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The distinct relationships of self-compassion and self-coldness with psychological distress and mental well-being

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The distinct relationships of self-compassion and self-coldness with psychological distress and mental well-being

by

Rachel Elizabeth Brenner

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
DOCTOR OF PHILOSOPHY

Major: Psychology (Counseling Psychology)

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The student author, whose presentation of the scholarship herein was approved by the program of study committee, is solely responsible for the content of this dissertation. The Graduate College will ensure this dissertation is globally accessible and will not permit alterations after a degree is conferred.

Iowa State University

Ames, Iowa

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ABSTRACT

The purpose of the current research is to examine the strength of the relationships of self-compassion and self-coldness with distress and well-being. The self-report measure driving self-compassion research—the Self-Compassion Scale (SCS; Neff, 2003a)—has recently been identified as comprised of two overarching factors (i.e., self-compassion and self-coldness) rather than one overarching factor of self-compassion (Brenner, Heath, Vogel, & Credé, 2017; Costa, Pinto-Gouveia, Ferreira, & Castilho, 2016; Lopez et al., 2015). As such, the extent to which associations between self-compassion and clinically relevant outcomes found in previous studies is due to self-compassion rather than self-coldness is unknown. Study 1 featured a cross-sectional design wherein participants from an adult community sample responded to measures of self-compassion and self-coldness, as well as brief measures of distress and well-being. Study 2 examined the replicability of these findings in an undergraduate sample with the inclusion of additional measures of distress. Structural equation modeling (SEM) was used to examine the direct relationships of self-compassion and self-coldness with distress and well-being, as well as interactions between these two constructs. Across studies self-coldness uniquely predicted distress and well-being, and self-compassion uniquely predicted well-being. Self-compassion did not uniquely predict distress in either sample. The strengths of these relationships were similar across studies. Self-compassion moderated the relationship between self-coldness and distress in both studies and the relationship between self-coldness and well-being in Study 1 but not Study 2. The direct relationships examined were not moderated by gender, although men reported greater self-compassion and self-coldness than women.

Keywords: Self-compassion, self-coldness, distress, well-being, mental health

CHAPTER I

OVERVIEW

Self-compassion is the acknowledgement of personal suffering through a kind, non-judgmental lens coupled with a desire to alleviate this suffering (Neff, 2003b). Introduced by Kristen Neff (2003b), self-compassion has become a burgeoning area of research focus due to its relationship with mental health. Meta-analyses, for example, have revealed medium to large effect sizes of self-compassion's relations with reduced psychopathology (MacBeth & Gumley, 2012) and greater psychological well-being (Zessin, Dickhäuser, & Garbade, 2015). Indeed, self-compassion has been inversely associated with depression among college students (Neff, 2003a) and clinical samples (Körner et al., 2015). Findings from intervention studies suggest self-compassion interventions may help in treating those with clinical concerns such as symptoms of depression (Diedrich, Grant, Hofmann, Hiller, & Berking, 2014; Shapira & Mongrain, 2010), disordered eating (Adams & Leary, 2007), and trauma (Held & Owens, 2015). In other words, self-compassion is particularly relevant to the field of counseling psychology and will likely continue to be integrated into counseling psychological research and practice.

Self-compassion has predominantly been measured using the Self-Compassion Scale (SCS; Neff, 2003a), originally purported to measure an overarching construct of self-compassion. In designing this measure, Neff conceptualized this construct as comprised of three *self-compassion* facets—self-kindness, common humanity, and mindfulness—as well as the absence of three *self-coldness* facets, namely, self-judgment, isolation, and over-identification with distress. Based on her conceptualization and findings during the scale's development, Neff instructed future researchers to use all six facets of the SCS—reverse-scoring the self-coldness items—to create a composite self-compassion score. As such, with minor exception, studies

linking self-report measures of self-compassion to clinically relevant outcomes used a one-factor approach. Further examination of the factor structure, however, suggests that the SCS measures self-compassion and self-coldness as two distinct constructs (Brenner et al., 2017; Costa et al., 2016; Lopez et al., 2015). In other words, the presence of self-compassion is not merely the absence of self-coldness. This has important theoretical and clinical implications. The SCS is frequently used in research, including as an outcome measure for Mindfulness-Based Cognitive Therapy (MCT; Segal, Williams, & Teasdale, 2013) treatments (e.g., Kuyken et al., 2010; Segal et al., 2013) and is central in growing treatment approaches such as Mindful Self-Compassion training (MSC; Neff & Germer, 2013) and Compassion Focused Therapy (CFT; Gilbert, 2009). Moreover, as self-coldness items were originally calculated as part of a self-compassion score, the extents to which previous findings of the relationship between self-compassion and clinical outcomes were due to self-compassion or due to self-coldness are unknown.

Researchers suggest that the self-compassionate items may more strongly relate to positive mental health, such as happiness (Neff, 2016), and self-coldness items may more strongly relate to negative psychological outcomes (Brenner et al., 2017; Muris, 2016; Muris & Petrocchi, 2017). Thus far, self-coldness has been more strongly linked to negative psychological outcomes compared to self-compassion in U.S. adolescents (Muris, 2016), community sample participants from Germany (Körner et al., 2015) and the Netherlands (Lopez et al., 2015), as well as college students in the US (Brenner et al., 2017), Norway (Dundas, Svendsen, Wiker, Granil, & Schance, 2016) and the UK (Gilbert et al., 2011). A meta-analysis of 18 studies found that the three negative SCS subfacets yielded significantly larger correlations than the three positive SCS subfacets (Muris & Petrocchi, 2017). Neff (2016) reanalyzed data from an earlier study using the six-factor structure lens in predicting happiness, life satisfaction,

depression, anxiety and stress. Based on results, Neff suggested that the three subscales related to self-compassion may be most relevant in enhancing positive psychological well-being, whereas the three subscales pertaining to self-coldness may be most relevant in alleviating distress. Positive psychological outcomes, however, have received limited examination with the two-factor scale structure. In one study of older adults, self-compassion, but not self-coldness, uniquely predicted positive affect and ego integrity and yielded a slightly larger incremental contribution toward meaning in life (Phillips & Ferguson, 2013).

The examination of self-compassion and self-coldness as distinctly related to distress and well-being is limited because the use of a two-factor structure with this scale in empirical research is in its nascent stages. Therefore, I intend to fill this gap in the literature by examining self-compassion and self-coldness in their distinct predictions of positive and negative psychological health constructs across two cross-sectional studies. Study 1 will examine whether self-compassion and self-coldness uniquely predict outcomes related to distress as well as psychological well-being in a sample of community participants. In Study 1, distress will be assessed using measures of non-specific distress, depression, and negative affect, and well-being will be assessed using measures of positive affect, psychological flourishing, and life satisfaction. Based on findings by Körner et al. (2015) and Dundas et al. (2017), a possible interaction of self-compassion and self-coldness will also be examined in predicting distress and well-being. Study 2 intends to assess the generalizability of these findings by examining these findings in a sample of undergraduate students, including measures of anxiety and stress as additional assessments of distress.

CHAPTER 2

LITERATURE REVIEW

The current project examines the relationships of self-compassion and self-coldness with psychological distress and well-being. Little research has examined the unique impact of these constructs; until recently, researchers viewed self-compassion as a unidimensional construct, combining self-compassion and self-coldness rather than examine each separately. To inform future research and improve clinical interventions, the goal of this study was to create a more delineated understanding of how these two factors relate to distress and well-being. Below, I will outline the original conceptualization of self-compassion and review findings regarding the overarching conceptualized factor of self-compassion. Subsequently, I will review the empirical progression of the definition of self-compassion over past thirteen years of research to the two-factor model of self-compassion and self-coldness. Finally, I will discuss initial associations between self-compassion and self-coldness with clinically relevant outcomes, how the contemporary two-factor approach fits with an alternate conceptualization of self-compassion, and potential gender differences among these two factors.

Self-Compassion

Neff's (2003b) conceptualization of self-compassion used to develop the Self-Compassion Scale (SCS; Neff, 2003a) is rooted in Buddhist philosophy. Underlying the Tibetan word for compassion, *tsewa*, compassion of others cannot be disentangled from compassion for the self (Barnard & Curry, 2011; Neff, 2003b). Indeed, Neff (2003b) notes, "self-compassion entails seeing one's own experience in light of the common human experience, acknowledging that suffering, failure, and inadequacies are part of the human condition, and that all people—oneself included—are worthy of self-compassion," (p. 27). This definition captures her three

proposed facets of self-compassion: a) self-kindness, b) common humanity, and c) mindfulness (Neff, 2003b). Although Neff (2003a) initially discussed these facets independently, she contends that they are all interrelated and should be measured as one factor of self-compassion.

As part of her description of the facets of self-compassion—self-kindness, common humanity, and mindfulness—Neff (2003b) discusses each in terms of their complimentary counterparts, self-judgment, isolation, and over-identification, respectively. *Self-kindness* involves viewing oneself with loving-kindness, warmth, empathy, and non-judgment in the face of suffering, and accepting oneself as fully human. According to Neff, self-kindness is the opposite of *self-judgment*, which can occur outside of one's awareness. Self-judgment denotes rejection of one's own feelings, thoughts, behaviors, and worth (Neff, 2003b). The feelings of punishment one places towards themselves often exceed the pain of the original situation (Germer, 2009). According to Buddhist tradition, self-compassion is compassion turned inward (Neff, 2016). Integral to feeling compassion toward others is *common humanity*, or recognizing the ubiquity of personal suffering (Neff, 2003b). A greater connection to this common humanity helps individuals view their related experiences with others in a self-compassionate way. Conversely, individuals often believe they are alone in their suffering (Neff, 2003b). This *isolation* can lead individuals to hide their true feelings from others and face their feelings of failure and inadequacy alone (Barnard & Curry, 2011). Finally, to connect with compassion toward ourselves and others, we must view ourselves in an open, accepting, and intentional way (Neff, 2003b). In other words, *mindfulness*, or intentional awareness of one's experience and the present moment with acceptance and non-judgment (Kabat-Zinn, 2003), is also fundamental to self-compassion. Neff (2003b) contends that self-compassionate mindfulness involves awareness of one's suffering without being entirely fused with it. This fusion is known as *over-*

identification. Over-identifying with suffering can exacerbate suffering by ruminating about and connecting with one's pain to the point where they cannot separate from their experience and connect with parts of themselves and humanity outside of their suffering (Neff, 2003b).

Development of the Self-Compassion Scale

Neff (2003a, 2003b) postulated that these three facets of self-compassion and their counterparts contribute to an overarching construct of self-compassion. As such, Neff (2003a) developed items for the SCS to include an approximately equal number of items pertaining to each of the three predicted factors (i.e., self-kindness, common humanity, and mindfulness), including items that represent their respective counterparts of self-judgment, isolation, and over-identification. Theorized as distinct from each other, self-kindness, common humanity, and mindfulness were also predicted to comprise a larger construct of self-compassion.

Neff (2003a) narrowed the 71-item pool and examined this predicted factor structure of the SCS by examining responses to the items in two samples of college students. Items designed to measure self-kindness, common humanity, and mindfulness were analyzed separately. In Study 1 ($n = 391$; 225 female), Neff first conducted three distinct exploratory factor analyses (EFAs), one per each predicted factor, and removed items with factor loadings of less than .40. This left 26 items remaining from the original 71-item pool. Next, three distinct confirmatory factor analyses (CFAs) examined the factor structure for each predicted factor (i.e., self-kindness, common humanity, and mindfulness). Neff predicted that each one factor structure would be confirmed; however, goodness of fit statistics indicated that a one-factor structure did not fit the data for self-kindness (NFI = .80, CFI = .84), common humanity (NFI = .43, CFI = .59), or mindfulness (NFI = .76, CFI = .83).

Given the inclusion of the negative items, Neff examined whether a two-factor solution—a positive factor and negative factor—would fit for each predicted construct (i.e., self-kindness and self-judgment, common humanity and isolation, mindfulness and over-identification). Based on the same goodness of fit statistics, Neff (2003a) concluded that the two-factor structures adequately fit the data for all three models: self-kindness and self-judgment (NFI = .88, CFI = .91), common humanity and isolation (NFI = .99, CFI = .99), and mindfulness and over-identification (NFI = .94, CFI = .96). That is, Neff (2003a) concluded that the CFA results suggested a positive factor and negative factor (Neff, 2003b) for each of the three proposed factors, resulting in six total factors. Hypothesized self-kindness items loaded separately onto either self-kindness (e.g., “When I’m going through a very hard time, I give myself the caring and tenderness I need”) or self-judgment (e.g., “I’m intolerant and impatient toward those aspects of my personality I don’t like”). Hypothesized common humanity items loaded separately as common humanity (e.g., “I try to see my failings as part of the human condition”) and isolation (e.g., “When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world”). Hypothesized mindfulness items loaded separately as mindfulness (e.g., “When I’m feeling down I try to approach my feelings with curiosity and openness”) and over-identification (e.g., “When I fail at something important to me I become consumed by feelings of inadequacy”). Neff then conducted a six factor CFA and stated that results indicated the model “fit the data adequately well” (p. 231) for the six-factor solution (NFI = .90, CFI = .91). This finding was replicated in Study 2 ($n = 232$, female = 145; NFI = .92, CFI = .93).

A CFA was also conducted in Study 1 and Study 2 wherein all twenty-six items were forced onto one factor fit to assess support for the single higher-order factor of self-compassion.

Based on model fit indices, Neff (2003a) determined that the one-factor model fit the data “marginally well” (p. 232) in Study 1 (CFI = .88 and NNFI = .90), and that this single higher-order CFA model was “confirmed” (p. 239) in Study 2 (CFI = .90 and NNFI = .92). As such, Neff concluded that the 26-items measure contained six subscales and also served as an overall measure for self-compassion. Future researchers were instructed to reverse-score items from the negative subscales (i.e., self-judgment, isolation, over-identification), create an average score for each of the six subscales, and then sum or average these mean scores to calculate an overall self-compassion score. The SCS then became the predominant measure of self-compassion.

Self-Compassion and Clinically Relevant Outcomes

Distress. Speaking to its clinical relevance, results suggest that self-compassion is an important predictor for mental health outcomes. Researchers have consistently found an inverse association between self-compassion and psychologically negative outcomes such as depression symptoms (*rs* ranged from -.21 to -.61, *ps* < .05; Mills, Gilbert, Bellew, McEwan, & Gale, 2007; Neff, 2003a; Neff, Kirkpatrick, & Rude, 2007; Raes, 2010; Ying, 2009), anxiety (*rs* ranged from -.21 to -.66, *ps* < .01 Neff, 2003a; Neff et al., 2005; Neff et al., 2007), and negative affect (*rs* ranged from -.32 to -.34, *ps* < .01; Leary, Tate, Adams, Allen, & Hancock, 2007; Neff et al., 2007). In a review of eight studies, Barnard and Curry (2011) found inverse associations between self-compassion and depression, which remained significant after controlling for factors consistently linked to depression and anxiety, such as self-esteem and self-criticism.

The link between self-compassion and psychological distress is perhaps best illustrated by a recent meta-analysis examining the relationships of self-compassion with psychopathology. Namely, MacBeth & Gumley (2012) conducted a meta-analysis of self-compassion and clinical outcomes of depression, anxiety, and/or stress. The initial search generated 728 articles, and an

abstract review identified 37 potential research articles for the meta-analysis. Examination of these possible articles led to the inclusion of 14 research articles in the analysis, with 20 samples total ($N = 4,007$) and 32 reported effect sizes (15 for depressive symptoms, 12 anxiety, 5 stress). All samples utilized the SCS, and only one study did not use the total SCS score in predicting self-compassion. Results revealed a large effect size between self-compassion and psychopathology. This effect size was “large” ($p = .548$) for both the uncorrected random effects estimate ($r = -0.54$, 95% CI = $[-.57, -.51]$, $p < .0001$) and the aggregate effect size when corrected for attenuation ($\rho = -0.57$, 95% CI = $[-.64, -.57]$, $p < .0001$). Examining the outcome variables separately revealed significant ($ps < .001$) effect sizes for depression ($r = -0.52$), anxiety ($r = -0.51$), and stress ($r = -0.54$). A sensitivity analysis indicated that these effect sizes were statistically equivalent. MacBeth and Gumley (2012) also examined for possible moderators between self-compassion and psychopathology. Analyses did not indicate a significant difference in effect sizes between clinical and non-clinical samples ($Q = 1.66$, $p = .19$), nor a moderation of the relationship between self-compassion and psychopathology based on age ($Q = 3.05$, $p = .08$), gender ($Q = 2.42$, $p = .12$), or whether participants were from a community or student sample ($Q = 2.79$, $p = .09$).

This inverse association between self-compassion and depression appears to be cross-culturally valid as well. For example, Neff, Pisitsungkagarn, and Hsieh (2008) collected self-reports of self-compassion and depression among U.S. ($n = 181$), Thai ($n = 223$), and Taiwanese ($n = 164$) undergraduate student samples. Findings demonstrated consistent moderate to strong negative associations between self-compassion and depression (ρ s ranged from $-.53$ to $-.61$, $ps < .01$), controlling for gender. Moreover, in a study of 271 Dutch female undergraduate students,

results indicated an inverse relationship of self-compassion with depression ($r = -.55, p < .001$; Raes, 2010).

Well-Being. Self-compassion has also been viewed as a resilience factor (see Barnard & Curry, 2011, for review), linked to positive psychological outcomes. Wei, Liao, Ku, and Shaffer (2011), for example, found that self-compassion was associated with greater life satisfaction in samples of undergraduate students ($n = 195; r = .43, p < .01$) and community adults ($n = 136; r = .27, p < .01$). Across two samples of undergraduate students in another study ($ns = 203$ and 271), self-compassion was linked to greater self-reported well-being ($rs = .64$ and $.67, ps < .05$; Neely, Schallert, Mohamman, Roberts, & Chen, 2009). In the first sample, self-compassion accounted for a significant proportion of the variance in well-being over and above goal reengagement, goal disengagement, and stress ($b = .57, p < .05$). In the second sample, perceived need and availability of social support were also included in the regression model; self-compassion predicted well-being above and beyond these constructs ($b = .54, p < .05$). Self-compassion has also demonstrated positive correlations with self-esteem ($r = .68; p < .001$; Neff & Vonk, 2009) in a community sample ($N = 2,187$). In a sample of 165 students, self-compassion demonstrated significant positive partial correlations with happiness ($\rho = .22$), optimism ($\rho = .33$), and positive affect ($\rho = .22$), controlling for self-esteem ($ps < .05$; Neff & Vonk, 2009). Self-compassion has also been linked to greater happiness, optimism, (Neff & Vonk, 2009), and greater equanimity (Leary et al., 2007). As with self-compassion and depression, the association between self-compassion and well-being appears to be cross-culturally valid. In a cross-cultural study (Neff et al., 2008), self-compassion was associated with greater reports of life satisfaction in U.S. ($\rho = .38, p < .01$), Thai ($\rho = .22, p < .01$), and Taiwanese ($\rho = .46, p < .01$) undergraduate students, controlling for gender.

Perhaps most evident of this relationship is a meta-analysis conducted by Zessin et al. (2015) to examine the relationship between self-compassion and well-being. In addition to “self-compassion,” researchers searched for keywords of “well-being, SWB, life satisfaction, positive affect, negative affect, happiness, or quality of life,” (Zessin et al., p. 7). This returned 1,422 articles, and efforts to identify unpublished works returned an additional 11 articles. In total, 65 articles with 79 samples ($N = 16,416$) were included in the meta-analysis. Speaking to the growing rate of self-compassion research, among the 79 samples, 22 were from studies published in 2014 (Zessin et al., p. 12). Using a random-effect model, results yielded an effect size (r) of .47 ($p < .0001$). Potential moderators of female proportion, age, geographic region, and self-esteem were also examined. Moderation based on gender proportion was found such that the proportion of women in the sample significantly strengthened the relationship between self-compassion and well-being ($p = .01, n = 14,126$). Age of participants, self-esteem, and region of sample did not significantly moderate the effect of self-compassion and well-being ($.13 < ps < .39$).

In addition to overall well-being, Zessin et al. (2015) examined the relationships of self-compassion to specific types of well-being: psychological, cognitive, affective, and other. The authors viewed psychological well-being as the degree to which an individual is functioning at their optimal level. Cognitive well-being was described as cognitive evaluation of life satisfaction. Positive and negative affective well-being were described as “the presence of positive or pleasant affects and the absence of negative or unpleasant affects,” (Zessin et al., p. 2). Other well-being included the remaining types such as interpersonal and spiritual. Significant effect sizes ($ps < .01$) were found between self-compassion and psychological well-being ($r = .62$), cognitive well-being ($r = .47$), negative affective well-being ($r = -.47$), positive

well-being ($r = .39$), and other types of well-being ($r = .47$). Significant differences in effect sizes based on outcome measures were also demonstrated ($Q(4) = 38.40, p < .01$). Pairwise comparisons revealed that psychological well-being had a significantly stronger relationship with self-compassion compared with cognitive well-being, positive affective well-being, and negative affective well-being. A stronger relation with self-compassion was also found for cognitive well-being compared with positive affective well-being. Self-esteem significantly moderated the relationship between self-compassion and cognitive well-being ($p = .02$).

