-1

Conley, C. S., Kirsch, A. C., Dickson, D. A., & Bryant, F. B. (2014). Negotiating the Transition to College Developmental Trajectories and Gender Differences in Psychological Functioning, Cognitive-Affective Strategies, and Social Well-Being. *Emerging Adulthood*, *2*(3), 195–210. https://doi.org/10.1177/2167696814521808

Deci, E. L., & Ryan, R. M. (2000). The "What" and "Why" of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Deci, E. L., & Ryan, R. M. (2011). Levels of Analysis, Regnant Causes of Behavior and Well-Being: The Role of Psychological Needs. *Psychological Inquiry*, *22*(1), 17–22. https://doi.org/10.1080/1047840X.2011.545978

Fong, M., & Loi, N. M. (2016). The Mediating Role of Self-compassion in Student Psychological Health. *Australian Psychologist*, n/a-n/a. https://doi.org/10.1111/ap.12185

Gagné, M. (2003). The Role of Autonomy Support and Autonomy Orientation in Prosocial Behavior Engagement. *Motivation and Emotion*, *27*(3), 199–223. https://doi.org/10.1023/A:1025007614869

Gall, T. L., Evans, D. R., & Bellerose, S. (2000). Transition to first-year university: Patterns of change in adjustment across life domains and time. *Journal of Social and Clinical Psychology*, *19*(4), 544–567. https://doi.org/10.1521/jscp.2000.19.4.544

Germer, C. K., & Neff, K. D. (2013). Self-Compassion in Clinical Practice. *Journal of Clinical Psychology*, *69*(8), 856–867. https://doi.org/10.1002/jclp.22021

Ghorbani, N., Watson, P. J., Chen, Z., & Norballa, F. (2012). Self-compassion in Iranian Muslims: relationships with integrative self-knowledge, mental health, and religious orientation. *The International Journal for the Psychology of Religion*, *22*(2), 106–118. https://doi.org/10.1080/10508619.2011.638601

Gunnell, K. E., Bélanger, M., & Brunet, J. (2016). A Tale of Two Models: Changes in psychological Need Satisfaction and Physical Activity Over 3 Years. *Health Psychology*, *35*, 167–177. https://doi.org/http://dx.doi.org/10.1037/hea0000259

Hope, N., Koestner, R., & Milyavskaya, M. (2014). The Role of Self-Compassion in Goal Pursuit and Well-Being Among University Freshmen. *Self & Identity*, *13*(5), 579–593. https://doi.org/10.1080/15298868.2014.889032

Johnston, M. M., & Finney, S. J. (2010). Measuring basic needs satisfaction: Evaluating previous research and conducting new psychometric evaluations of the Basic Needs Satisfaction in General Scale. *Contemporary Educational Psychology*, *35*(4), 280–296. https://doi.org/10.1016/j.cedpsych.2010.04.003

Krieger, T., Altenstein, D., Baettig, I., Doerig, N., & Holtforth, M. G. (2013). Self-Compassion in Depression: Associations With Depressive Symptoms, Rumination, and Avoidance in Depressed Outpatients. *Behavior Therapy*, *44*(3), 501–513. https://doi.org/10.1016/j.beth.2013.04.004

MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review*, *32*(6), 545–552. https://doi.org/10.1016/j.cpr.2012.06.003

Mackinnon, A., Jorm, A. F., Christensen, H., Korten, A. E., Jacomb, P. A., & Rodgers, B. (1999). A short form of the Positive and Negative Affect Schedule: evaluation of factorial validity and invariance across demographic variables in a community sample. *Personality and Individual Differences*, *27*(3), 405–416. https://doi.org/10.1016/S0191-8869(98)00251-7

Magnus, C. M. R., Kowalski, K. C., & McHugh, T.-L. F. (2010). The Role of Self-compassion in Women's Self-determined Motives to Exercise and Exercise-related Outcomes. *Self and Identity*, *9*(4), 363–382. https://doi.org/10.1080/15298860903135073

Mosewich, A. D., Crocker, P. R. E., Kowalski, K. C., & Delongis, A. (2013). Applying self-compassion in sport: an intervention with women athletes. *Journal of Sport & Exercise Psychology*, *35*(5), 514–524.