While Zessin et al.'s (2015) presented interesting findings on the relationship of self-compassion to different types of well-being, other researchers have argued that well-being is comprised of either two types—subjective well-being and psychological well-being—or one type of well-being, which combines these two. Chen, Jing, Hayes, & Lee (2013) tested these two notions regarding the theoretical underpinnings of well-being using second order and bifactor modeling. Second-order factor models examine whether specific factors contribute to an overall factor. Bifactor modeling examines the possibility of a general factor accounting for the commonality between specific factors and, unique from second-order modeling, examines the unique influence of specific factors over and above the general factor (Chen, West, & Sousa, 2006; Chen, Hayes, Carver, Laurenceau, & Zhang 2012; Reise, 2012). Chen et al. (2013) created three sets of second-order and bifactor models across two samples wherein facets of subjective were modeled onto a general subjective well-being factor, facets psychological well-being were modeled onto a general psychological well-being factor, and, relevant to the current discussion, facets of both subjective well-being and psychological well-being were modeled onto a general well-being factor. The relationships of global factor and specific factors with relevant outcomes was also examined. With regard to the latter set of models, Chen et al. (2013)

concluded that goodness-of-fit indices for the bifactor models (CFIs = .90, RMSEAs = .06) and second-order models (CFIs = .89, RMSEAs = .06) and the relationships of the global factor and specific factors with relevant outcomes supported the notion that well-being can be viewed as one overarching construct. They also concluded that there was evidence to combine measures of subjective well-being (i.e., affective and subjective components of well-being) and psychological well-being in modeling well-being.

The Self-Compassion Scale: Reaching a Two Factor Structure

Despite the large number of studies that have examined self-compassion using the single factor solution suggested by Neff (2003a), new evidence suggests that self-compassion might actually be represented by two constructs of self-compassion and self-coldness. For example, Williams, Dalglish, Karl, and Kuyken (2014) note that the original fit indices reported by Neff (2003a) for the one-factor model fit the liberal, but not conservative, suggested cutoff criteria (Schermele-Engel, Moosbrugger, & Engel, 2003). To address this, Williams et al. (2014) examined fit indices for the one-factor solution, the six-factor solution, and a higher-order model wherein the six factors were representative of an overall self-compassion factor. The latter model was not tested in the original scale development article. Fit indices (SRMR, RMSEA, CFI, NNFI, AIC) for each of these models were examined across three different samples: for each of these models were examined across three different samples: 1) a community adult sample ($n = 940$), 2) an adult sample of participants who meditate regularly ($n = 235$), and 3) an adult clinical sample ($n = 492$). Williams et al. concluded that “none of the models fit the data to an acceptable level when using liberal cutoff criteria for what constitutes acceptable fit” (p. 416). Across all three samples, the one factor model yielded CFI and NFI indices less than .90 (ranging from .591 to .679), RMSEA fit indices less than .10 (ranging .119 to .131), and SRMR ranging

from .097 to .103. The six-factor model yielded CFI and NFI fit indices ranging from .772 to .895, RMSEA fit indices ranging from .071 to .100, and SRMR fit indices ranging from .056 to .075. Finally, the hierarchical six-factor model yielded CFI and NFI fit indices ranging from .734 to .836, RMSEA fit indices ranging from .087 to .107, and SRMR fit indices ranging from .091-.102. Williams et al. rejected the notion that the SCS measures one overarching factor, noting, “taken alongside our finding that the *hierarchical* six-factor model was not acceptable suggests that the SCS may be better suited to measuring six hypothesized facets of self-compassion in this population rather than for measuring an overarching construct (i.e., self-compassion)” (p. 416)

Subsequently, as a result of this study, researchers began to more closely examine the factor structure of the SCS. Lopez et al. (2015) examined the factor structure of the Dutch version of the SCS with a sample of community adults in the Netherlands ($N = 1,643$). After concluding that a six-factor model “did not fit the data sufficiently” (p. 5) based on fit indices (CFI < .90, RMSEA > .08, WRMR > 1), Lopez et al. conducted an exploratory factor analysis of all SCS items. Results suggested a two-factor solution, with positively worded items loading on one factor (eigenvalue = 6.35, variance accounted for = 26.5%), and negatively worded items loading on another (eigenvalue = 4.53, variance accounted for = 18.9%). Internal consistency was also demonstrated for the positively worded ($\alpha = .86$) and negatively worded factors ($\alpha = .90$). To examine whether each of these factors reflected the delineation proposed by Neff (2003a) of three factors among positively worded items (i.e., representing self-kindness, common humanity, and mindfulness) and three factors among negatively worded items (i.e., representing self-judgment, isolation, and over-identification), Lopez et al. also conducted two additional EFAs, one of positively worded items and one of negatively worded items. Results

suggested one-factor solution for each. Based on these analyses, Lopez et al. (2015) concluded that exploratory analyses suggested the existence of a two-factor solution comprised of positively worded items and negatively worded items, respectively, rather than a one-factor solution. The positive item factor and negative item factor have been referred to as self-compassion and self-coldness (Gilbert, et al., 2010; Körner et al., 2015), respectively.

Following the two-factor solution found by Lopez et al. (2015), Costa et al. (2016) conducted CFAs examining this two-factor structure, a six-factor model, and a higher order six-factor model with data from responses of an adult community sample in Portugal ($N = 361$). The community sample was comprised of non-clinical participants as well as individuals diagnosed with an anxiety disorder, an eating disorder, or borderline personality disorder. Although none of the models provided clearly good fit to the data, the authors argued that a two-factor solution allowing covariance among four error terms ($CFI = .880$, $RMSEA = .07$) demonstrated the best model fit to the data, largely based on AIC and BCC improvement. The authors also conducted invariance testing and concluded that this factor structure across three clinical groups and a general population sample.

Recently, Neff, Whittaker, & Karl (2017) used higher-order and bifactor modeling to examine the factor structure of the SCS across four samples. As noted earlier, higher-order factor models allow researchers to examine whether specific first-order factors contribute to an overall second-order factor. Bifactor modeling examines the possibility of a general factor accounting for the commonality between specific factors and, unique from second-order modeling, also allows researchers to test the unique influence of specific factors over and above the general factor (Chen et al., 2006; 2012; Reise, 2012). They found that a bifactor model with one general factor demonstrated the best fit to the data across student ($N = 222$, $CFI = .91$,

RMSEA = .06), community ($N = 1,394$, CFI = .91, RMSEA = .06), meditator ($N = 215$, CFI = .91, RMSEA = .07), and clinical ($N = 390$, CFI = .84, RMSEA = .08). They concluded that this supported the SCS as a one-factor structure because it fit the data better than an oblique, two-factor model ($.83 \leq \text{CFIs} \leq .87$, $.07 \leq \text{RMSEAs} \leq .08$). However, Neff et al. did not examine higher-orders or bifactor with two factors. Further, the two-factor oblique model demonstrated a better fit than its unidimensional, one-factor counterpart ($.64 \leq \text{CFIs} \leq .79$, $.09 \leq \text{RMSEAs} \leq .11$).

Using a more comprehensive approach, Brenner et al. (2017) conducted an in-depth examination of the SCS factor structure in a sample of undergraduate students from a Midwestern university ($N = 1,115$). In addition to a unidimensional model, oblique, higher-order, and bifactor models for the two, three, and six factor structures were examined. Goodness of fit statistics were provided in order for future researchers to make the most informed decision in their approach to self-compassion research, with benchmarks of $\text{CFI} \geq .95$ and $\text{RMSEA} \leq .06$ indicating adequate fit. Similar to previous findings, the unidimensional model did not fit the data (CFI = .846, RMSEA = .14). The oblique three-factor model (CFI = .842, RMSEA = .14) and the bifactor model with one general factor (CFI = .936, RMSEA = .08) also did not demonstrate an adequate fit to the data. The six-factor oblique model fit the data (CFI = .973, RMSEA = .06), as did the six-factor higher-order models with one (CFI = .953, RMSEA = .08) and two (CFI = .968, RMSEA = .06) higher-order factors. The authors concluded, however, that a two-factor approach is best suited for researchers examining the overarching aspects of self-compassion because a two-factor bifactor model of the self-compassion and self-coldness facets demonstrated the best fit (CFI = .975, RMSEA = .06) and a better fit than the second-best-fitting model based on lower AIC, with the difference exceeding the benchmark of 10 ($\Delta\text{AIC} = 66.56$).

suggested by previous researchers (as cited in Symonds & Moussalis, 2011, p. 17). The two-factor oblique model (CFI = .955, RMSEA = .07) and two-factor higher-order model (CFI = .969, RMSEA = .06) also demonstrated an adequate fit.

In addition to goodness of fit, Brenner et al. examined ancillary bifactor indices of model-based dimensionality and reliability (i.e., Omega Hierarchical [ω H], Omega Hierarchical Subscale [ω HS], Proportion of Reliable Variance [PRV], Explained Common Variance [ECV], and Percent Uncontaminated Correlations [PUC]). Cutoffs of ω H or ω HS > .80 (Rodriguez, Reise, & Haviland, 2016) and PRV > .75 (Li, Toland, & Usher, 2016) were used to determine whether researchers could interpret each general or specific factor raw score as an appropriate measure of its respective factor. Moreover, because the PUC was lower than .80 (i.e., .72), benchmarks of ECV > .60 and ω H > .70 were used to determine interpretation of less bias and, in turn, provide support for the interpretation of each general factor as unidimensional relative to their specific factors (Reise, Scheines, Widaman, & Haviland, 2013). Overall, these model-based reliability and dimensionality results support the unidimensionality of each general factor. Computed indices met the benchmarks for the general self-compassion factor (ω H = .84, PRV = .92), but the three specific factors, self-kindness (ω HS = .18, PRV = .21), common humanity (ω HS = .27, PRV = .35), or mindfulness (ω HS = .02, PRV = .03) did not meet these benchmarks. Similarly, resulting indices met the benchmarks for the general self-coldness factor (ω H = .88, PRV = .94), but for none of the three specific factors, self-judgment (ω HS = .12, PRV = .15), isolation (ω HS = .12, PRV = .15), and over-identification (ω HS = .18, PRV = .20). Furthermore, both general factors demonstrated ECVs above .60; the ECV for self-compassion was .75 and the ECV for self-coldness was .68. As noted above, ω H was greater than .70 for both the self-compassion (.84) and self-coldness (.88) general factors. As such, Brenner et al. concluded that

these indices provided further support for the two-factor structure and indicate that “researchers can choose to examine these two factors using a bifactor model, a more parsimonious two-factor SEM model, or manifest total mean scores,” (p. 9).

Theory of Social Mentalities

This two-factor structure, though not precisely in line with the theoretical structure postulated by Neff (2003a, 2003b), does fit another theoretical understanding of self-compassion. Specifically, researchers (e.g., Costa et al., 2016; Lopez et al., 2015; Körner et al., 2015) have drawn from Gilbert’s (2005) theory of social mentalities and related work (Gilbert et al., 2011) to explain self-compassion and self-coldness as distinct factors. Gilbert posits that people interact with the world differently depending on whether the environment is threatening or safe (Buss, 2003; Gilbert, 1989, 1993), using two distinct processing systems: the threat-defense system and the safeness system (Gilbert, 1989, 1993). These systems are thought to be rooted in the sympathetic and parasympathetic nervous systems, respectively (Gilbert, 2005). Though designed to motivate our external behaviors, these systems can also be enacted internally and influence the way that we treat ourselves. In other words, pertinent to our understanding of self-compassion, these separate systems can activate different internal approaches in how we treat ourselves.

The internal activation of this threat system has been referred to as self-coldness (Gilbert, et al., 2010). The threat-defense system is designed to specifically decrease external threat. An unintentional consequence of this internal activation system, however, is that individuals can develop a “hostile self-to-self relationship” (Gilbert & Irons, 2005, p. 264) wherein they are also aggressive toward themselves in the face of possible failure or inadequacy. That is, when engaged in a threat defense orientation, people can become “self-hating” and turn their

“persecute and eradicate behaviors on themselves,” (Gilbert, 2005, p. 22). When scoring poorly on an exam, for example, a college student might interpret this as a threat and have a denigrating self-directed response. As such, activation of the threat-defense system in response to possibly threatening stimuli can exacerbate distress (Gilbert & Irons, 2005).

Whereas the absence of the threat-defense system can decrease distress, it is the safeness system that allows individuals to relax and engage in behaviors that “are fundamental to health and well-being,” (Gilbert, 2005, p. 22), such as building safe and protective relationships. The internal activation of the safeness system elicits calming and self-soothing internal messages. This has been referred to as self-compassion (Gilbert et al., 2011). When scoring poorly on an exam, an undergraduate student can respond with self-kindness and acknowledgment that academic difficulty is a common aspect of higher education. Instead of feelings isolated and helpless in the face of this disappointment, this student would be more likely to seek support from others and academic works and, in turn, feel positively about themselves and their academic ability. Importantly, the safeness system (i.e., self-compassion) is designed to help individuals increase well-being rather than decrease threat. That is, because the safeness system evolved to be activated in the face of perceived safety rather than to combat threat, it follows that self-compassion would theoretically demonstrate a stronger relationship with constructs reminiscent of mental health and well-being (Brenner et al., 2017; Neff, 2016).

Thus, the application of the Theory of Social Mentalities to self-compassion and self-coldness lends the predictions that self-coldness consistently and strongly predicts distress constructs such as depression, anxiety, and stress, and is less strongly linked to well-being, whereas self-compassion predicts well-being constructs, such as life satisfaction and positive affect, more strongly than distress constructs. Relatedly, there should be a stronger relationship

between self-coldness and distress than self-compassion and distress, and a stronger relationship between self-compassion and well-being than self-coldness and well-being (Brenner et al., 2017; Neff, 2016). Given the recent identification of the SCS as a two-factor measure, research regarding the relationships of self-compassion and self-coldness with distress and wellbeing is limited. Existing studies examining self-compassion and self-coldness as separate constructs with clinically relevant outcomes are provided in the subsequent section.

Relationships with Distress and Well-Being

Lopez et al. (2015) started to examine the differential relationships of self-compassion and self-coldness with distress and well-being using a Dutch sample of community adults in the Netherlands. Zero-order correlations indicated that self-compassion demonstrated weak to moderate correlations with perceived stress, depression, neuroticism, rumination, and negative affect (r s ranged from $-.17$ to $-.33$, p s $< .001$), whereas self-coldness demonstrated moderate to strong correlations with these constructs (r s ranged from $-.48$ to $-.68$, p s $< .001$). The only outcome related to psychological well-being was positive affect experienced in the past week; self-compassion demonstrated a moderate relationship with positive affect ($r = .29$, $p < .001$) relative to the small relationship between self-coldness and positive affect ($r = -.11$, $p < .001$).

In the study examining the factor structure of the SCS among community adults in Portugal, Costa et al. (2016) also examined associations of self-compassion and self-coldness with depression, anxiety, and stress. Only ranges were reported for correlations of self-compassion (r s ranged from $-.25$ to $-.57$) and self-coldness (r s ranged from $.23$ to $.57$), with statistical significance implied.

As part of a scale development study, Gilbert et al. (2011) reported correlations of self-compassion and self-coldness with depression, anxiety, and stress in a sample of 222 university

students in the UK. Self-compassion demonstrated small to nearly moderate correlations with these constructs (r s ranged from $-.25$ to $-.29$, p s $< .001$), whereas self-coldness demonstrated moderate to strong correlations with these constructs (r s ranged from $.37$ to $.55$, p s $< .001$).

In a study of 309 adults with an infertility diagnosis, Galhardo, Cuno, Pinto-Gouveia, and Matos (2013) found that self-coldness demonstrated a larger correlation with external shame than self-compassion demonstrated with external shame among male participants ($r_{\text{self-coldness}} = .60$, $p < .01$; $r_{\text{self-compassion}} = -.21$, $p < .05$), yet correlations seemed only similar among women ($r_{\text{self-coldness}} = .58$, $r_{\text{self-compassion}} = -.46$, p s $< .01$). Self-coldness demonstrated a larger correlation with internal shame than self-compassion demonstrated with internal shame among male participants ($r_{\text{self-coldness}} = .52$, $p < .01$; $r_{\text{self-compassion}} = -.06$, $p > .05$), yet correlations appeared only slightly larger among women ($r_{\text{self-coldness}} = .65$, $r_{\text{self-compassion}} = -.51$, p s $< .01$). Self-coldness demonstrated a larger correlation with infertility related-stress than self-compassion demonstrated with this construct ($r_{\text{self-coldness}} = .35$, $p < .01$, $r_{\text{self-compassion}} = -.11$, $p > .05$), whereas these correlations were similar in strength among women ($r_{\text{self-coldness}} = .43$, $r_{\text{self-compassion}} = -.44$, p s $< .01$).

The relationships discussed thus far examined correlations of self-compassion and self-coldness with clinically relevant outcomes. Initial findings examining the unique relationships of self-coldness and self-compassion with distress outcomes in international samples also support the Theory of Social Mentalities. In a study of 77 clinical psychologists and trainees, regression modeling indicated that only self-coldness was uniquely linked to burnout ($\beta = .35$, $p < .01$) and secondary traumatic stress ($\beta = .50$, $p < .001$), whereas self-compassion did not demonstrate a unique relationship with burnout ($\beta = -.05$, $p > .05$) or secondary traumatic stress ($\beta = .07$, $p < .01$; Yip, Mak, Choi, & Law, 2017). As part of a moderation analysis, expanded upon in the subsequent subsection, Körner et al. (2015) examined self-compassion and self-

coldness simultaneously in a regression analysis using the German version of the SCS in a community German sample. Self-compassion demonstrated a unique relationship with depression ($\beta = -.11$), and self-coldness also demonstrated a unique relationship with depression that was slightly stronger ($\beta = .25$). A similar trend was found in a moderation analysis conducted by Dundas et al. (2017), where self-coldness demonstrated a stronger unique relationship with depression ($\beta = .55$) than did self-compassion ($\beta = -.15$) in a sample of Norwegian college students ($ps < .05$).

Only two studies appear to have examined the relationships of these two constructs with clinically outcomes using the original version of the SCS with US adults. In a study of older US adults (aged 65 to 92), self-coldness was significantly associated with negative affect ($\beta = -.48, p < .001$), and this affect seemed larger than the non-significant relationship between self-compassion and negative affect ($\beta = -.07, p > .05$; Philips & Ferguson, 2013). This study also appears to be the only study that examined the unique relationships of self-compassion and self-coldness with positive outcomes. Results supported the Theory of Mentalities. Self-compassion demonstrated a larger unique relationship with positive affect ($\beta = .30$), ego integrity ($\beta = .25$), and meaning in life ($\beta = .34, ps < .001$) than self-coldness demonstrated with positive affect ($\beta = .01, p > .05$), ego integrity ($\beta = -.10, p > .05$), and meaning in life ($\beta = -.23, p < .001$).

Using the original version of the SCS in a US undergraduate sample, Brenner et al. (2017) analyzed the two-factor bifactor model with depression as an outcome, and results demonstrated a trend where self-coldness was more consistently and significantly linked to distress outcomes. Namely, in the only incremental examination of these constructs using the original, non-translated version of the SCS, self-coldness demonstrated a significant link between self-coldness and depression ($\beta = .39$), anxiety ($\beta = .36$), and stress ($\beta = .46, ps < .001$).

Self-compassion was significantly linked to depression, but more weakly than self-coldness ($\beta = .17, p < .001$). Self-compassion was not significantly linked to anxiety ($\beta = -.06$) or stress ($\beta = -.05, ps > .05$). Noting the study's omission of positive psychological outcomes, and Brenner et al. postulated that these results reflect a possible pattern suggested in recent studies (e.g., Costa et al., 2016; Lopez et al., 2015; Neff, 2015) wherein self-compassion more strongly predicts positive outcomes rather than negative outcomes, and self-coldness more strongly predicts negative outcomes. They recommended that future researchers examine self-compassion and self-coldness in predicting both positive and negative outcomes.

Finally, a longitudinal study of 193 children and adolescents (Stolow, Zuroff, Young, Karlin, & Abela, 2016) yielded findings less consistent with Theory of Social Mentalities. Self-compassion ($\beta = -.13, p < .05$) demonstrated a similarly strength in the relationship with depression as self-coldness ($\beta = .10, p > .05$) three years later; however, only the link between self-compassion and self-coldness was significant.