Neff, K. D. (2003a). Self-Compassion: An Alternative Conceptualization of a Healthy Attitude Toward Oneself. *Self and Identity*, *2*(2), 85–101. https://doi.org/10.1080/15298860309032

Neff, K. D. (2003b). The Development and Validation of a Scale to Measure Self-Compassion. *Self and Identity*, *2*(3), 223–250. https://doi.org/10.1080/15298860309027

Neff, K. D. (2015). The Self-Compassion Scale is a Valid and Theoretically Coherent Measure of Self-Compassion. *Mindfulness*, *7*(1), 264–274. https://doi.org/10.1007/s12671-015-0479-3

Neff, K. D., & Dahm, K. A. (2015). Self-Compassion: What It Is, What It Does, and How It Relates to Mindfulness, 121–137. https://doi.org/10.1007/978-1-4939-2263-5_10

Neff, K. D., Hsieh, Y.-P., & Dejitterat, K. (2005). Self-compassion, Achievement Goals, and Coping with Academic Failure. *Self and Identity*. https://doi.org/10.1080/13576500444000317

Ng, J. Y. Y., Ntoumanis, N., Thøgersen-Ntoumani, C., Deci, E. L., Ryan, R. M., Duda, J. L., & Williams, G. C. (2012). Self-Determination Theory Applied to Health Contexts A Meta-Analysis. *Perspectives on Psychological Science*, *7*(4), 325–340. https://doi.org/10.1177/1745691612447309

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891. https://doi.org/10.3758/BRM.40.3.879

Ryan, R. M., & Frederick, C. (1997). On Energy, Personality, and Health: Subjective Vitality as a Dynamic Reflection of Well-Being. *Journal of Personality*, *65*(3), 529–565. https://doi.org/10.1111/j.1467-6494.1997.tb00326.x

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, *7*(2), 147–177. https://doi.org/10.1037/1082-989X.7.2.147

Sheldon, K. M., Cheng, C., & Hilpert, J. (2011). Understanding Well-Being and Optimal Functioning: Applying the Multilevel Personality in Context (MPIC) Model. *Psychological Inquiry*, *22*(1), 1–16. https://doi.org/10.1080/1047840X.2011.532477

Sheldon, K. M., & Hilpert, J. C. (2012). The balanced measure of psychological needs (BMPN) scale: An alternative domain general measure of need satisfaction. *Motivation and Emotion*, *36*(4), 439–451. https://doi.org/10.1007/s11031-012-9279-4

Sirois, F. M., Kitner, R., & Hirsch, J. K. (2015). Self-compassion, affect, and health-promoting behaviors. *Health Psychology*, *34*(6), 661–669. https://doi.org/10.1037/hea0000158

Smeets, E., Neff, K., Alberts, H., & Peters, M. (2014). Meeting suffering with kindness: effects of a brief self-compassion intervention for female college students. *Journal of Clinical Psychology*, *70*(9), 794–807. https://doi.org/10.1002/jclp.22076

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics (5th ed.)* (Vol. xxvii). Boston, MA: Allyn & Bacon/Pearson Education.

Terry, M. L., Leary, M. R., & Mehta, S. (2013). Self-compassion as a Buffer against Homesickness, Depression, and Dissatisfaction in the Transition to College. *Self & Identity*, *12*(3), 278–290. https://doi.org/10.1080/15298868.2012.667913

Wasylkiw, L., MacKinnon, A. L., & MacLellan, A. M. (2012). Exploring the link between self-compassion and body image in university women. *Body Image*, *9*(2), 236–245. https://doi.org/10.1016/j.bodyim.2012.01.007

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063–1070.

Yarnell, L. M., & Neff, K. D. (2013). Self-compassion, Interpersonal Conflict Resolutions, and Well-being. *Self and Identity*, *12*(2), 146–159. https://doi.org/10.1080/15298868.2011.649545

Zessin, U., Dickhäuser, O., & Garbade, S. (2015). The Relationship Between Self-Compassion and Well-Being: A Meta-Analysis. *Applied Psychology. Health and Well-Being*, *7*(3), 340–364. https://doi.org/10.1111/aphw.12051

Zumbo, B. (1999). The simple difference score as an inherently poor measure of change: Some reality, much mythology. *Advances in Social Science Methodology*, *5*, 269–304.