Thus, when parsed out from self-coldness, findings are inconsistent regarding whether self-compassion is uniquely related to distress constructs, whereas self-coldness has consistently been related to distress with the exception of Stolow et al. (2016). Initial studies support the notion that self-compassion demonstrates a consistent direct relationship with well-being; however, studies including such outcomes related to psychological health and well-being are limited. In other words, less is known about how self-compassion and self-coldness differentially predict distress and well-being. This is an important limitation, as clinicians may want to tailor interventions to increase self-compassionate behaviors in order to increase self-care and support seeking, or reduce self-coldness in order to decrease depressive symptomology prior to engaging in positive-health-promoting habits. The principal aim of the current study,

therefore, is to examine self-coldness and self-compassion as distinct predictors of distress and well-being.

Moderation. Beyond direct associations, more complex relationships may exist in how self-compassion and self-coldness relate to clinically relevant outcomes. In the aforementioned study examining the six original SCS subscales among German adults ($n = 2,404$), Körner et al. (2015) also assessed a possible interaction between self-compassion and self-coldness in predicting depression. First, they divided participants into three groups based on their responses to the depression module of the Patient Health Questionnaire (PHQ-9), which has been demonstrated to predict the diagnosis of Major Depressive Disorder (MDD). Specifically, authors divided participants into groups of those with no indicated symptoms ($n = 959$), any depressive symptoms ($n = 78$), or those with symptoms consistent with an MDD diagnosis ($n = 50$). Between-group differences in self-coldness were found for all groups where those with greater symptomology also demonstrated greater self-coldness. Self-compassion scores were significantly lower for those who indicated symptoms consistent with an MDD diagnoses; however, self-compassion scores between participants who indicated no symptoms and those with depressive symptoms below the MDD threshold were statistically equivalent.

In a more direct moderation analysis, Körner et al. (2015) conducted a regression analysis to examine the linear relationship of self-compassion and self-coldness with depressive symptoms, as well as test for a possible interaction among these two constructs. Results demonstrated a negative association between self-compassion and depressive symptoms ($\beta = -.11$, 95% CI = $[-.13, -.09]$, $p < .001$), and a positive association between self-coldness and depressive symptoms ($\beta = .25$, 95% CI = $[.23, .27]$, $p < .001$). Self-compassion significantly moderated the relationship between self-coldness and depressive symptoms ($\beta = -.08$, 95% CI =

[-.10, -.05], $p < .001$) such that the relationship between self-coldness and depressive symptoms was weaker for individuals with high self-compassion compared to those with low self-compassion. Similarly, in the aforementioned study of Norwegian university students (Dundas et al., 2016), self-compassion significantly moderated the relationship between self-coldness and depressive symptoms ($\beta = -.23$, $p < .001$) such that the relationship between self-coldness and depressive symptoms “seemed to have a weaker relationship” (p. 65) for those who reported high self-compassion ($\beta = -.47$, $p < .001$) relative to those who reported low self-compassion ($\beta = -.58$, $p < .001$). No positive outcome measures were included in these studies; however, in line with postulations that the relationships of self-compassion and self-coldness with well-being mirror that on their relationships with distress, it is possible that self-coldness moderates the relationship between self-compassion and well-being.

SCS Facets and Clinically Relevant Outcomes

Although Neff has argued for a single construct, given Neff’s (2003a) conclusion that the six-facet utilization of the SCS fits the data, studies (e.g., Körner et al., 2015; Mills et al., 2007; Neff, 2016; Neff et al., 2008; Ying, 2009) have examined the associations of the six SCS subscales separately—self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification—with clinically relevant outcomes. With the exception of Neff (2016) and the Muris and Petrocchi (2017) meta-analysis, discussed below, these studies did not test the six subscales with the intention of examining whether the self-coldness subscales consistently predict distress-related outcomes and self-compassion consistently predicts outcomes related to well-being; however, overall these studies provide initial support of this notion.

Mills et al. (2007) examined these facets of self-compassion by collecting responses to the SCS as well as self-report measures of paranoid ideation, forms and functions of self-

criticism, self-reassurance, and depressive symptomology among English university students ($N = 131$). Bivariate correlations demonstrated that the three positive self-compassion subscales—self-kindness ($r = -.38$), common humanity ($r = -.18$), and mindfulness ($r = -.19$)—were all linked to lower depressive symptomology ($ps < .05$), whereas the three self-coldness subscales—self-judgment ($r = .52$), isolation ($r = .61$), and over-identification ($r = .49$)—were positively linked to depressive symptomology ($ps < .01$). Among the positive SCS subscales, self-kindness demonstrated significant associations with all negative outcome measures, linked to lower reports of paranoid ideation, self-hatred, self-correction, and inadequate self-views (rs ranged from $-.19$ to $-.39$, $ps < .05$). Meanwhile, common humanity ($r = -.19$) and mindfulness ($r = -.22$) only demonstrated significant inverse associations with viewing oneself as inadequate ($ps < .05$). Self-kindness, common humanity, and mindfulness were significantly linked to the one positive outcome, namely, self-reassurance (rs ranged from $.45$ to $.55$, $ps < .01$). Negative SCS subscales demonstrated positive, significant associations with all negative outcome measures. That is, self-judgment, isolation, and over-identification were all linked to greater paranoid ideation (rs ranged from $.17$ to $.25$, $ps < .05$), self-hatred (rs ranged from $.39$ to $.53$, $ps < .01$), self-correction (rs ranged from $.32$ to $.49$, $ps < .01$), and inadequate self-views (rs ranged from $.67$ to $.70$, $ps < .01$). Greater self-judgment, isolation, and over-identification were also significantly linked to lower self-reports of being self-reassured (rs ranged from $-.40$ to $-.46$, $ps < .05$). In other words, there was more consistency in the relationships between subscales pertaining to self-coldness and negative outcomes compared to the subscales pertaining to self-compassion. As only one well-being outcome was tested, a similar and opposite pattern such that self-compassion is positively and more strongly linked to well-being is possible, though less clear.

Another study examined partial correlations, controlling for sex, of the SCS facets with depression and life satisfaction in samples of U.S., Thai, and Taiwanese undergraduate students (Neff et al., 2008). Within the U.S. and Taiwanese samples, self-compassion subscales (i.e., self-kindness, common humanity, and mindfulness) were linked to lower levels of depression (ρ s ranged from $-.24$ to $-.43$, $ps < .01$) and greater reports life satisfaction (ρ s ranged from $.25$ to $.36$, $ps < .05$), whereas self-coldness subscales (i.e., self-judgment, isolation, and over-identification) were linked to greater levels of depression (ρ s ranged from $.43$ to $.53$, $ps < .01$) and lower reported life satisfaction (ρ s ranged from $-.23$ to $.39$, $ps < .01$). Results slightly differed within the Thai participant sample. Among the self-compassion subscales, only self-kindness and mindfulness were associated with depression, and only common humanity and mindfulness were associated with life satisfaction. All self-coldness subscales were linked with greater depression (ρ s ranged from $.44$ to $.54$, $ps < .01$). Only isolation ($\rho = -.18$, $p < .01$) and over-identification ($\rho = -.01$, $p < .05$) were significantly linked with lower life satisfaction. Common humanity was not significantly associated with depression, and self-kindness and self-judgment were not significantly associated with life satisfaction.

Ying (2009) examined the relationships of the six subscales with depressive symptoms and self-coherence (i.e., self-confidence in times of distress; Antonovsky, 1979, 1987) among first and second year graduate U.S. students in social work ($N = 65$). Among the positive SCS subscales, self-kindness and mindfulness were significantly linked to lower depressive symptoms ($rs = -.42$ and $-.49$, respectively, $ps < .001$), and common humanity was “marginally significantly” (Ying, 2009, p. 316) linked ($r = .23$, $p = .07$). Self-kindness, mindfulness, and common humanity were all associated with greater self-coherence (rs ranged from $.28$ to $.43$, $ps < .05$). Among the negative SCS subscales, self-judgment, isolation, and over-identification

were linked to greater depressive symptoms (r s ranged from .43 to .59, p s < .001) and lower self-coherence (r s ranged from -.48 to -.54, p s < .001).

Researchers also examined the six subscales related to depressive symptoms among a sample of the general adult population in Germany ($n = 2,404$; Körner et al., 2015). Controlling for age, gender, and education level, authors conducted a stepwise regression analysis examining the variance in depressive symptoms accounted by each subscale, except for common humanity because did not significantly relate depressive symptoms. Changes in R^2 indicated that the variance of depressive symptoms accounted for by each subscale—self-kindness (2%), self-judgment (<1%), isolation (18%), mindfulness (<1%), and over-identification (2%)—significantly contributed to the model. Therefore, the variance in depressive symptoms were most accounted for by a self-coldness subscale (i.e., isolation).

Neff (2016) recently re-examined data from a randomized control trial of Mindful Self Compassion (MSC; Neff & Germer, 2013), an 8-week program designed to increase self-compassion skills in daily life and reduce uncompassionate behaviors. Neff used zero-order correlations to test whether pre-post differences in the six SCS subscales were linked with pre-post differences in outcome measures of happiness, life satisfaction, depression, anxiety, and stress using zero-order correlations. Increased self-kindness predicted increased happiness and life satisfaction, and decreased depression, anxiety, and stress. Changes in self-judgment, isolation and over-identification predicted significant changes in these constructs in the opposite directions, with the exception of a marginally significant relationship (i.e., “ $p < .06$ ”; Neff, 2016, p. 272) between over-identification life satisfaction. Changes in common humanity demonstrated relationships with these constructs in the predicted directions; however, these relationships were only significant for happiness and anxiety, and marginally significant for

stress ($p < .06$). Increased mindfulness was linked to significantly increased happiness and life satisfaction, and significantly decreased depression and anxiety. Changes in mindfulness were not significantly linked to changes in stress. Based on these results, Neff (2016) postulated a general trend wherein self-compassion subscales more powerfully predicts well-being, whereas self-coldness subscales more powerfully predict distress.

Finally, Muris and Petrocchi (2017) conducted a meta-analysis of 18 studies that used the original and/or short-form versions of the SCS (Muris & Petrocchi, 2017) with outcomes related to psychopathology. The total effect size of the self-coldness indicators with psychopathology ($r = .48, p < .001$) was larger than the total effect size of self-compassion indicators ($r = -.31, p < .001$). This difference was statistically significant ($Z = 10.45, p < .001$).

Gender

Gender differences in self-compassion have received focus in the extant literature. Individual studies demonstrate mixed results, either demonstrating significantly lower self-compassion in female participants compared to male participants (Neff, 2003a; Neff, Hseih, Dejithirat, 2005; Neff & McGehee, 2010; Raes, 2010; Yarnell & Neff, 2013), or statistically equivalent reports of self-compassion across gender (Iskender, 2009; Neff et al., 2008; Neff et al., 2007, Neff & Pommier, 2013; Raque-Bogden, Ericson, Jackson, Martin, & Bryan, 2011). Yarnell et al. (2015) conducted a meta-analysis based on 88 estimates of gender differences in self-compassion among 71 research articles and dissertations ($N = 13,339$). Analyses yielded a small effect size indicating higher self-reports of self-compassion by male participants compared with female participants ($d = .18; SE = .02, 95\% CI = [.14, .22], p < .0001$).

Important to note, however, is that the SCS used in these studies only utilized the one-factor approach to SCS. Previously observed gender differences, or lack thereof, may relate to

difference in self-coldness, self-compassion, or both. For example, women tend to be more self-critical and engage in more negative self-talk than men (Devore, 2013; Leadbeater, Kuperminc, Blatt, & Hertzog, 1999); it is possible that differences in self-coldness contributed to this effect size, and that self-compassion is equivalent. Another conceptualization of possible gender differences is that women are socialized with the female norm of self-sacrifice (i.e., to put others needs before their own) and may experience difficulty being self-compassionate to themselves (Baker-Miller, 1986; Raffaelli & Ontai, 2004; Ruble & Martin, 1998). Therefore, this difference could be related to the self-compassion construct. Conversely, some researchers assert that men experience lower self-compassion; as “tender qualities are emphasized for women but not men” (Yarnell et al., 2015, p. 2), men may feel less comfortable engaging the self-soothing and comforting behaviors involved in self-compassion (Baker-Miller, 1986; Raffaelli & Ontai, 2004; Ruble & Martin, 1998). Indeed, masculine norm adherence has been associated with lower levels of self-compassion (Heath, Brenner, Vogel, Lannin, & Strass, 2017; Reilly, Rochlen, & Award, 2014). Greater self-compassion in females compared to males has not yet been observed; however, if women report greater self-coldness and men demonstrate greater self-compassion, this would help explain the inconsistent findings in specific studies. This notion has not yet been assessed. Gender differences in self-compassion and self-coldness need to be examined specifically. One study has examined gender differences in self-compassion and self-coldness using the new SCS factor structure in a study of adults with infertility diagnoses (Galhardo et al., 2013). Consistent with the notion that differences can exist for one of the factors, women reported significantly greater self-coldness than men ($p < .001$), but statistically equivalent self-compassion ($p = .31$). However, replication is required to understand whether these results generalize beyond this sample and demonstrate meaningful differences.

Gender as moderating factor between self-compassion and self-coldness with these outcomes has also not been examined. In meta-analyses of studies using the total self-compassion score (i.e., comprised of self-compassion and self-coldness), gender did not moderate the relationship between self-compassion and psychopathology (MacBeth & Gumley, 2012); however, the proportion of women in the sample marginally moderated the relationship between self-compassion and well-being (Zessin et al., 2015). There is a lack of clarity regarding the interpretations of these meta-analyses results due to the combination of self-compassion and self-coldness in the studies analyzed. Possible gender differences in the strength of these relationships for self-compassion and self-coldness require separate examination.

Overview of Present Studies

The present research examines the unique relationships between self-compassion and self-coldness with distress and well-being. Meta-analyses demonstrate that self-compassion has been linked to less psychopathology (MacBeth & Gumley, 2012) and greater well-being (Zessin et al., 2015). The majority of published studies examining self-compassion, however, used all 26-items of the SCS, which researchers now suggest measures two constructs: self-compassion and self-coldness. Further, researchers suggest that the relationships among these two subscales with clinically relevant outcomes may differ such that self-compassion more strongly predicts well-being and self-coldness more strongly predicts distress (Brenner et al., 2017; Neff, 2016). It is important for clinicians to understand the delineated relationships of self-compassion and self-coldness with distress and well-being. If self-coldness is more strongly related to distress, interventions directed toward self-coldness may be an important first step to distress reduction, and self-compassion may best be utilized at further stages in therapy. This is also particularly relevant to counseling psychologists working from a brief therapy model, such as those

practicing within University Counseling Centers. Research among these relationships is limited. Therefore, I intended to fill this gap in the literature by examining a theoretical model of self-compassion and self-coldness related to well-being and distress. As illustrated in Figure 1, it was hypothesized that self-compassion would be linked to greater well-being (a) and less distress (b), and self-coldness would be linked to lower well-being (c) and greater distress (d). Self-coldness is linked to the threat-defense system, which is more related to distress, whereas self-compassion is linked to the safeness system, which is designed to increase well-being. Therefore, among self-compassion and self-coldness, it was hypothesized that self-compassion would demonstrate a stronger relationship with well-being compared to self-coldness ($a > |c|$), and self-coldness would demonstrate a stronger relationship with distress ($d > |b|$). It was also hypothesized that self-compassion would demonstrate a stronger relationship with well-being than depression ($a > |b|$) and self-coldness would be more strongly related to distress than well-being ($d > |c|$).

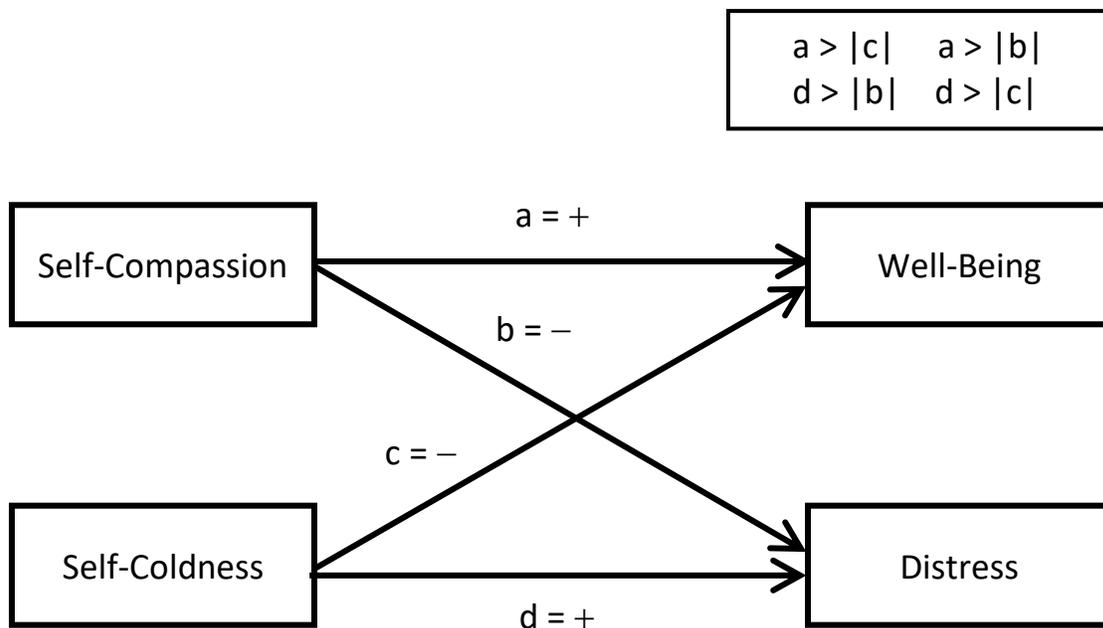


Figure 1. Hypothesized theoretical model of direct relationships.

In addition, in line with findings by Körner et al. (2015) it was hypothesized self-compassion would moderate the relationship between self-coldness and distress such that the relationship between self-coldness and distress would be weaker for individuals with high self-compassion compared to those with low self-compassion. It was also hypothesized that that self-coldness would moderate the relationship between self-compassion and well-being such that the relationship between self-compassion and distress would be weaker for individuals with high self-coldness compared to those with low self-compassion. These hypothesized relationships are demonstrated in Figure 2.

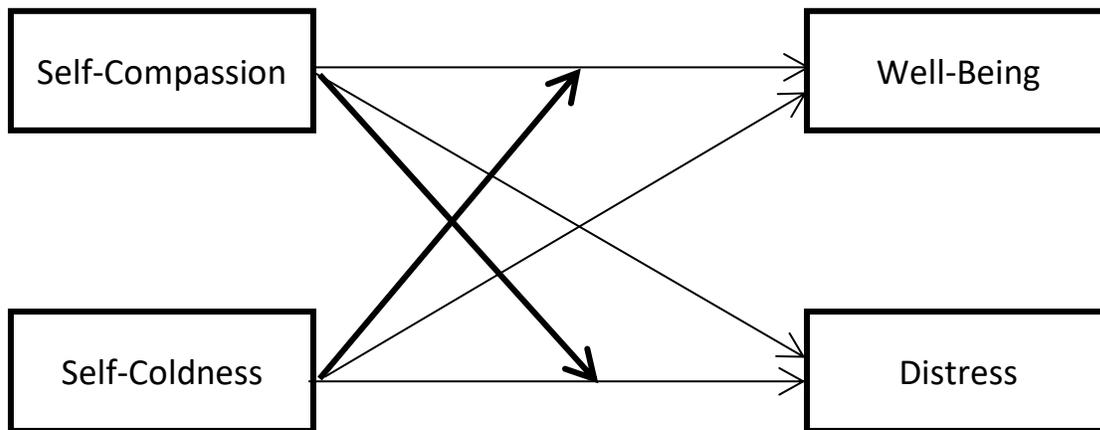


Figure 2. Hypothesized theoretical model with direct and moderated relationships.

Finally, gender differences in self-compassion and self-coldness have not been examined; therefore, in the current research I examined differences in reported levels of self-compassion and self-coldness, as well as differences in the strength of the relationships of each with distress and well-being. Previously demonstrated gender differences using a single self-compassion score may be due to differences in self-coldness rather than self-compassion, as women tend to engage in more self-critical thinking than men. Therefore, it was hypothesized that female participants would indicate significantly greater levels of self-coldness compared with male

participants. It was also hypothesized that female and male participants would demonstrate equivalent levels of self-compassion. Moreover, gender differences in the strengths of the predicted direct relationships with distress and well-being have not been examined for self-compassion and self-coldness, though one study suggests gender may moderate the relationship between at least one of these constructs with well-being; therefore, these possible moderated relationships will be explored in the current research.

CHAPTER THREE

STUDY 1

Method**Overview and Design**

Researchers recently identified that the Self-Compassion Scale (SCS; Neff, 2003a) contains two constructs, self-compassion and self-coldness, rather than one (Brenner et al., 2017; Costa et al., 2016; Lopez et al., 2015). Moreover, there may be differences in the extent to which each of these constructs relates to distress and well-being. Self-compassion may be more strongly associated with well-being compared to self-coldness, and self-coldness may be more strongly associated with distress compared to self-compassion (Brenner et al., 2017; Lopez et al., 2015; Neff, 2016). Although the more robust relationship has been demonstrated between self-coldness and distress (Brenner et al., 2017, Lopez et al., 2015), research examining the unique relationships of these constructs with well-being is limited (Lopez et al., 2015). Study 1 aimed to fill in this gap in the literature by examining the relationships between self-compassion and self-coldness with brief measures of distress and well-being, as well as a possible interaction between self-coldness and self-compassion in predicting these outcomes.

Study 1 featured a cross-sectional design wherein community sample participants responded to predictive measures of self-compassion and self-coldness as well as outcome measures representative of distress and well-being. It was hypothesized that self-compassion would be linked to greater well-being and less distress, and self-coldness would be linked to lower well-being and greater distress. Among self-compassion and self-coldness, it was also hypothesized that self-compassion would demonstrate a stronger relationship with well-being compared to self-coldness, and self-coldness would demonstrate a stronger relationship with

distress. In addition, it was hypothesized that self-compassion would demonstrate a stronger relationship with well-being than depression and self-coldness would demonstrate a stronger relationship with distress than well-being. Interactions between self-compassion and self-coldness in predicting well-being and distress were also examined. It was hypothesized that self-compassion would moderate the relationships of self-coldness with distress and with well-being; specifically, that the relationship between self-coldness and distress would be weaker for individuals with high self-compassion compared to those with low self-compassion, and that the relationship between self-compassion and well-being would be stronger for individuals with low self-coldness compared to those with high self-coldness. Finally, predicted gender differences in self-compassion and self-coldness were tested, and differences in the strengths of the predicted relationships across gender were also explored.

Power Analysis

As recommended by MacCullum, Brown, and Sugarwara (1996), the power analysis for this study was conducted based on the *close fit hypothesis*, examining the power needed for a specific model's RMSEA to represent a close fit to a hypothesized null RMSEA (e.g., $H_0 = \epsilon_0 \leq .05$), rather than an exact fit. This approach requires a null RMSEA (ϵ_0), alternative RMSEA (ϵ_a), alpha, desired power, and degrees of freedom (df). The null RMSEA value (ϵ_0) will be set as .05 (MacCullum et al., 1996). Following the conservative goodness-of-fit indices recommended by Hu and Bentler (1999), the alternative RMSEA (i.e., ϵ_a) of .06 was used. Alpha was set at .05, and power of .80 was used. Degrees of freedom (df) was determined using the formula $df = p(p + 1)/2 - q$, where p represents the number of manifest variables and q represents the number of distinct parameters estimated (MacCullum et al., 1996). Two models were run in the current study, one with 129 df ($p = 18, q = 42$), and one with 127 df ($p = 18, q = 44$). As lower df yields

a higher required sample size, df of 127 was used to determine the number of participants included in the current study. A web utility provided by Preacher and Coffman (2006; <http://quantpsy.org/rmse/rmse.htm>) wherein the null RMSEA (ϵ_0), alternative RMSEA (ϵ_a), alpha, desired power, and degrees of freedom (df) are entered in order to generate the needed code to run the power analysis in R. This yielded a suggested sample size of 616 participants. In a study by Meade and Craig (2012) examining quality of participant response, approximately 10% of participants were not deemed appropriate for inclusion in data analysis. To account for the exclusion of poor data, at least 685 ($616 \div 0.90$) participants were recruited for the current study.

Measures

Self-compassion and self-coldness. The *Self-Compassion Scale* (SCS; Neff, 2003a; see Appendix A) is a 26-item measure of how people respond to themselves in times of personal suffering and feelings of inadequacy. Originally, the SCS was thought to reflect an overall construct of self-compassion (Neff, 2003a); however, subsequent research suggests that the SCS can be used to examine two 13-item subscales measuring self-compassion and self-coldness (Brenner et al., 2017; Costa et al., 2016; Lopez et al., 2015). The *self-compassion* subscale measures the extent to which people respond to themselves with intentional kindness, empathy, and compassion in times of personal suffering and feelings of inadequacy. The *self-coldness* subscale measures the extent to which individuals respond to their pain with amplification, isolation, and self-judgment. Participants rate each item on a 5-point Likert scale from 1 = *almost never* to 5 = *almost always*. Example self-compassion items include “I try to be understanding and patient towards those aspects of my personality I don’t like,” and “I try to be loving towards myself when I’m experiencing emotional pain.” Example self-coldness items

include “When I see aspects of myself that I don’t like, I tend to get down on myself” and “When times are really difficult, I tend to be tough on myself.” Items are averaged to calculate the total score for each subscale, and higher scores indicate higher levels of the respective construct (i.e., self-compassion or self-coldness; Körner et al., 2015). The Self-Compassion subscale has been associated with lower levels of reported depression symptoms (Brenner et al., 2017; Körner et al., 2015; Lopez et al., 2015), neuroticism, rumination, and negative affect, as well as greater positive affect (Lopez et al., 2015), and the Self-Coldness subscale has been linked with these constructs in the opposite direction (Brenner et al., 2017; Körner et al., 2015; Lopez et al., 2015). The Self-Coldness subscale has also been associated with greater anxiety and stress (Brenner et al., 2017). Internal consistency has been demonstrated among community adults for the Self-Compassion ($\alpha = .91$) and Self-Coldness ($\alpha = .89$) subscales. Internal consistency estimates of Self-Compassion and Self-Coldness in the current were .90 (95% CI = [.89, .91]) and .93 (95% CI = .93, .94), respectively. See Appendix A.

Distress. Distress was assessed through measures of non-specific psychological distress, depression, and negative affect.

Non-specific psychological distress. The K6 (Kessler et al., 2002) is a 6-item scale measure of non-specific psychological distress. The K6 was developed for use in the U.S. National Health Interview Survey and takes less than two minutes to complete. Participants read the sentence stem, “during the past 30 days, about how often did you feel...” and rate items such as “nervous” and “hopeless” on a 5-point Likert scale from 0 = *all the time* to 4 = *none of the time*. The six item scores are summed to calculate a total score between 0 and 24, with higher scores indicating greater tendency toward mental illness. Validity for the factor structure has been demonstrated across men and women (Drapeau et al., 2010). Scores of approximately 5

indicate moderate mental distress (Prochaska, Sung, Max, Shi, & Ong, 2012). Scores of 13 or higher indicate the likely presence of a serious mental illness, which has been clinically validated based the K6 sensitivity (.36), specificity (.96) and classification accuracy (.92) with structured diagnostic interviews. Internal estimates of reliability have been demonstrated in adult samples ($.89 < \alpha < .92$; Kessler et al., 2002), similar to Study 1 ($\alpha = .89$, 95% CI = .87, .90). See Appendix B.

Depression. The *DASS-21* (Henry & Crawford, 2005), a short-form of the Depression, Anxiety, and Stress Scales (DASS; Lovibond & Lovibond, 1995) consists three 7-item subscales of *Depression*, *Anxiety*, and *Stress*. The current study used the Depression subscale. Participants rate how much each statement (e.g., “I felt I wasn’t worth much as a person”) applied to them in the past week on a 4-point Likert scale from 1 (*Did not apply to me at all*) to 4 (*Applied to me very much, or most of the time*). Higher scores indicate higher levels of depression. Validity has been demonstrated through correlations ($r = .79$) with the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979) within a sample of clinical adults (Antony, Bieling, Cox, Enns & Swinson, 1988). The depression subscale has also demonstrated correlations with self-esteem ($r = -.64$), mental health ($r = -.69$), and physical health among U.S. adults (Sinclair et al., 2012). Internal consistency has been demonstrated in a sample of adults reflective of the general U.S. population ($\alpha = .90$; Sinclair et al., 2012). Internal consistency in the current sample was .92 (95% CI=[.91, .93]). See Appendix C.

Negative affect. The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) measures positive and negative affect experienced by participants over the past week. The 10-item negative affect subscale (PANAS NA) was used to measure negative affect. The PANAS NA consists of items such as “distressed, upset, guilty,” (Watson et al., 1988, p.

1070). Item scores were averaged for an overall score, with higher scores indicating more negative affect on that dimension of affect. Previous studies demonstrated the validity of the PANAS PA through its associations to state and other measures of positive and negative mood (Watson et al., 1998). In addition, the PANAS NA has been inversely associated with happiness in an undergraduate student sample ($r = -.48$) and in an adult community sample ($r = -.45$, respectively; Wei et al., 2011). The negative affect subscale yielded an internal consistency of .89 in an adult community sample (Wei et al., 2011), similar to the current sample estimate of .91 (95% CI = [.91, .92]). See Appendix D.

Well-being. This study utilized measures positive affect, life satisfaction, and psychological flourishing as indicators of well-being.

Positive affect. The positive affect subscale (PANAS PA) of the PANAS (Watson, Clark, & Tellegen, 1988) measures positive affect experienced by participants over the past week. The 10-item subscale consists of ten positive affect items, such as “excited” and “strong,” (Watson et al., 1988, p. 1070). Item scores were averaged to calculate an overall score, with higher scores indicating more positive affect. Previous studies demonstrated the validity of the PANAS through its associations to state and other measures of positive and negative mood (Watson et al., 1998). In addition, the PANAS PA has been associated with greater happiness in an undergraduate student sample ($r_s = .62$) and in an adult community sample ($r_s = .62$; Wei et al., 2011). The PANAS demonstrated an internal consistency of demonstrated .89 in an adult community sample (Wei et al., 2011), similar to the current study estimate of .89, 95% CI = [.88, .90]). See Appendix D.

Life satisfaction. The *Satisfaction with Life Scale* (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a five-item general measure of life satisfaction. Participants indicate the extent

to which the items reflect how they view their lives by using a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). An example item is “In most ways, my life is close to my ideal.” SWLS scores are calculated by summing item responses, with higher scores indicating greater life satisfaction (Pavot, Diener, Colvin, & Sandvik, 1991). The SWLS has been negatively correlated with a checklist of clinical symptoms ($r = -.41$) and neuroticism ($r = -.48$; Diener et al. 1985) and positively correlated with happiness in undergraduate student samples (r s ranged from .to .67; Diener et al. 1985, Wei et al., 2011). Among community adults, the SWLS has also been associated with a self-report ratings happiness ($r = .64$; Wei et al., 2011) and interviewer ratings of one-hour interviews of life satisfaction ($r = .68$; Diener et al., 1985). Internal consistency has been demonstrated adult ($\alpha = .90$) community samples (Wei et al., 2011), with similar findings in Study 1 ($\alpha = .92$, 95% CI=[.91, .93]). See Appendix E.

Psychological Flourishing. The Flourishing Scale (FS; Diener et al., 2010; Diener et al., 2009) is an eight-item measure of participants’ self-perceived success in areas of human functioning such as relationships, self-esteem, purpose, and optimism. Participants respond to items such as “My social relationships are supportive and rewarding” and “I am competent and capable in the activities that are important to me” (Diener et al., 2010, p.154) on a scale from 1 (*Strong disagreement*) to 7 (*Strong agreement*). Items were averaged to create a composite score, with higher scores indicating more positive functioning. The FS composite score has been positively correlated with life satisfaction ($r = .62$), happiness ($r = .59$), and self-esteem ($r = .65$), and inversely correlated with loneliness ($r = .63$) among college students (Diener et al., 2010; Dogan, Totan, & Sampaz, 2013). The FS has demonstrated internal consistency of .87 and test-retest reliability of .71 over a one-month period (Diener et al., 2010). In Study 1, the FS yielded internal consistency of .91 (95% CI=[.90, .92]). See Appendix F.

Demographics. Participants were asked to indicate their age, gender, ethnicity, sexual orientation, and year in school for descriptive purposes. See Appendix G.

Quality Check. Three approaches to ensuring data quality were included based on recommendations by Meade and Craig (2012), who examined methods of identifying careless responses in survey data. First, Meade and Craig (2012) suggested that researchers include one instructed response item (i.e., “Please select ‘Almost Never’ for this item”) per every 50-100 items, with a maximum of three items per survey. As the current study survey included 62 items, one instructed response item was included. Fourth, Meade and Craig (2012) also recommend using a yesy/no self-reported single-item indicator known as the *SRSI Use Me* (“In your honest opinion, should we use your data?,” p. 16) and only including participants who answered “yes.” The *SRSI Use Me* has been highly correlated with number of bogus items missed and provides a clear cutoff point (Meade & Craig, 2012). Third, the length of time spent on the survey was recorded. This was also used as an assessment of participant attention to the task. In addition, duplicate responses were removed from analyses as indicated by participants’ worker ID.

Participants and Procedure

University Human Subjects approval was obtained prior to data collection (see Appendix H). Participants were recruited via Mechanical Turk (MTurk), an online service through Amazon where individuals can elect to participate in tasks, such as surveys, for small monetary compensation. Research indicates that the data from MTurk is as reliable as data obtained through traditional methods (Goodman, Cryder, & Cheema, 2012; Paolacci, Chandler, Ipeirotis, 2010; Shapiro, Chandler, & Mueller, 2013) and “significantly more diverse than typical American college samples” (Buhrmester, Kwang, & Gosling, 2011, p. 3). All participants must have been eighteen years of age or older to participate. Participants received \$0.10 for their

participation. This number was based on findings that compensation of at least \$.10 yielded data of equivalent quality compared to data collected through lower (\$.02) and higher (\$.50) compensation, but that participation rates increased with the amount compensated (Buhrmester et al., 2011).

To participate in this study, individuals using MTurk read a description of the current study from a list of studies on MTurk and then chose to participate for compensation. Individuals who elected to participate in the current study first read an IRB-approved consent form. This included a description of the study purpose, benefits, risks, confidentiality, and contact information of the principal investigator. Participants were informed that they could discontinue from the study at any time. After providing informed consent, participants responded to self-report assessments of self-compassion, self-coldness, depression, distress, life satisfaction, positive affect, and negative affect. The SCS, which measures self-compassion and self-coldness, was presented first, followed by measures of depression, distress, life satisfaction, positive affect, and negative affect presented in random order. Subsequently, participants responded to demographic items. Quality check items (i.e., random response check and *SRSI Use Me* items) were also included to examine attention and random responses. Also in the consent form, participants were informed that their compensation was contingent on the accuracy of the responses to the random response check items. At the conclusion of their participation, participants were presented with a debriefing statement describing the purpose of the study.

Participants ($N = 794$; 72.4% female, 27.2% male, 0.4% missing) ranged in age from 18 to 75 years old ($M = 36.67$, $SD = 12.75$, $Mdn = 34$). Approximately 78.2% of the sample identified as White, 6.7% as African American/Black, 5.8% as Hispanic/Latino/a, 4.0% Asian American/Asian, 3.3% Multiracial, 1.0% American Indian/Alaskan Native, 0.9% other

race/ethnicity, 0.1% Native Hawaiian/Islander; 0.9% chose to self-identify with a text response (e.g., Arab American). Approximately 89.2% of participants identified as heterosexual, 6.4% bisexual, 2.3% lesbian, 0.5% questioning, 0.4% asexual, 0.4% pansexual, 0.3% gay, and 0.6% chose to self-identify with a text response (e.g., queer, demisexual). Approximately 13.4% reported having some high school education or a high school diploma, 6.8% earned a Technical and Further Education (TAFE) degree, 59.8% had some college experience or earned a four-year college degree, and 19.9% earned a graduate or professional degree.

Results

Data Cleaning

Quality Check. Data were screened prior to all analyses. The initial dataset contained 865 individuals. Duplicate responses were removed from analyses ($n = 23$). Participants who responded incorrectly to the instructed response item ($n = 20$) and/or responded ‘no’ to the *SRSI Use Me* item ($n = 13$) were removed from analyses. Finally, the length of time spent on the survey was also recorded. No participants were removed based on this measure of attention. This resulted in a sample size of 809 participants.

Univariate and Multivariate Outliers. To check for univariate outliers, z-scores (i.e., above 3.29 or less than -3.29) were examined for each scale measure, and Mahalanobis distance among the variables was examined to check for multivariate outliers, (Tabachnick & Fidell, 2001). Three cases were outliers to at the univariate level, specifically for the Flourishing variable, and 12 cases were found to be outliers at the multivariate level ($p < .001$). These cases were dropped from analyses, yielding a final Study 1 sample size of 794. Means, Standard deviations, and zero-order correlations are presented below in Table 1.

Table 1. Study 1 Means, Standard Deviations, and Zero-Order Correlations of Scales (N = 794)

Measure	1	2	3	4	5	6	7	8
1. Self-Compassion	--							
2. Self-Coldness	-.52	--						
3. Life Satisfaction	.39	-.45	--					
4. Psychological Flourishing	.47	-.46	.66	--				
5. Positive Affect	.41	-.34	.43	.64	--			
6. Negative Affect	-.34	.59	-.44	-.47	-.26	--		
7. Non-Specific Distress	-.38	.64	-.56	-.62	-.38	.76	--	
8. Depression	-.38	.56	-.54	-.68	-.47	.68	.81	--
<i>M</i>	3.16	3.33	4.08	5.18	3.30	2.31	2.31	0.78
<i>SD</i>	0.73	0.89	1.58	1.14	0.79	0.93	0.90	0.75

Self-Compassion and Self-Coldness = Self-Compassion Scale subscales. Life Satisfaction = Satisfaction with Life Scale. Psychological Flourishing = Flourishing Scale. Positive Affect and Negative Affect = Positive and Negative Affect Schedule. Non-Specific Distress = K6. Depression = DASS-21 subscale. All zero-order correlations demonstrated significance at the $p < .001$ level.

Structural Equation Modeling

Structural Equation Modeling (SEM) was conducted using Mplus 7.4 (Muthén & Muthén, 1998-2012) to examine the relationships between self-coldness, self-compassion with distress and well-being. Full information maximum likelihood (FIML) estimation was used to address missing data. A Kolmogorov–Smirnov test of univariate normality, conducted using SPSS version 22 on the composite variables indicated that continuous variables violated assumptions of univariate normality ($ps < .001$). As such, models were estimated using a maximum-likelihood method. This utilizes an adjusted chi-square statistic that is robust to non-normality (Muthén & Muthén, 1998-2012; Satorra & Bentler, 2001).

The chi-square statistic is sensitive to large sample size (Bentler & Bonett, 1980). Therefore, following the procedures recommended by Hu and Bentler (1999) and Brown and Greene (2006), goodness of fit were evaluated using the comparative fit index (CFI; $\geq .95$), the

root-mean-square error of approximation (RMSEA; $\leq .06$), and the standardized root-mean-square residual (SRMR; $\leq .08$).

Latent Endogenous Variables. Composite scores of life satisfaction, psychological flourishing, and positive affect measures (i.e., the SWLS, FS, and PANAS PA, respectively) were used as indicators for the well-being latent variable (Russell, Kahn, Spoth, & Altmaier, 1998). Composite scores to measures of depression, distress, and negative affect (i.e., the DASS-21 depression subscale, K6, and PANAS NA, respectively) were used as indicators for the distress latent variable.

Latent Exogenous Variables. Three parcels (Cattell, 1956) each, or sets of observed indicators, were created for self-compassion and self-coldness latent variables. Russell et al. (1998) note three reasons in support of parcels. First, parcels help address issues of normality presented by individual items, which are likely to violate the maximum likelihood estimate procedures' assumptions of normality. Second, parcels reduce the number of parameters present in analyses. Third, parcels decrease the likelihood that idiosyncratic characteristics of individual items distort the analysis. To create the parcels, factor analyses were conducted for each variable using the maximum-likelihood method and fitting to a one-factor solution. This resulted in item loadings for each factor. Each item was then ranked based on factor loading and the highest and lowest ranking items were then parceled in pairs in order to equalize average loadings for each parcel on its respective factor. This method of parceling was chosen over other methods because Russell et al. (1998) assert that: "when this procedure is used, the resulting item parcels should reflect the underlying construct... to an equal degree" (p. 22).

Measurement model. Following Anderson and Gerbing's (1998) suggestion, an initial measurement model was tested to examine how well the parcels represent the latent variables.

Results indicated an adequate fit to the data, $\chi^2(48, N = 794) = 257.43, p < .001, CFI = .968, RMSEA = .074$ (90% CI = [.07, .08]), SRMR = .04. All parcels and indicators demonstrated significant factor loadings on their latent variables, $\beta_s = .67$ to $.94$ at $p < .001$ (see Table 2).

Table 2. Factor Loadings for Measurement Model (Study 1)

Measured variable	Unstandardized factor loading	SE	Standardized factor loading
Self-Compassion			
Parcel 1	1.000	.00	0.916***
Parcel 2	0.962	.03	0.882***
Parcel 3	0.962	.03	0.837***
Self-Coldness			
Parcel 1	1.000	.00	0.940***
Parcel 2	0.988	.02	0.906***
Parcel 3	0.997	.02	0.880***
Well-Being			
Positive Affect	1.000	.00	0.665***
Life Satisfaction	2.164	.03	0.718***
Psychological Flourishing	2.018	.03	0.928***
Distress			
Negative Affect	1.000	.00	0.795***
Non-Specific Distress	1.139	.13	0.936***
Depression	0.890	.09	0.872***

$N = 794$. *** $p < .001$.

Zero-order latent variable correlations, all significant at the $p < .001$ level, indicated that self-compassion was associated with significantly less distress ($r = -.43$) and greater well-being ($r = .53$). Self-coldness demonstrated a significant positive relationship with distress ($r = .70$) and a significant inverse association with well-being ($r = -.53$). Self-compassion and self-coldness were significantly inversely associated with each other ($r = -.54$), as were distress and well-being ($r = -.74$). Parcel and Indicator Zero-Order Correlations are presented in Table 3 below.

Table 3. Study 1 Parcel and Indicator Zero-Order Correlations (N = 794)

Parcel/Indicator	1	2	3	4	5	6	7	8	9	10	11	12
1. Scomp1	--											
2. Scomp2	.81	--										
3. Scomp3	.76	.73	--									
4. Scold1	-.44	-.41	-.49	--								
5. Scold2	-.44	-.39	-.49	.86	--							
6. Scold3	-.44	-.43	-.48	.82	.79	--						
7. Life Satisfaction	.36	.35	.37	-.43	-.46	-.36	--					
8. Psychological Flourishing	.45	.43	.41	-.45	-.44	-.43	.66	--				
9. Positive Affect	.38	.38	.38	-.32	-.34	-.31	.43	.64	--			
10. Negative Affect	-.30	-.31	-.34	.56	.53	.57	-.44	-.47	-.26	--		
11. Non-Specific Distress	-.35	-.36	-.36	.61	.58	.61	-.56	-.62	-.38	.76	--	
12. Depression	-.35	-.35	-.34	.54	.51	.54	-.54	-.68	-.47	.68	.81	--

All zero-order correlations demonstrated significance at the $p < .001$ level. Scomp1 Scomp2 Scomp 3 = Self-Compassion subscale (Self-Compassion). Scold1 Scold2 Scold 3 = Self-Compassion subscale (Self-Coldness). Life Satisfaction = Satisfaction with Life Scale. Psychological Flourishing = Flourishing Scale. Positive Affect and Negative Affect = Positive and Negative Affect Schedule. Non-Specific Distress = K6. Depression = DASS-21 subscale.

Structural model. Next, a structural model was tested wherein self-compassion and self-coldness were included as exogenous variables, and distress and well-being were included as endogenous variables. The structural model was identical in fit to the measurement model as both models were fully saturated. Cohen's (1988) D guidelines were used to interpret small ($\beta = .10$), medium ($\beta = .30$), and large ($\beta = .50$) effect sizes. As predicted, self-compassion was associated with greater well-being ($\beta = .36$, 95% CI = [.27, .45], $t(794) = 8.02$, $p < .001$), whereas self-coldness was associated with greater distress ($\beta = .66$, 95% CI = [.60, .71], $t(794) = 22.75$, $p < .001$) and less well-being ($\beta = -.34$, 95% CI = [-.42, -.26], $t(794) = -8.38$, $p < .001$). However, self-compassion did not uniquely predict distress over and above self-coldness ($\beta = -.08$, $t(794) = -1.92$, $p = .055$, 95% CI for $\beta = [-.16, .002]$). Results also supported three out of four hypotheses regarding the relative relationship strengths. That is, self-compassion demonstrated a stronger relationship with well-being (medium effect) than with distress (small,

non-significant effect), whereas self-coldness demonstrated a stronger relationship with distress (large effect) than well-being (medium effect). Also, as predicted, self-coldness demonstrated a stronger relationship with distress (large effect) than self-compassion demonstrated with distress (no effect). Although it was hypothesized that self-compassion would demonstrate a stronger relationship with well-being compared to self-coldness, both self-compassion and self-coldness demonstrated similar, medium effect sizes. These standardized paths are displayed below in Figure 3.

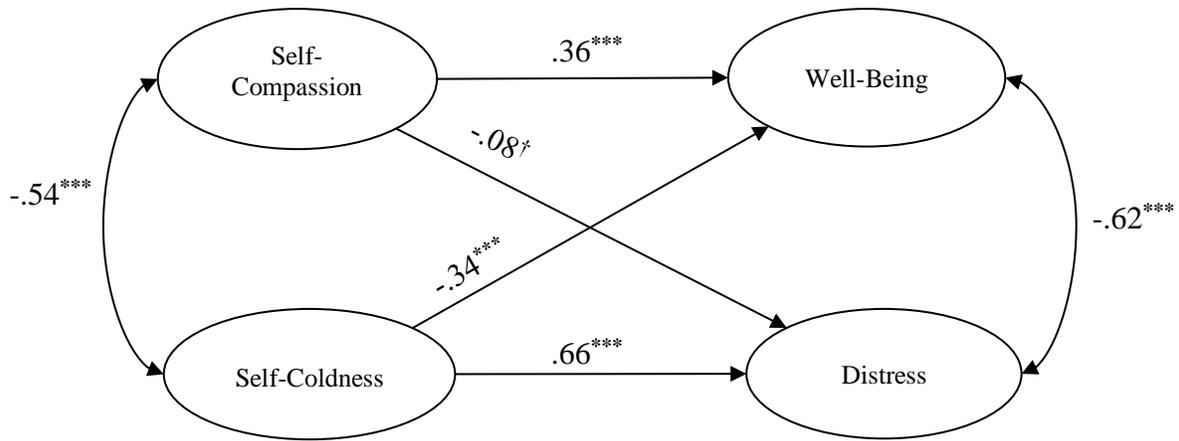


Figure 3. Structural model prior to addition of interaction term (Study 1). $N = 794$. All path coefficients are standardized. * $p < .05$, ** $p < .01$, *** $p < .001$, † $p < .10$

Interaction term. Next, an interaction term between self-compassion and self-coldness was added to the structural model, with paths from the interaction term to both outcome variables of distress and well-being. To create the interaction term in Mplus, the latent moderated structural equations (LMS; Klein & Moosbrugger, 2000) method was used, which is built into the Mplus program. This method has received support in the literature; monte carlo simulation results indicate that LMS reduces the likelihood of biased estimates compared to other methods of estimating interaction effects (Maslowsky, Jager, & Hemken, 2015). The Structural Model of all standardized paths including the interaction term included is provided in Figure 4.

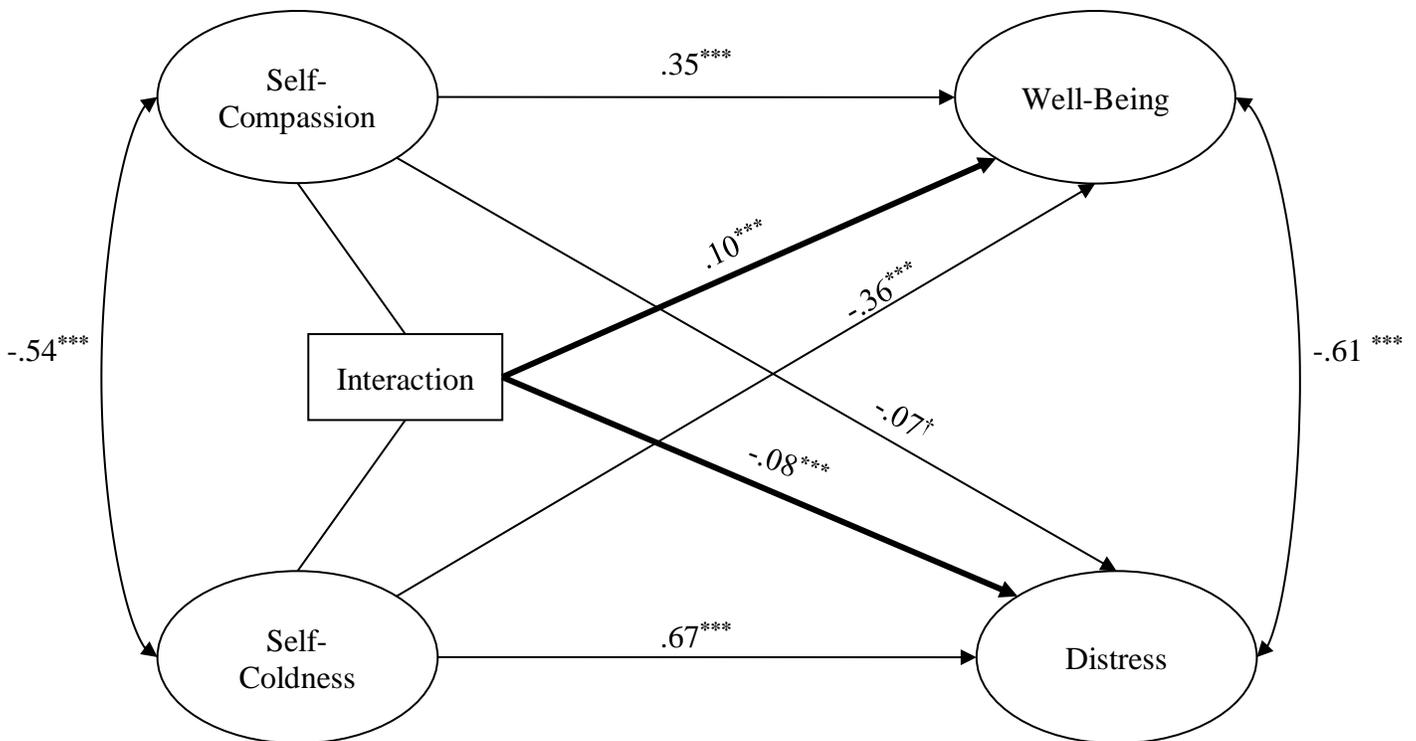


Figure 4. Structural model including interaction term (Study 1). $N = 794$. *** $p < .001$, † $p < .10$

As predicted, results indicated a significant interaction in the prediction of well-being such that self-compassion buffered the relationship between self-coldness and well-being ($\beta = .10$, $t(794) = 3.99$, $p < .001$, $\Delta R^2 = .02$). Simple slopes analysis and Wald χ^2 difference tests revealed that the inverse relationship between self-coldness and well-being was weaker (Wald $\chi^2 [1, N = 794] = 14.51$, $p < .001$) for those with high self-compassion, $B = -.14$, $p < .001$, compared to those with low self-compassion, $B = -.24$, $p < .001$. Similarly, self-compassion buffered the relationship between self-coldness and distress ($\beta = -.08$, $t(794) = -3.88$, $p < .001$, $\Delta R^2 = .02$) such that the relationship between self-coldness and distress was weaker (Wald $\chi^2 [1, N = 794] = 14.18$, $p < .001$) for those with high self-compassion, $B = .44$, $p < .001$, compared to those with low self-compassion, $B = .56$, $p < .001$. The interaction of self-compassion and self-coldness related to distress and well-being are illustrated below in Figure 5 and Figure 6, respectively. To plot significant interaction effects, values one standard deviation above and below the mean for

both self-compassion and self-coldness were entered into the structural equation using the standardized coefficients to obtain four points used to plot the interaction effect for each outcome variable (distress and well-being).

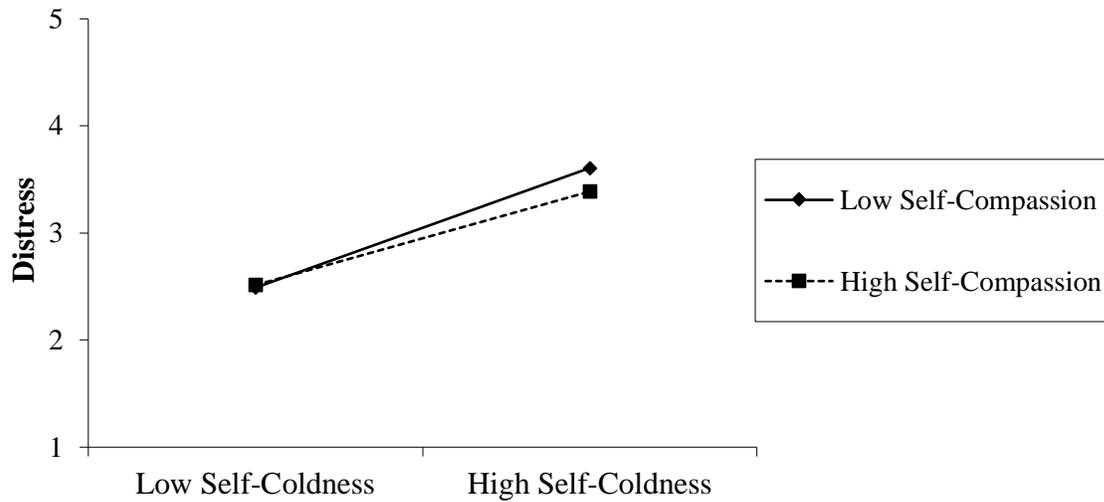


Figure 5. Moderation effect of self-compassion on relationship between self-coldness and distress (Study 1). Self-Compassion = Self-Compassion subscale of SCS. Self-Coldness = Self-Coldness subscale of SCS.

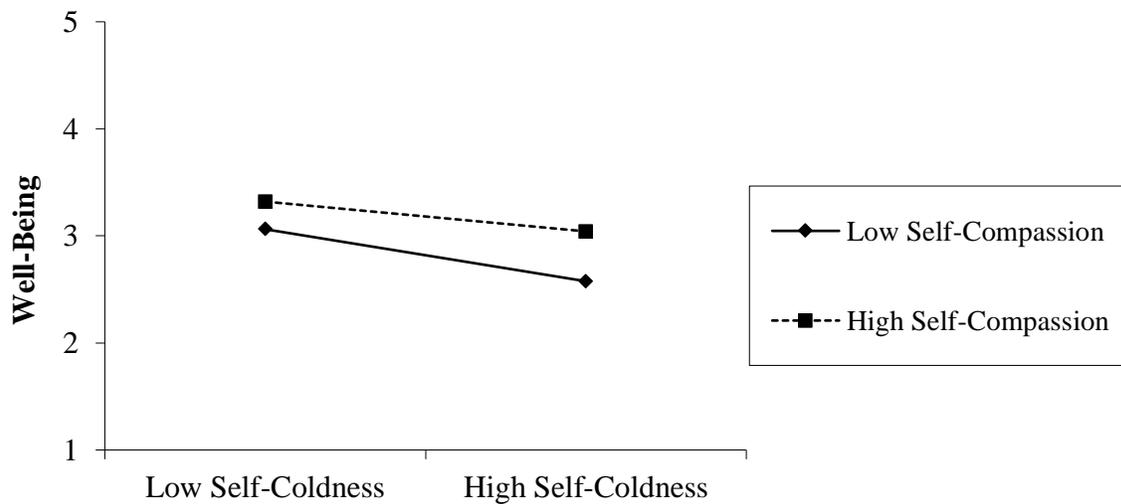


Figure 6. Moderation effect of self-compassion on relationship between self-coldness and well-being (Study 1). Self-Compassion = Self-Compassion subscale of SCS. Self-Coldness = Self-Coldness subscale of SCS.

Gender Analyses.

Mean differences in self-compassion and self-coldness. Means, and standard deviations, and mean differences for women and men for all the scales utilized in Study 1 are presented in Table 4. Mean differences in self-compassion and self-coldness between women and men were examined. Effect sizes were calculated using an online web utility provided by Wilson (2001; <https://www.campbellcollaboration.org/escalc/html/EffectSizeCalculator-Home.php>) with Cohen's (1988) *D* guidelines used to interpret small ($d = .20$), medium ($d = .50$), and large ($d = .80$) mean difference effect sizes. As predicted, women reported greater self-coldness than men, $\Delta M = .13$, $t(789) = 2.28$, $p = .005$, $d = .18$ (95% CI for $d = [.02, .34]$) In addition, it was hypothesized that women and men would indicate statistically equivalent self-reports of self-compassion; however, women reported lower self-compassion than men, $\Delta M = -.20$, $t(789) = -2.83$, $p = .023$, $d = .22$ (95% CI for $d = [.07, .38]$). Both of these effects, however, were small.

Table 4. Scale Means and Standard Deviations for Women and Men (Study 1)

Measured variable	Women ($n = 575$)		Men ($n = 216$)		ΔM
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Self-Compassion	3.12	0.73	3.25	0.73	0.14*
Self-Coldness	3.39	0.9	3.19	0.84	-0.20***
Life Satisfaction	4.09	1.56	4.04	1.64	-0.05
Psychological Flourishing	5.22	1.12	5.06	1.18	-0.15
Positive Affect	3.28	0.8	3.36	0.77	-0.08
Negative Affect	2.33	0.94	2.23	0.89	-0.11
Non-Specific Distress	2.33	0.9	2.25	0.88	-0.08
Depression	0.76	0.75	0.83	0.75	0.08

$N = 794$. * $p < .05$, *** $p < .001$. Positive value indicates higher score for female participants. Self-Compassion and Self-Coldness = Self-Compassion Scale subscales. Life Satisfaction = Satisfaction with Life Scale. Psychological Flourishing = Flourishing Scale. Positive Affect and Negative Affect = Positive and Negative Affect Schedule. Non-Specific Distress = K6. Depression = DASS-21 subscale.

Invariance testing. Invariance of structural path coefficients between men and women in the original model (see Figure 3) was examined using four Wald chi-square tests, one for each hypothesized path (i.e., self-compassion \rightarrow distress, self-compassion \rightarrow well-being, self-coldness \rightarrow distress, self-coldness \rightarrow well-being). Results demonstrated invariance across

gender for all four paths (see Table 5). In other words, the strength of these relationships did not significantly differ from each other.

Table 5. Wald Tests of Gender Path Coefficient Differences (Study 1)

Path	χ^2	<i>df</i>	<i>p</i>
Self-compassion → Well-Being	3.54	1	.06
Self-compassion → Distress	0.36	1	.55
Self-coldness → Well-Being	0.29	1	.59
Self-coldness → Distress	0.00	1	.99

N = 794. *p* > .05 indicates path equivalence

Discussion (Study 1)

Study 1 provided the first examination of the unique relationships of self-compassion and self-coldness with both negative *and* positive psychological outcomes using the SCS as a two-factor structure. Central to this study, four predictions were based in the overarching notion that self-compassion may be more pertinent to psychological well-being, whereas self-coldness may be more pertinent to distress. Namely, as illustrated in Figure 1 in the introduction, it was predicted that 1) self-compassion would demonstrate a stronger association with well-being than distress, whereas 2) self-coldness would demonstrate a stronger relationship with distress than well-being. It was also hypothesized that 3) the relationship between self-coldness and distress would be stronger than the relationship between self-compassion and distress, whereas 4) the relationship between self-compassion and well-being would be stronger than the relationship between self-coldness and well-being. The first three of these predictions received support in the Study 1 sample of community adults. In a sample of community adults, both self-compassion and self-coldness demonstrated unique direct relationships with well-being with similar effect sizes, whereas only self-coldness demonstrated a unique direct relationship with distress; however, self-compassion may demonstrate clinical relevance with distress through moderating the relationships of self-coldness with these outcomes.

Study 1 also provided the first examination of gender mean differences in self-compassion and self-coldness, and gender differences in the strengths of the relationships discussed above. Results indicated a small effect wherein men reported greater self-compassion and lower self-coldness than women. No differences were observed in the strengths of the paths from self-compassion and self-coldness to distress and well-being.

These results offer revealing insight into the unique contributions of self-compassion and self-coldness with clinically relevant outcomes. However, prior to interpretation of these findings, their generalizability must be assessed through replication of this study in another sample. In addition, it is important to examine these relationships with the inclusion of additional distress measures—such as anxiety and stress—as research suggests these are also theoretically relevant aspects of distress (Moore, Dowdy, & Furlong, 2016; Sinclair et al., 2012). Therefore, Study 1 was replicated in a unique way with the inclusion of additional distress measures to offer a more comprehensive understanding of these relationships.

CHAPTER FOUR

STUDY 2

Method**Overview and Design**

The purpose of Study 2 was to replicate findings from Study 1 and integrate additional measures of distress to more fully understand how self-compassion and self-coldness play out in relation to these constructs. Study 1 consisted of three measures of distress (i.e., negative affect, non-specific distress, and depression); however, this construct is might entail several unique aspects of distress. For example, depression and anxiety are two distinct concerns addressed in clinical settings. Researchers examining a bifactor model of depression, anxiety, and stress subscales have also concluded that these can be conceptualized and examined as an overarching construct of distress (Moore et al., 2016; Osman et al., 2012). Therefore, in fully assessing this construct, it may be important to include measures of each of these aspects of distress. In addition to the measures of depression, non-specific distress, and negative affect included in Study 1, Study 2 will include the entire DASS-21, which—in addition to depression as measured in Study 1—measures depression, anxiety, and stress.

The current study intended to provide a richer examination of the relationships between self-compassion and self-coldness with distress and well-being by including a more extensive measurement of distress outcome variables. Hypotheses were the same as those proposed in Study 1. It was hypothesized that self-compassion would be linked to greater well-being and less distress, and self-coldness would be linked to lower well-being and greater distress. Among self-compassion and self-coldness, it was hypothesized that self-compassion would demonstrate a stronger relationship with well-being compared to self-coldness, and self-coldness would

demonstrate a stronger relationship with distress. In addition, it was hypothesized that self-compassion would demonstrate a stronger relationship with well-being than depression and self-coldness would be more strongly related to distress than well-being. Interactions between self-compassion and self-coldness were also hypothesized in predicting distress and well-being. Specifically, that the relationship between self-coldness and distress would be weaker for individuals with high self-compassion compared to those with low self-compassion, and that the relationship between self-compassion and well-being would be stronger for individuals with low self-coldness compared to those with high self-coldness. Predicted gender differences in self-compassion and self-coldness were tested, and differences in the strengths of the predicted relationships across gender were also explored. In addition, to assess the generalizability of the relationship strengths found in Study 1, differences in the strengths of the predicted relationships across study were also explored.

Participants and Procedure

University Human Subjects approval was obtained prior to data collection (see Appendix H). University students from Iowa State University were recruited through SONA, which manages undergraduate student participation in department-associated research. Students can opt to participate in the present study from a list of web-based survey options. The survey was created and responses collected through Qualtrics (2015). Students received research credit in exchange for their participation. Prior to data collection, students were presented with an informed consent statement containing a brief description of the study's purpose and procedures. All participants were required to be at least eighteen years of age to participate in the study and to indicate their informed consent to begin the survey. They were informed of their right to discontinue study participation at any time.

Participants ($N = 457$; 63.9% female, 33.5% male, 0.4% other) ranged in age from 18 to 40 years old ($M = 19.2$, $SD = 2.0$, $Mdn = 19$, $Mode = 18$). Approximately 77.2% of the sample identified as White, 7.9% Asian American/Asian, 5.0% as Hispanic/Latino/a, 4.6% Multiracial, 2.6% as African American/Black, and 0.2% Native Hawaiian/Islander. Approximately 89.1% of participants identified as heterosexual, 4.4% bisexual, 2.4% gay, 0.4% lesbian, 0.4% questioning, 0.4% pansexual chose to self-identify as pansexual, and 0.4% chose not to provide this information. The sample included first-year students (53.2%), second-year students (26.3%), third-year students (11.0%), fourth-year students (5.5%), other (1.6%; e.g., graduate student), and 2.4% chose not to provide this information. Approximately 2.4% of the sample chose not to provide any demographic information.

Power Analysis

The same power analysis procedures used in Study 1 was used for Study 2. This includes the same values for the the null RMSEA (.05), the alternative RMSEA (.06), power (.08) and alpha (.05). The inclusion of additional parcels, outlined in the Results section of the current chapter, yields different degrees of freedom for the two models in this study, one with df equal to 315 ($p = 18$, $q = 63$), and one with 313 df ($p = 27$, $q = 65$). As lower df yields a higher required sample size, $df = 313$ was used to determine the number of participants included in the current study. Again, the web utility provided by Preacher and Coffman (2006; <http://quantpsy.org/rmsear/rmsear.htm>) was used to generate the needed code to run the power analysis in R. This yielded a suggested sample size of 304 participants. Accounting for the exclusion of poor data, this suggests the inclusion of 338 participants will be recruited for the current study; however, at least 440 participants were recruited for the current study given the use of invariance testing in the current study's analytic plan and recommendations of 200

participants, if not larger, for each group (Meade & Bauer, 2007). The additional 40 participants accounted for the exclusion of poor data (i.e., $400 \div 0.90 = 440$)

Measures

Self-compassion and Self-coldness. Identically to Study 1, self-compassion and self-coldness were measured using the Self-Compassion Scale (SCS). The Self-Compassion ($\alpha = .90$) and Self-Coldness ($\alpha = .90$) subscales have demonstrated evidence of internal consistency in an undergraduate student sample (Brenner et al., 2017). In the current study the self-compassion subscale yielded an internal consistency estimate of .90 (95% CI = [.89, .91]) and the self-coldness subscale yielded an internal consistency estimate of .91 (95% CI = [.89, .92]). See Appendix A.

Distress. In addition to the K6, PANAS NA, and depression subscale of the DASS-21, distress was also captured through the remaining anxiety and stress subscales of the DASS-21. The DASS-21 subscales have been demonstrated to also contribute to an overall distress construct (Moore et al., 2016).

Non-specific psychological distress. As in Study 1, the K6 (Kessler et al., 2002) assessed non-specific psychological. Internal estimates of reliability have been demonstrated in undergraduate samples ($\alpha = .84$; Lannin, Vogel, Brenner, Abraham, & Heath, 2016), similar to the Study 2 sample ($\alpha = .85$, 95% CI = .83, .87). See Appendix B.

Depression, anxiety, and stress. The *DASS-21* (Henry & Crawford, 2005), a short-form of the Depression, Anxiety, and Stress Scales (DASS; Lovibond & Lovibond, 1995). The 21-item measure consists of three 7-item subscales of *Depression*, *Anxiety*, and *Stress*. Study 1 included the depression subscale only, but all three subscales will be utilized in the current Study 2. Participants rate how much each statement applied to them in the past week on a 4-point

Likert scale from 1 (*Did not apply to me at all*) to 4 (*Applied to me very much, or most of the time*). Higher scores on each subscale indicate higher levels of the respective construct (i.e., depression, anxiety, or stress). A sample depression item is “I felt I wasn’t worth much as a person.” A sample anxiety item is “I was aware of dryness in my mouth.” A sample stress item is “I found it hard to relax.” Validity has been demonstrated through correlations of the Beck Depression Inventory (BDI; Beck et al., 1979) and The Beck Anxiety Inventory (BAI; Beck & Steer, 1990) with the depression ($r_{BDI} = .79$, $r_{BAI} = .51$), anxiety ($r_{BDI} = .62$, $r_{BAI} = .85$), and stress ($r_{BDI} = .69$, $r_{BAI} = .70$) subscales within a sample of clinical adults (Antony et al., 1988). Self-esteem, mental health, and physical health have also demonstrated correlations with the depression (r s ranged from $-.29$ to $-.64$), anxiety (r s ranged from $-.34$ to $-.58$), and stress (r s ranged from $-.16$ to $-.64$) subscales among U.S. adults Sinclair et al., 2012. Internal consistency estimates of reliability have been demonstrated in U.S. undergraduate students for the depression ($\alpha = .90-.93$), anxiety ($\alpha = .81$), and stress ($\alpha = .84$) subscales (Brenner et al., 2017; Brenner & Vogel, 2015). In Study 2, similar estimates were found for the depression ($\alpha = .89$, 95% CI = $[.87, .90]$), anxiety ($\alpha = .82$, 95% CI = $[.79, .84]$), and stress ($\alpha = .80$, 95% CI = $[.77, .83]$) subscales. See Appendix C.

Negative affect. As with Study 1, the PANAS NA subscale of the PANAS (Watson et al., 1988) assessed negative affect experienced over the past week. Internal consistency has been demonstrated for the negative affect subscale (.89) a sample of undergraduate students (Wei et al., 2011). Internal consistency in Study 2 was .86 (95% CI = $[.84, .88]$). See Appendix D.

Well-being. Consistent with Study 1, well-being was captured using measures of positive affect, psychological flourishing, and life satisfaction.

Positive affect. As with Study 1, the PANAS PA subscale of the PANAS (Watson et al., 1988) assessed positive affect experienced over the past week. Internal consistency has been demonstrated for the negative affect subscale (.90) a sample of undergraduate students (Wei et al., 2011). Internal consistency in Study 2 was also .90, 95% CI = (.88, .91). See Appendix D.

Life Satisfaction. As in Study 1, the SWLS (Diener et al., 1985) assessed life satisfaction. Internal consistency has been demonstrated in undergraduate students ($\alpha = .92$; Wei et al., 2011). The SWLS yielded test-retest reliabilities of .84 for two-week and 1-month intervals across an undergraduate student sample (Pavot et al., 1991). Internal consistency in Study 2 was .89 (95% CI = [.87, .90]). See Appendix E.

Flourishing. As in Study 1, the Flourishing Scale (Diener et al., 2010) assessed psychological flourishing. The FS has demonstrated internal consistency of .87 and test-retest reliability of .71 over a one-month period in university students (Diener et al., 2010). In Study 1, the FS yielded internal consistency of Internal consistency in the current sample was .90, 95% CI = (.88, .91). See Appendix F.

Demographics. Participants will respond to the same demographic items presented to participants in Study 1. In addition, a demographic item for year in school will be added for descriptive purposes. Therefore, participants will be asked to indicate demographic information regarding age, gender, ethnicity, sexual orientation, and year in school that will be used for descriptive purposes (see Appendix G).

Quality Check. Study 2 also included three approaches to ensuring data quality based on recommendations by Meade and Craig (2012). Similar to Study 1, Study 2 will also include the SRSI Use Me item and record the length of time spent on the survey. Meade and Craig (2012) suggest that researchers include one instructed response item (e.g., respond with ‘strongly

disagree' for this item') per every 50-100 items, with a maximum of three items per survey. The 62-item Study 1 survey included one instructed response item; however, as Study 2 included 123 items, participants responded to two instructed response items.

Results

Quality Check

The original dataset included 567 participants. Participants who incorrectly responded to one ($n = 47$) or both ($n = 26$) instructed response items, and participants who responded 'no' to the *SRSI Use Me* items ($n = 25$) were not included in the analyses. Finally, the length of time spent on the survey was also recorded. No participants were removed based on this measure of attention. These procedures resulted in a samples size of 466.

Univariate and Multivariate Outliers

To check for univariate outliers, z-scores (i.e., above 3.29 or below -3.29) were examined for each scale measure (Tabachnick & Fidell, 2001). To check for multivariate outliers, Mahalanobis distances among the variables were examined (Tabachnick & Fidell, 2001). Five cases were outliers at the univariate level—specifically for the Flourishing composite score ($n = 3$), Anxiety composite score ($n = 1$), or both ($n = 1$), and two cases were found to be outliers at the multivariate level ($p < .001$). These cases were dropped from analyses, yielding a final Study 2 sample size of 457. Means, standard deviations, and zero-order correlations are presented in Table 6.

Structural Equation Modeling

Structural Equation Modeling (SEM) was conducted using Mplus 7.4 to examine the relationships between self-coldness, self-compassion with distress and well-being. A Kolmogorov–Smirnov test of univariate normality on the composite variables indicated that

Table 6. Study 2 Means, Standard Deviations, and Zero-Order Correlations of Scales (N = 457)

Measures	1	2	3	4	5	6	7	8	9	10
1. Self-Compassion	--									
2. Self-Coldness	-.56	--								
3. Life Satisfaction	.46	-.49	--							
4. Psychological Flourishing	.50	-.48	.72	--						
5. Positive Affect	.54	-.41	.53	.60	--					
6. Negative Affect	-.33	.53	-.42	-.42	-.28	--				
7. Non-Specific Distress	-.41	.59	-.57	-.52	-.43	.70	--			
8. Depression	-.44	.58	-.57	-.59	-.50	.63	.77	--		
9. Anxiety	-.24	.45	-.39	-.34	-.26	.65	.65	.68	--	
10. Stress	-.35	.58	-.44	-.40	-.32	.70	.69	.72	.75	--
<i>M</i>	3.12	3.36	4.64	5.56	3.31	2.53	2.33	.78	.74	.99
<i>SD</i>	0.73	0.79	1.42	0.97	0.75	0.81	0.82	.68	.63	.60

All zero-order correlations demonstrated significance at the $p < .001$ level. Self-Compassion and Self-Coldness = Self-Compassion Scale subscales. Life Satisfaction = Satisfaction with Life Scale. Psychological Flourishing = Flourishing Scale. Positive Affect and Negative Affect = Positive and Negative Affect Schedule. Non-Specific Distress = K6. Depression, Anxiety, and Stress = DASS-21 subscales.

continuous variables violated assumptions of univariate normality ($ps < .001$). Models were estimated using a maximum-likelihood method (MLR), which utilizes an adjusted chi-square statistic that is robust to non-normality (Muthén & Muthén, 2010; Satorra & Bentler, 2001). Full information maximum likelihood (FIML) estimation was used to address missing data. As the chi-square statistic is sensitive to large sample size (Bentler & Bonett, 1980), the following the procedures recommended by Hu and Bentler (1999) and Brown and Greene (2006), goodness of fit was evaluated using the comparative fit index (CFI; $\geq .95$), the root-mean-square error of approximation (RMSEA; $\leq .06$), and the standardized root-mean-square residual (SRMR; $\leq .08$).

Latent Endogenous Variables. The latent variable of well-being was assessed with the same methodology utilized in Study 1. That is, life satisfaction, psychological flourishing, and positive affect, assessed using the FS, PANAS PA, and the SWLS, respectively, were utilized as indicators contributing to the latent well-being variable. To create the latent distress variable, the

same indicators from Study 1 were used and two new indicators—anxiety and stress—were also included. Namely, non-specific distress, measured by the K6, depression, anxiety, and stress, measured as DASS-21 subscales, and negative affect, measured by the PANAS PA, were utilized as five indicators. These are the same indicators used in Study 2

Latent Exogenous Variables. Using the same procedures outlined in Study 1, latent observed indicators, or parcels (Cattell, 1956; Russell et al., 1998), were created for both exogenous latent variables, self-compassion and self-coldness.

Measurement model. As suggested by Anderson and Gerbing (1998), an initial measurement model was tested to examine how well the parcels represent the latent variables. Results indicated an adequate fit to the data, $\chi^2(71, N = 457) = 276.74, p < .001, CFI = .952, RMSEA = .080$ (90% CI = [.07, .09]), SRMR = .05. Presented in Table 7, all loadings parcels demonstrated significant loadings on their latent variables, $\beta = .69$ to .91. Parcel and indicator zero-order correlations are presented in Table 8.

Table 7. Factor Loadings for Study 2 Measurement Model (N = 457)

Measured variable	Unstandardized factor loading	Standardized factor loading
Self-Compassion		
Parcel 1	1.000	0.90***
Parcel 2	0.994	0.86***
Parcel 3	1.065	0.91***
Self-Coldness		
Parcel 1	1.000	0.86***
Parcel 2	1.156	0.91***
Parcel 3	0.619	0.70***
Well-Being		
Positive Affect	1.000	0.69***
Life Satisfaction	2.263	0.83***
Psychological Flourishing	1.619	0.86***
Distress		
Negative Affect	1.000	0.79***
Non-Specific Distress	1.105	0.86***
Depression	0.921	0.87***
Anxiety	0.781	0.79***
Stress	0.800	0.95***

*** $p < .001$.

Table 8. Study 2 Parcel and Indicator Zero-Order Correlations (N = 457)

Parcel/Indicator	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Scomp1	--													
2. Scomp2	.77	--												
3. Scomp3	.82	.79	--											
4. Scold1	-.51	-.47	-.47	--										
5. Scold2	-.50	-.47	-.45	.78	--									
6. Scold3	-.25	-.28	-.26	.60	.64	--								
7. Life Satisfaction	.44	.43	.42	-.43	-.48	-.32	--							
8. Psychological Flourishing	.49	.46	.44	-.44	-.43	-.33	.72	--						
9. Positive Affect	.52	.49	.49	-.37	-.39	-.25	.53	.60	--					
10. Negative Affect	-.30	-.30	-.31	.47	.50	.46	-.42	-.42	-.28	--				
11. Non-Specific Distress	-.38	-.38	-.39	.53	.56	.46	-.57	-.52	-.43	.70	--			
12. Depression	-.42	-.39	-.43	.50	.56	.47	-.57	-.59	-.50	.63	.77	--		
13. Anxiety	-.22	-.23	-.23	.38	.44	.40	-.39	-.34	-.26	.65	.65	.68	--	
14. Stress	-.34	-.32	-.33	.52	.53	.50	-.44	-.40	-.32	.70	.69	.72	.75	--
<i>M</i>	3.12	3.12	3.13	3.44	3.29	3.20	4.64	5.56	3.31	2.53	2.33	0.78	0.74	0.99
<i>SD</i>	0.58	0.63	0.66	0.68	0.80	0.39	2.00	0.95	0.56	0.65	0.66	0.45	0.39	0.36

Note. Scomp1 Scomp2 Scomp 3 = Self-Compassion subscale (Self-Compassion). Scold1 Scold2 Scold 3 = Self-Compassion subscale (Self-Coldness). Life Satisfaction = Satisfaction with Life Scale. Psychological Flourishing = Flourishing Scale. Positive Affect and Negative Affect = Positive and Negative Affect Schedule. Non-Specific Distress = K6. Depression = DASS-21 subscale.

All zero-order latent variable correlations demonstrated significance at the $p < .001$ level. As predicted, self-compassion demonstrated an inverse relationship with distress ($r = -.46$) and a positive relationship with well-being ($r = .63$), whereas self-coldness demonstrated a significant positive relationship with distress ($r = .70$) and significant inverse association with well-being ($r = -.59$). Self-compassion and self-coldness were significantly inversely associated with each other ($r = -.59$), as were distress and well-being ($r = -.67$).

Structural model. Next, a structural model was tested wherein self-compassion and self-coldness were included as exogenous variables, and distress and well-being were included as endogenous variables (see Figure 3). The structural model was identical in fit to the measurement model as both models were fully saturated. Cohen's (1988) D guidelines were used to interpret small ($\beta = .10$), medium ($\beta = .30$), and large ($\beta = .50$) effect sizes. Results demonstrated the same pattern of results found in Study 1. As predicted, self-compassion was associated greater well-being ($\beta = .43$, 95% CI = [.33, .53], $t(457) = 8.10$, $p < .001$), whereas self-coldness was associated with greater distress ($\beta = .65$, 95% CI $\beta = [.57, .73]$, $t(457) = 16.36$, $p < .001$) and less well-being ($\beta = -.34$, 95% CI $\beta = [-.45, -.24]$ $t(457) = -6.48$, $p < .001$). Similar to Study 1, self-compassion did not uniquely predict distress over and above self-coldness ($\beta = -.08$, 95% CI for $\beta = [-.19, .03]$, $t(457) = -1.48$, $p = .137$). Also similar to Study 1, results supported the same three out of four hypotheses regarding the relative relationship strengths. Specifically, self-compassion demonstrated a stronger relationship with well-being (medium effect) than with distress (no effect), whereas self-coldness demonstrated a stronger relationship with distress (large effect) than well-being (medium effect). As predicted, self-coldness also demonstrated a stronger relationship with distress (large effect effect) than self-compassion demonstrated with distress (small, non-significant effect). It was also hypothesized

that self-compassion will demonstrate a stronger relationship with well-being compared to self-coldness. Self-coldness demonstrated a medium effect size, and self-compassion demonstrated a medium to large effect size. Standardized path coefficients are displayed below in Figure 7.

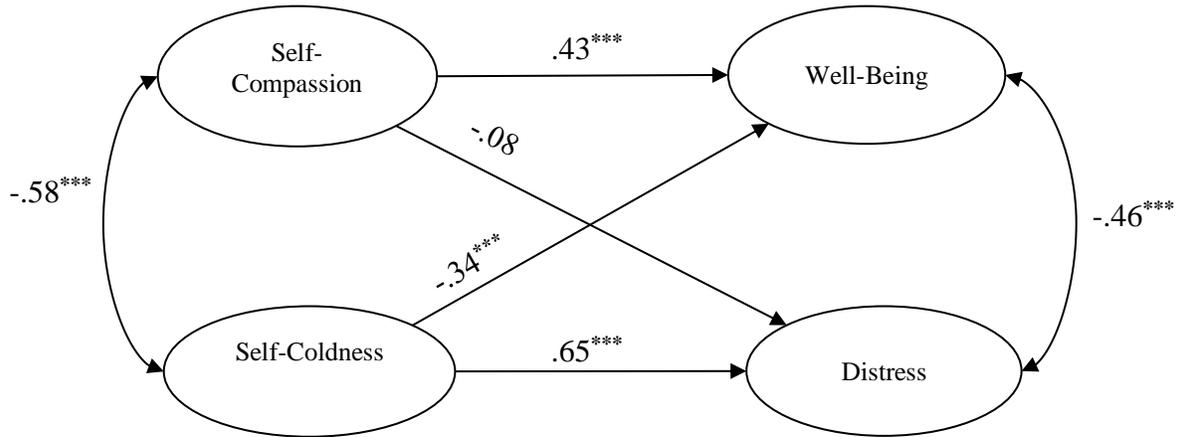


Figure 7. Structural model prior to addition of interaction term (Study 2). $^{\dagger}p < .10$, $^*p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Interaction term. Next, an interaction term between self-compassion and self-coldness was added to the structural model, with paths from the interaction term to both outcome variables of distress and well-being. To create the interaction term in Mplus, the latent moderated structural equations (LMS; Klein & Moosbrugger, 2000) method was used, which is built into the Mplus program. This method has received support in the literature; monte carlo simulation results indicate that LMS reduces the likelihood of biased estimates compared to other methods of estimating interaction effects (Maslowsky et al., 2015). The Structural Model with the interaction term included is demonstrated in Figure 6.

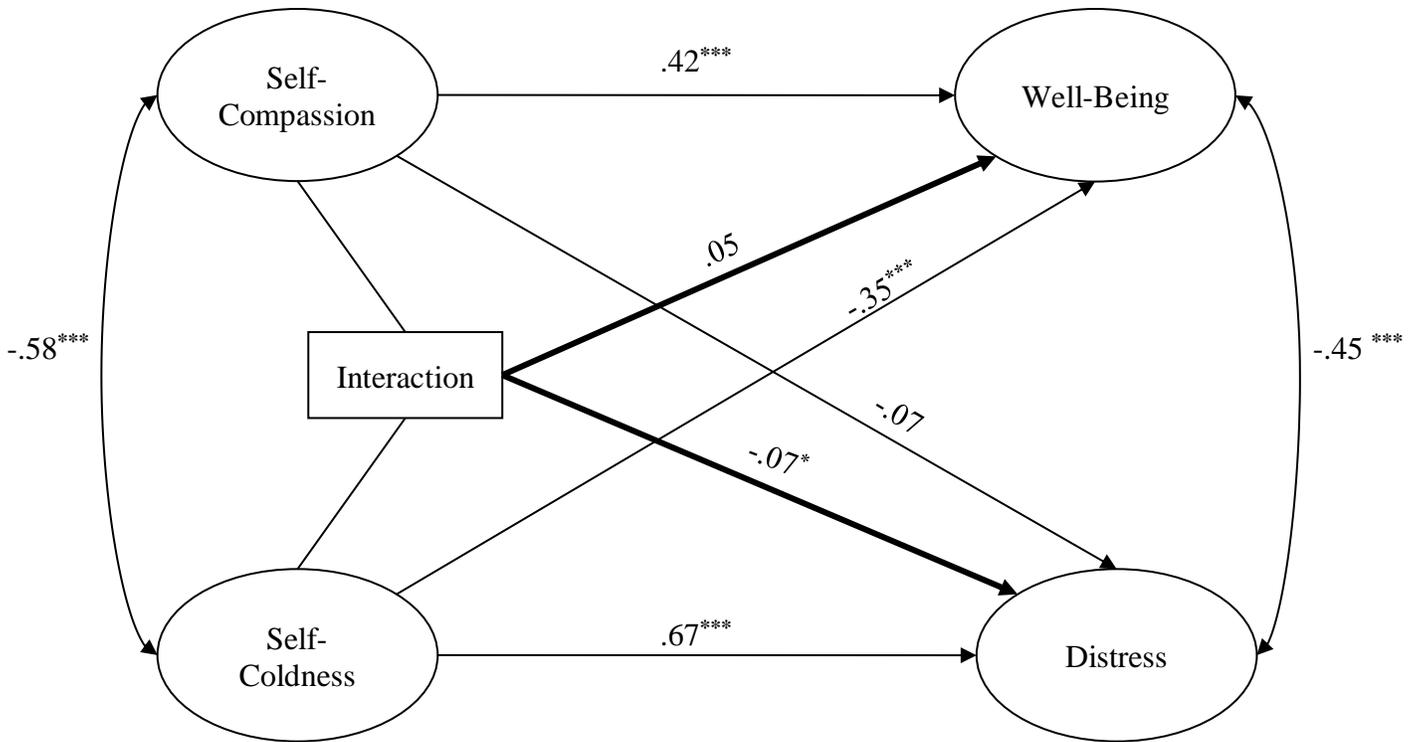


Figure 8. * $p < .05$ ** $p < .01$ *** $p < .001$ † $p < .10$.

Interestingly, self-compassion did not significantly moderate the relationship between self-coldness and well-being, $\beta = .05$, $t(457) = 1.34$, $p = .18$, $\Delta R^2 = .001$. Therefore, a simple slopes analysis for this interaction was not conducted. Consistent with Study 1 findings, self-compassion buffered the relationship between self-coldness and distress ($\beta = -.07$, $t(457) = -2.07$, $p = .04$, $\Delta R^2 = .01$) such that the relationship between self-coldness and distress was weaker (Wald $\chi^2 [1, N = 457] = 4.27$, $p = .04$) for those with high self-compassion, $B = .37$, $p < .001$, compared to those with low self-compassion, $B = .46$, $p < .001$. To plot the interaction effects, values one standard deviation above and below the mean for both self-compassion and self-coldness were entered into the structural equation using the standardized coefficients to obtain four points used to plot the interaction effect for each outcome variable (distress and well-being).

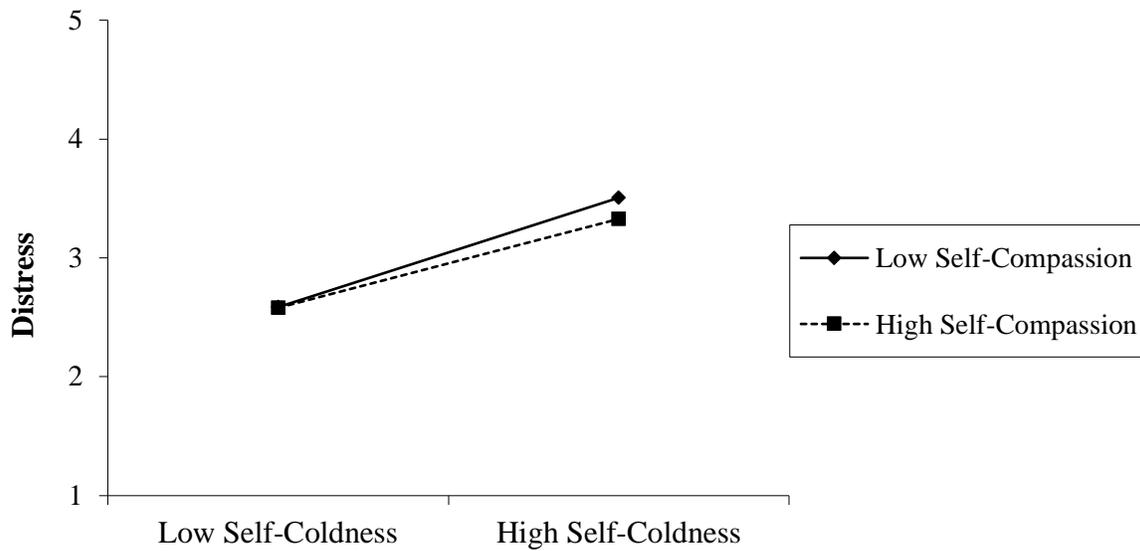


Figure 9. Moderation effect of self-compassion on relationship between self-coldness and distress (Study 2). Self-Compassion = Self-Compassion subscale of SCS. Self-Coldness = Self-Coldness subscale of SCS.

Gender analyses.

Mean differences in self-compassion and self-coldness. Mean differences in self-compassion and self-coldness between women and men were examined. Effect sizes were calculated using an online web utility provided by Wilson (2001; <https://www.campbellcollaboration.org/escalc/html/EffectSizeCalculator-Home.php>), with Cohen's (1988) *D* guidelines used to interpret small ($d = .20$), medium ($d = .50$), and large ($d = .80$) mean difference effect sizes. with Cohen's (1988) *D* guidelines used to interpret small ($d = .20$), medium ($d = .50$), and large ($d = .80$) effect sizes. It was hypothesized that women would demonstrate greater self-coldness than men. Indeed, women demonstrated greater self-coldness than men, $\Delta M = .21$, $t(443) = 2.74$, $p = .006$, $d = .28$ (95% CI for $d = [.08, .47]$). It was also hypothesized that women and men would indicate statistically equivalent self-reports of self-compassion. Levene's Test for Equality of Variances indicated that men and women did not demonstrate equal variances for self-compassion, $F(1, 456) = 8.63$, $p = .003$, therefore

differences were examined with equal variances not assumed. Women reported lower self-compassion than men, $\Delta M = .20$, $t(367.55) = 3.02$, $p = .003$, $d = .28$ (95% CI for $d = [.10, .50]$). This difference was also statistically significant under the assumption of equal variances, $\Delta M = .20$, $t(443) = 2.83$, $p = .005$, $d = .28$ (95% CI for $d = [.09, .48]$). See Table 9 for means, standard deviations, and mean differences for men and women for all scales utilized in Study 2. Both of these effects were small.

Table 9. Scale Means Standard Deviations, and Mean Differences for Women and Men (Study 2)

Measured variable	Women ($n = 292$)		Men ($n = 153$)		ΔM
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Self-Compassion	3.05	0.77	3.25	0.63	0.20**
Self-Coldness	3.43	0.81	3.22	0.71	-0.21**
Life Satisfaction	4.66	1.4	4.62	1.46	-0.03
Psychological Flourishing	5.59	0.95	5.52	1.03	-0.07
Positive Affect	3.25	0.78	3.45	0.65	0.20
Negative Affect	2.57	0.8	2.44	0.80	-0.13
Non-Specific Distress	2.36	0.84	2.26	0.75	-0.10
Depression	0.79	0.71	0.75	0.62	-0.04
Anxiety	0.75	0.65	0.70	0.59	-0.05
Stress	1.01	0.62	0.94	0.55	-0.07

* ** $p < .01$. Self-Compassion and Self-Coldness = Self-Compassion Scale subscales. Life Satisfaction = Satisfaction with Life Scale. Psychological Flourishing = Flourishing Scale. Positive Affect and Negative Affect = Positive and Negative Affect Schedule. Non-Specific Distress = K6. Depression = DASS-21 subscale.

Invariance across gender. Wald tests for each of the four hypothesized paths (i.e., self-compassion \rightarrow distress, self-compassion \rightarrow well-being, self-coldness \rightarrow distress, self-coldness \rightarrow well-being) were conducted in SEM to explore whether the strengths of the relationships between each predictor variable and outcome variable differs across gender. Consistent with Study 1, results demonstrated invariance across gender for all four paths (see Table 10).

Table 10. Wald Tests of Gender Path Coefficient Differences (Study 2)

Path	χ^2	<i>df</i>	<i>p</i>
Self-compassion \rightarrow Well-Being	0.13	1	.72
Self-compassion \rightarrow Distress	2.00	1	.16
Self-coldness \rightarrow Well-Being	0.00	1	.96
Self-coldness \rightarrow Distress	0.21	1	.65

$N = 457$. $p > .05$ indicates path equivalence

Invariance testing across studies. Similarly, structural invariance of coefficients among direct model paths were examined across Study 1 and Study 2 using responses to measures included across studies (i.e., SCS, FS, SWLS, PANAS PA, PANAS NA, K6, and Depression subscale of DASS-21), to examine whether the strengths of the relationships between each predictor variable and outcome variable differ across community adult and undergraduate student samples. For each hypothesized path, a Wald chi-square difference test will be used to determine whether Study 1 and Study 2 responses yielded different coefficient strengths for each of the four hypothesized paths (i.e., self-compassion → distress, self-compassion → well-being, self-coldness → distress, self-coldness → well-being). As predicted, results demonstrated invariance across study samples for all four paths (see Table 11).

Table 11. Wald Tests of Path Coefficient Differences Across Studies

Path	χ^2	df	p
Self-compassion → Well-Being	0.02	1	.17
Self-compassion → Distress	0.09	1	.76
Self-coldness → Well-Being	0.43	1	.51
Self-coldness → Distress	2.03	1	.15

N = 1,251 (Study 1 *n* = 794, Study 2 *n* = 457). *p* > .05 indicates path equivalence.

Discussion (Study 2)

Study 2 examined the generalizability of the Study 1 through replicating the study in a sample of university students with the inclusion of additional indicators of distress (i.e., anxiety and stress). With one exception in moderation findings, Study 1 findings were replicated in Study 2. In the latent model, self-coldness predicted well-being and distress over and above self-compassion, and self-compassion predicted well-being in the latent model over and above self-coldness; however, self-compassion did not demonstrate a significant relationship with distress over and above self-coldness. Also consistent with Study 1, Study 2 results indicated a significant interaction between self-compassion and self-coldness in its relationship with distress such that self-compassion buffered the relationship between self-coldness and distress.

However, results did not suggest an interaction between self-compassion and self-coldness related to well-being. This is the one Study 1 finding that did not replicate in Study 2. This will be explored in the Main Discussion.

Study 2 also replicated Study 1 findings regarding gender differences in reported self-compassion and self-coldness and in the strengths of the relationships in the latent model. Men reported greater self-compassion and less self-coldness than women, with small mean difference effects. Results also indicated statistically equivalent relationship strengths of self-compassion and self-coldness with distress and well-being.

Finally, differences between the strengths of the direct relationships of self-compassion and self-coldness with distress and well-being found in Study 1 and Study 2 were examined. Results indicated no significant differences. Therefore, in addition to finding support for specific predictions, Study 2 results also suggest that the nature of these relationships is theoretically similar. Implications of these findings will be explored subsequently in the Main Discussion.

CHAPTER 5

MAIN DISCUSSION

The central purpose of the present investigation was to 1) investigate the unique relationships of self-compassion and self-coldness with well-being and distress and 2) test a possible interaction between self-compassion and self-coldness in relation to mental health outcomes. Gender differences in self-compassion and self-coldness as well as whether the strengths of these relationships differ across gender were also explored. Researchers recently identified that the self-report measure driving self-compassion research—the Self-Compassion Scale (SCS; Neff, 2003a)—is comprised of two overarching factors (i.e., self-compassion and self-coldness), rather than one overarching factor of self-compassion (Brenner et al., 2017; Costa et al., 2016; Lopez et al., 2015). As such, the extent to which associations between self-compassion and clinically relevant outcomes found in previous studies is due to self-compassion rather than self-coldness is unknown and the incremental value of each subscale has been sparsely examined. Across two studies (community adult sample and undergraduate student sample), the present research offers evidence that self-coldness uniquely predicts distress and well-being from self-compassion, and that self-compassion uniquely predicts well-being from self-coldness but does not uniquely predict distress. However, results suggest that self-compassion may ameliorate distress through buffering the relation between self-coldness and distress. These direct relationships were not moderated by gender, although mean differences between men and women were present in self-reported levels of self-compassion and self-coldness. Below, I will delve into the specific findings for each of these three areas. Before concluding, I will explore the implications of this research as well as the limitations for future for researchers and clinicians to address.

Relationships with Well-Being and Distress

I examined a model wherein self-compassion and self-coldness were uniquely linked to latent outcomes variables of well-being and distress. Prior to these studies, nascent examinations of these relationships mainly included zero-order correlations (e.g., Costa et al., 2016; Lopez et al., 2015; Gilbert et al., 2011). Only two studies appeared to have examined the incremental contributions of these constructs with clinically outcomes using the original version of the SCS with US adults (Brenner et al., 2017; Philips & Ferguson, 2013), and only one of these included well-being outcomes (Philips & Ferguson, 2013). Findings largely replicated across Study 1 and Study 2. Self-coldness significantly predicted less well-being and greater distress over and above self-compassion, and self-compassion significantly predicted greater well-being over and above self-coldness; however, self-compassion did not demonstrate a significant relationship with distress over and above self-coldness. This non-significant finding, though not initially predicted, reinforces the overarching concept driving the current research: when it comes to psychological distress, self-coldness matters more than self-compassion. This non-significant finding is also consistent with mixed findings by Brenner et al. (2017), wherein self-compassion demonstrated a unique small effect with depression over and above self-coldness, but did not demonstrate a unique relationship with anxiety or stress. Thus, with the exception of the relationship of self-compassion with distress, the unique incremental contributions of these relationships were supported. Moreover, Wald chi-square tests indicated that the strengths of the relationships in the latent model were statistically equivalent across community and undergraduate samples. This provides evidence for the generalizability of these findings, described in greater detail below.

Fundamental to the purpose of this work, I made four central predictions based on the concept that self-compassion may be more pertinent to psychological well-being, whereas self-coldness may be more pertinent to distress. Namely, I hypothesized that 1) self-compassion would demonstrate a stronger association with well-being than with distress, 2) self-coldness would demonstrate a stronger relationship with distress than with well-being, 3) the relationship between self-coldness and distress would be stronger than the relationship between self-compassion and distress, and 4) the relationship between self-compassion and well-being would be stronger than the relationship between self-coldness and well-being. The first three predictions received support across both studies. Self-coldness demonstrated a large effect in its relationship with distress and a medium effect in its relationship with well-being, and the relationship between self-compassion and distress was small and not statistically significant. Moreover, self-compassion demonstrated a medium to large effects in its relationship with well-being, which was larger relative to its small, non-significant relationship with distress. These results are consistent with my hypotheses and postulations by previous researchers who have used the Theory of Social Mentalities (Gilbert, 2005) to formulate predictions regarding the distinct relationships of self-compassion and self-coldness with clinically relevant constructs. Namely, researchers suggest that self-compassion is more pertinent with regard to well-being, whereas self-coldness is more closely related to distress. These are also consistent with zero-order correlational studies. For example, researchers have found that self-compassion was weakly to moderately correlated with perceived stress, depression, anxiety, stress neuroticism, rumination, and negative affect, whereas self-coldness was moderately to strongly correlated with these constructs (Gilbert et al., 2011; Lopez et al., 2015). This is also mostly consistent with Philips and Ferguson (2013), where negative affect demonstrated a small effect with self-

compassion, but large a large effect with self-coldness. However, unlike results in the current research, the relationship between self-compassion and negative affect was statistically significant.

The last prediction did not receive clear support. In Study 1 the relationship between self-compassion and well-being (.36) and the relationship between self-coldness and well-being (-.34) demonstrated similar, medium effect sizes. In Study 2, self-coldness and self-compassion again showed medium effect sizes, although the confidence interval for self-compassion included a possible large effect. This contrasts findings in an older adult sample wherein the unique relationship of self-coldness with positive outcomes were not statistically significant and/or weaker than the relationship of self-compassion with positive outcomes. However, in another study, the zero-order correlation of self-compassion and self-coldness with positive affect and found that self-compassion demonstrated a small to moderate relationship with positive affect and self-coldness demonstrated a small relationship with positive affect (Lopez et al., 2015). This mirrors the findings in Study 2. One explanation for this finding is the *negativity bias* (Cacioppo & Berntson, 1994) wherein people demonstrate stronger reactions to negative thoughts and feelings than positive thoughts and feelings (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Cacioppo, Gardner, & Berntson, 1997; Ito, Larsen, Smith, & Cacioppo, 1998; Kuhbandner, Spachholz, & Pastötter, 2016). Although self-compassion and self-coldness are driven by distinct systems that theoretically link self-compassion and self-coldness to well-being and distress, respectively, this negativity bias could amplify the influence of the threat-defense system that drives self-coldness. Due to self-compassion's direct theoretical relationship with well-being, the relationship between these constructs is preserved even with this negativity bias. This negativity bias also provides a greater understanding for the non-significant incremental

relationship between self-compassion and distress. The Theory of Social Mentalities theoretically links distress with the negative, self-coldness construct. Given this relationship, and considering the negativity bias, it makes sense that self-compassion did not maintain statistical significance above and beyond the relationship between self-coldness and distress. Researchers should continue to examine this relationship in future studies, including the non-college student samples (e.g., community sample, meditation sample) and potentially with the inclusion of additional distress and/or well-being measures, such as Ryff's (1989) multidimensional inventory of Psychological Well-Being, or considering moderating factors, such as age or education level.

Overall, the findings that self-compassion more strongly predicted well-being than distress, that self-coldness more strongly predicted distress than well-being, and that the relationship between self-coldness and distress was stronger than the relationship between self-compassion and distress is consistent with Gilbert's (2005) Theory of Social Mentalities. This theory contends that people interact with the world differently using two distinct processing systems: the threat-defense system and the safeness system, which can activate different internal approaches in how we treat ourselves. Internal activation of the safeness system has been viewed as underlying self-compassion and internal activation of the threat-defense system as underlying self-coldness (Gilbert et al., 2011; Neff, 2016). The safeness system allows individuals to relax and engage in behaviors that "are fundamental to health and well-being" (Gilbert, 2005, p. 22) such as building safe and protective relationships rather than isolating oneself and elicits calming and self-soothing internal messages (i.e., elicits self-compassion). In other words, the self-compassionate safeness system is designed to help individuals increase positive psychological health and well-being rather than decrease threat. The threat-defense

system, viewed as underlying self-coldness, is designed to decrease external threats rather than increase well-being; “however, an unintentional consequence is that individuals can develop a ‘hostile self-to-self relationship’ (Gilbert & Irons, 2005, p. 264) wherein they are also aggressive—or cold—toward themselves in the face of possible failure or inadequacy (i.e., self-coldness)” (Brenner et al., 2017, p. 698). Therefore, it makes sense that researchers (Brenner et al., 2017; Neff, 2016) asserted that self-coldness, driven by the threat-system, would more robustly predict distress relative to itself and relative to self-compassion, which is based in the safeness system designed to promote well-being. Indeed, this is what I found.

Interaction of Self-Compassion and Self-Coldness

The current research also provided the first examination of the latent interaction between self-compassion and self-coldness related to distress *and* well-being using the SCS as a two-factor structure. Across both studies, results supported the hypothesis that self-compassion would moderate the relationship between self-coldness and distress. Specifically, the relationship between self-coldness and distress was weaker for those with high self-compassion compared to those with low self-compassion. This is consistent with findings by Körner et al. (2015) and Dundas et al. (2016) who examined this interaction among adults in Germany and Norway, respectively. These findings suggest that although self-coldness may be more relevant in its direct relationship with distress, self-compassion could be an important factor to consider in buffering the relationship between self-coldness and distress. This supports Neff and colleagues’ (e.g., Neff, 2003a; Neff, 2003b, Neff, 2012) assertions regarding the general importance of self-compassion. Indeed, self-compassion plays a meaningful role with regard to distress; however, rather than reducing distress directly, the current studies indicates that the pathway through which self-compassion reduces distress may be through weakening the burden

of self-coldness. Therefore, self-compassion may be a useful way to protect oneself from self-coldness.

I also hypothesized a significant interaction between self-compassion and self-coldness in predicting well-being. This was supported in Study 1 but not in Study 2. In Study 1, self-compassion buffered the relationship between self-coldness and well-being such that this relationship was weaker among those with high self-compassion. However, results did not indicate a significant interaction in Study 2. One explanation for why the results were supported in one study but not the other may be due to differences in community adults and college students. For example, there could be additional potentially moderating effects such as age, education, and life experience making this moderation more prevalent among community adults relative to undergraduate students. The weak relationship between self-coldness and well-being than self-coldness and distress could also account for this finding. Study 2 had a smaller sample than Study 1. A larger sample size may be required to achieve significance. Evidence of this may be demonstrated in the similar coefficient sizes across both studies. Future researchers could examine this relationship in larger samples and also accounting for demographic differences.

Gender Differences

This research also provided a direct examination of differences in self-compassion and self-coldness using the SCS as a two-factor measure. Examination of gender differences in the extant literature has yielded mixed findings; however, these studies utilized the SCS as a one-factor measure. The one study separating self-compassion and self-coldness items found that women reported greater self-coldness and equivalent self-compassion than men (Galhardo et al., 2013). Therefore, I explored the possibility there may be gender differences in only one of the

two constructs underlying the scale, thus contributing to inconsistent findings in previous research combining these subscale scores. Study 1 and Study 2 revealed consistent findings and indicated differences across gender in a theoretically similar pattern. Women reported greater self-coldness than men. This finding is consistent with my prediction and previous research indicating that women tend to be more self-critical and engage in more negative self-talk than men (Devore, 2013; Leadbeater et al., 1999). In addition, women also reported lower self-compassion than men. Although I predicted statistical equivalence in self-compassion across gender, this finding is consistent with the premise that women are socialized with the female norm of self-sacrifice (i.e., to put others needs before their own) and may have trouble being self-compassionate to themselves (Baker-Miller, 1986; Raffaelli & Ontai, 2004; Ruble & Martin, 1998), though it contradicts the assertion that men may feel less comfortable engaging the self-soothing and comforting behaviors involved in self-compassion (Baker-Miller, 1986; Raffaelli & Ontai, 2004; Ruble & Martin, 1998) because “tender qualities are emphasized for women but not men” (Yarnell et al., 2015, p. 2). However, it is important to note that the effect sizes of these differences were small. Future research is needed to assess whether these statistically significant differences are replicable and practically meaningful.

Gender as moderating factor between the relationships of self-compassion and self-coldness with these outcomes had also not been explored prior to this work. No predictions were made as these analyses were simply exploratory. Across both studies, results did not indicate differences in the strengths of the four model relationships based on gender. Although results did not support differences in the strengths of these relationships, future researchers could explore this further with larger samples. Meade and Bauer (2007) recommend that samples

conducting gender comparisons include approximately 300 men and women, and our samples did not meet this benchmark.

Implications

The finding that self-compassion did not predict distress over and above self-coldness across studies lends meaningful implications for researchers and clinicians. As previous researchers who used the SCS mixed both self-compassion and self-coldness items to calculate a composite self-compassion score, it is likely that the inclusion of the self-coldness items inflated the observed relationship between self-compassion and psychological distress. The non-significant incremental relationship between self-compassion and distress suggests that clinicians may need to intentionally focus on reducing self-coldness in addressing distress. Results also suggest that self-compassion and self-coldness both uniquely contribute to well-being. Thus, clinicians may want to tailor interventions to reduce self-coldness when intending to decrease depressive symptomology, whereas increasing self-compassionate, positive-health-promoting habits, as well as decreasing self-coldness may be appropriate when the goal is increasing well-being.

Importantly, self-compassion moderated the relationship between self-coldness and distress in both studies such that those with high self-compassion reported a weaker relationship between self-coldness and distress than those with low self-compassion. This suggests that self-compassion does hold clinical relevant in the reduction of distress; however, this might take place through alleviating the relationship between self-coldness and distress outcomes rather than directly reducing distress. In light of these consistent findings, clinicians may consider integrating self-compassion interventions for clients demonstrating self-coldness behaviors, such

as being self-judgmental, self-isolating, or fusing with their pain, to lessen the relationship between self-coldness and distress.

The non-significant incremental relationship between self-compassion and distress outcomes also offers important implications for future research. Consistent with Study 1 and Study 2, Brenner et al. (2017) found that the relationships of self-compassion with distress outcomes were either weak or non-significant. They also noted, “Self-compassion may have been confounded with self-coldness in the past, which questions whether extant findings using the SCS...provide an accurate representation of the strength of the relationship between self-compassion and clinically relevant outcomes” (p. 704). Indeed, the consistency of these findings across three separate underscores the need to re-examine the role in self-compassion in other clinically relevant contexts. For example, one emerging line of research demonstrates an inverse relationship between self-stigma of seeking help and self-compassion and suggests that self-compassion may moderate the cultural and societal factors that contribute to the formation of self-stigma (Heath, Brenner, Lannin, & Vogel, 2016; Heath, Brenner, Vogel, Lannin, & Strass, 2017; Wasylikiw & Clairo, 2016). Future researchers could examine whether these findings replicate with self-compassion and/or exist for self-coldness as well.

Limitations and Additional Future Directions

As with all studies, the present research includes limitations that lend important future directions in the field. First, although the current research replicated findings across two unique samples (i.e., community sample and undergraduate sample), both samples consisted of predominantly white, heterosexual, non-distressed participants. Future research is needed to understand whether these findings generalize to clinical populations and more diverse samples, such as those with marginalized identities (e.g., racial/ethnic, sexual identity, or gender identity

minorities) or those more heavily involved in self-compassionate practices (e.g., meditation samples). Moreover, as previous research suggests cultural differences in the relationships of self-compassion with clinically relevant outcomes (Neff et al., 2008), researchers could examine this model in samples from other countries and regions, particularly those with a history of Buddhist culture, such as Thailand and Taiwan, as Neff's (2003b) conceptualization of self-compassion is rooted in Buddhist philosophy.

Another limitation of the current research is that both studies were cross-sectional. As such, causality cannot be inferred. To illuminate the predictive validity of the current model, future researchers could examine the model longitudinally. This is particularly important given that a longitudinal study found that self-compassion and self-coldness demonstrated similar effect sizes predicting change in depression in children and adolescent three years later, and only the relationship between self-compassion and depression indicated statistical significance (Stolow et al., 2016). However, this contradictory finding could be due to a number of reasons that need to be ruled out, such as the age and reading level of the sample. Participants were in the fifth, eighth, or eleventh grade; however, using the Flesch reading formula (Klare, Rowe, St. John, & Stikurow, 1969), Brenner et al. (2017) found that the SCS demonstrates fairly difficult readability and items reflect a 7th grade level wording. Researchers could also utilize experimental studies to further parse these unique relationships and/or unique contributions of these relationships with clinically relevant outcomes apart. For example, researchers could examine whether self-compassion interventions decrease the relationship between self-coldness and distress. This would also shed light on the extent to which self-compassion could reduce distress through moderating this relationship.

To further understand the relationships in the current model, researchers could examine moderators of the relationships between self-compassion and self-compassion with clinically relevant outcomes. Further, researchers could examine the unique relationships of self-compassion and self-coldness as mediators between other constructs and clinically relevant outcomes. For example, researchers have found that self-compassion mediates the relationship between attachment and mental health (e.g., Wei et al., 2011, Raque-Bogdan, Ericson, Jackson, Martin, Bryan, 2011); however, these studies used the SCS as a one-factor measure of self-compassion.

Conclusion

The current research aimed to understand how self-compassion and self-coldness uniquely relate to distress and well-being. Results indicate that self-compassion may not predict distress over and above self-coldness; however, self-compassion may hold clinical relevance through its utility in buffering the relationship between self-coldness and distress. Both self-compassion and self-coldness predicted well-being, suggesting that self-compassion interventions and interventions reducing self-coldness may both improve healthy functioning. Thus, clinicians may want to tailor interventions to reduce self-coldness when intending to decrease depressive symptomology, whereas increasing self-compassionate, positive-health-promoting habits, as well as decreasing self-coldness may be appropriate when the goal is increasing well-being. Moreover, this research extends our theoretically understanding of how self-compassion and self-coldness may relate to clinically relevant outcomes. This underscores the importance of considering these constructs separately.

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APPENDICES

APPENDIX A

SELF-COMPASSION SCALE (SCS)

DIRECTIONS: Please read each statement carefully before answering. Indicate how often you behave in the stated manner, using the following scale: (1) Almost never (2) Slightly, (3) Somewhat, (4) Moderately, or (5) Almost always

	Almost never				Almost always
1. I'm disapproving and judgmental about my own flaws and inadequacies.	1	2	3	4	5
2. When I'm feeling down I tend to obsess and fixate on everything that's wrong.	1	2	3	4	5
3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.	1	2	3	4	5
4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.	1	2	3	4	5
5. I try to be loving towards myself when I'm feeling emotional pain.	1	2	3	4	5
6. When I fail at something important to me I become consumed by feelings of inadequacy.	1	2	3	4	5
7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.	1	2	3	4	5
8. When times are really difficult, I tend to be tough on myself.	1	2	3	4	5
9. When something upsets me I try to keep my emotions in balance.	1	2	3	4	5
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.	1	2	3	4	5
11. I'm intolerant and impatient	1	2	3	4	5

towards those aspects of my personality I don't like.					
12. When I'm going through a very hard time, I give myself the caring and tenderness I need.	1	2	3	4	5
13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.	1	2	3	4	5
14. When something painful happens I try to take a balanced view of the situation.	1	2	3	4	5
15. I try to see my failings as part of the human condition.	1	2	3	4	5
16. When I see aspects of myself that I don't like, I get down on myself.	1	2	3	4	5
17. When I fail at something important to me I try to keep things in perspective.	1	2	3	4	5
18. When I'm really struggling, I tend to feel like other people must be having an easier time of it.	1	2	3	4	5
19. I'm kind to myself when I'm experiencing suffering.	1	2	3	4	5
20. When something upsets me I get carried away with my feelings.	1	2	3	4	5
21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.	1	2	3	4	5
22. When I'm feeling down I try to approach my feelings with curiosity and openness.	1	2	3	4	5
23. I'm tolerant of my own flaws and inadequacies.	1	2	3	4	5
24. When something painful happens I tend to blow the incident out of proportion.	1	2	3	4	5
25. When I fail at something that's important to me, I tend to feel alone in my failure.	1	2	3	4	5
26. I try to be understanding and patient towards those aspects of my personality I don't like.	1	2	3	4	5

To score Self-Compassion: Average 13 items—3, 5, 7, 9, 10, 12, 14, 15, 17, 19, 22, 23, 26

To score Self-Coldness: Average 13 items —1, 2, 4, 6, 8, 11, 13, 16, 18, 20, 21, 24, 25, 26

APPENDIX B

K6 PSYCHOLOGICAL DISTRESS MEASURE

During the past 30 days, about how often did you feel...

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
...nervous?	0	1	2	3	4
...hopeless?	0	1	2	3	4
...restless or fidgety?	0	1	2	3	4
...so depressed that nothing could cheer you up?	0	1	2	3	4
...that everything was an effort	0	1	2	3	4
...worthless?	0	1	2	3	4

APPENDIX C

DEPRESSION, ANXIETY, AND STRESS SCALES (DASS-21)

Study 1 included the depression subscale items only. Study 2 includes the entire scale.

Please read each statement and select a number 0, 1, 2 or 3 that indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

	Did not apply to me at all	Applied to me to some degree, or some of the time	Applied to me very much, or most of the time	Applied to me very much, or most of the time
1. I found it hard to wind down	0	1	2	3
2. I was aware of dryness of my mouth	0	1	2	3
3. I couldn't seem to experience any positive feeling at all	0	1	2	3
4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5. I found it difficult to work up the initiative to do things	0	1	2	3
6. I tended to over-react to situations	0	1	2	3
7. I experienced trembling (e.g., in the hands)	0	1	2	3
8. I felt that I was using a lot of nervous energy	0	1	2	3
9. I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10. I felt that I had nothing to look forward to	0	1	2	3
11. I found myself getting agitated	0	1	2	3
12. I found it difficult to relax	0	1	2	3
13. I felt down-hearted and blue	0	1	2	3
14. I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15. I felt I was close to panic	0	1	2	3
16. I was unable to become enthusiastic about anything	0	1	2	3

17. I felt I wasn't worth much as a person	0	1	2	3
18. I felt that I was rather touchy	0	1	2	3
19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	0	1	2	3
20. I felt scared without any good reason	0	1	2	3
21. I felt that life was meaningless	0	1	2	3

Depression items—3, 5, 10, 13,16, 17, 21

Anxiety items—2, 4, 7, 9, 15, 19, 20

Stress items—1, 6, 8, 11, 12, 14, 18

APPENDIX D

POSITIVE AND NEGATIVE AFFECT SCALES (PANAS)

DIRECTIONS: This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer in the space next to that word. Indicate the extent to which you felt each emotion over the past week.

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
27. Interested	1	2	3	4	5
28. Distressed	1	2	3	4	5
29. Excited	1	2	3	4	5
30. Upset	1	2	3	4	5
31. Strong	1	2	3	4	5
32. Guilty	1	2	3	4	5
33. Scared	1	2	3	4	5
34. Hostile	1	2	3	4	5
35. Enthusiastic	1	2	3	4	5
36. Proud	1	2	3	4	5
37. Irritable	1	2	3	4	5
38. Alert	1	2	3	4	5
39. Ashamed	1	2	3	4	5
40. Inspired	1	2	3	4	5
41. Nervous	1	2	3	4	5
42. Determined	1	2	3	4	5
43. Attentive	1	2	3	4	5
44. Jittery	1	2	3	4	5
45. Active	1	2	3	4	5
46. Afraid	1	2	3	4	5

To score Positive Affect: Sum 10 items—1, 3, 5, 9, 10, 12, 14, 17, 19

To score Negative Affect: Sum 10 items—2, 4, 6, 7, 8, 11, 13, 15, 18, 20

APPENDIX E

SATISFACTION WITH LIFE SCALE (SWLS)

Below are five statements with which you may agree or disagree. Using the scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your response.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly Agree
1. In most ways, my life is close to my ideal.	1	2	3	4	5	6	7
2. The conditions of my life are excellent.	1	2	3	4	5	6	7
3. I am satisfied with my life.	1	2	3	4	5	6	7
4. So far, I have gotten the important things I want in life.	1	2	3	4	5	6	7
5. If I could live my life over, I would change almost nothing.	1	2	3	4	5	6	7

APPENDIX F

FLOURISHING SCALE (FS)

Directions: Below are eight statements with which you may agree or disagree. Using the 1–7 scale below, indicate your agreement with each item by indicating that response for each statement.

	Strongly Disagree	Disagree Somewhat	Disagree Slightly	Neither agree nor disagree	Agree Slightly	Agree Somewhat	Strongly Agree
1. I lead a purposeful and meaningful life	1	2	3	4	5	6	7
2. My social relationships are supportive and rewarding	1	2	3	4	5	6	7
3. I am engaged and interested in my daily activities	1	2	3	4	5	6	7
4. I actively contribute to the happiness and well-being of others	1	2	3	4	5	6	7
5. I am competent and capable in the activities that are important to me	1	2	3	4	5	6	7
6. I am a good person and live a good life	1	2	3	4	5	6	7
7. I am optimistic about my future	1	2	3	4	5	6	7
8. People respect me	1	2	3	4	5	6	7

APPENDIX G

DEMOGRAPHIC INFORMATION

1. Age ____
2. What is your gender identity?
 - Female
 - Female to male transgender
 - Male
 - Male to female transgender
 - Not sure
 - Other (please specify): _____
3. How would you describe your ethnicity/race?
 - White (not of Latino or Hispanic ethnicity)
 - Black/African American
 - Hispanic/Latino/a
 - Asian American, Asian or Pacific Islander
 - American Indian or Alaskan Native
 - Multi-racial
 - Other (please specify) _____
4. What is your sexual orientation identity?
 - Heterosexual
 - Lesbian
 - Gay
 - Bisexual
 - Questioning
 - Self-Identify (please specify): _____
5. In what country were you born? ____
- *6. Please indicate your highest level of education achieved:
 - Some high school
 - High school diploma
 - Technical and Further Education (TAFE)
 - Some college/University-undergraduate degree (Bachelor degree)
 - University-postgraduate degree (Masters or PhD)
 - Don't know

****6. Year in School:**

First

Second

Third

Fourth

Other (please specify):

**This item was included in Study 1 only*

***This item was included in Study 2 only*

APPENDIX H
IRB APPROVAL MEMO

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-1507
515.294.4566
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Date: 8/15/2016
To: Rachel Brenner
W112 Lagomarcino
CC: Dr. David Vogel
W112 Lagomarcino Hall
From: Office for Responsible Research
Title: Self-Compassion and Psychological Health
IRB ID: 16-308
Approval Date: 8/18/2016
Date for Continuing Review: 8/14/2018
Submission Type: New
Review Type: Expedited

The project referenced above has received approval from the Institutional Review Board (IRB) at Iowa State University according to the dates shown above. Please refer to the IRB ID number shown above in all correspondence regarding this study.

To ensure compliance with federal regulations (45 CFR 46 & 21 CFR 56), please be sure to:

- Use only the approved study materials in your research, including the recruitment materials and informed consent documents that have the IRB approval stamp.
- Retain signed informed consent documents for 3 years after the close of the study, when documented consent is required.
- Obtain IRB approval prior to implementing any changes to the study by submitting a Modification Form for Non-Exempt Research or Amendment for Personnel Changes form, as necessary.
- Immediately inform the IRB of (1) all serious and/or unexpected adverse experiences involving risks to subjects or others; and (2) any other unanticipated problems involving risks to subjects or others.
- Stop all research activity if IRB approval lapses, unless continuation is necessary to prevent harm to research participants. Research activity can resume once IRB approval is reestablished.
- Complete a new continuing review form at least three to four weeks prior to the date for continuing review as noted above to provide sufficient time for the IRB to review and approve continuation of the study. We will send a courtesy reminder as this date approaches.

Please be aware that IRB approval means that you have met the requirements of federal regulations and ISU policies governing human subjects research. Approval from other entities may also be needed. For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. IRB approval in no way implies or guarantees that permission from these other entities will be granted.

Upon completion of the project, please submit a Project Closure Form to the Office for Responsible Research, 202 Kingland, to officially close the project.

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or IRB@iastate.edu.