Self-compassion is best measured as a global construct and is overlapping with but distinct from neuroticism: A response to Pfattheicher, Geiger, Hartung, Weiss, and Schindler (2017)

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Abstract

Pfattheicher, Geiger, Hartung, Weiss, and Schindler (2017) recently published an article entitled "Old Wine in New Bottles? The Case of Self-compassion and Neuroticism" that argues the negative items of the Self-Compassion Scale (SCS), which represent reduced uncompassionate self-responding, are redundant with neuroticism (especially its depression and anxiety facets) and do not evidence incremental validity in predicting life-satisfaction. Using potentially problematic methods to examine the factor structure of the SCS (higher-order confirmatory factor analysis), they suggest a total self-compassion score should not be used and negative items should be dropped. In Study 1, we present a reanalysis of their data using what we argue are more theoretically appropriate methods (bifactor exploratory structural equation modeling) that support use of a global self-compassion factor (explaining 94% of item variance) over separate factors representing compassionate and reduced uncompassionate self-responding. While self-compassion evidenced a large correlation with neuroticism and depression and a small correlation with anxiety, it explained meaningful incremental validity in life-satisfaction compared to neuroticism, depression and anxiety. Findings were replicated in Study 2 which examined emotion regulation. Study 3 established the incremental validity of negative items with multiple wellbeing outcomes. We conclude that although self-compassion overlaps with neuroticism, the two constructs are distinct.

Keywords: bifactor exploratory structural equation modeling (bifactor-ESEM); Big Five; neuroticism; self-compassion; Self-Compassion Scale (SCS)

Self-compassion is best measured as a global construct and is overlapping with but distinct from neuroticism: A response to Pfattheicher, Geiger, Hartung, Weiss, and Schindler (2017)

Pfattheicher, Geiger, Hartung, Weiss, and Schindler (2017) recently published an article entitled "Old Wine in New Bottles? The Case of Self-compassion and Neuroticism." In this paper, the authors argue that the Self-Compassion Scale (SCS) commits the "jangle fallacy" because the negative SCS items are simply a measure of neuroticism under a new name. The jangle fallacy is a well-known fallacy of construct identity that can occur in psychological measurement when the same construct is assumed to be two different constructs merely because it is called by two different names (Kelley, 1924; Larsen & Bong, 2016). Based on the findings of a single study examining correlations between neuroticism and self-compassion and the incremental predictive validity of self-compassion compared to neuroticism in predicting life-satisfaction, they make a strong assertion: "we suggest excluding the negative items from the SCS, as these purely reflect neuroticism" (p. 166). While establishing the incremental predictive validity of self-compassion compared to neuroticism is an important and worthwhile goal, we would argue that this assertion is premature. Before coming to such an extreme conclusion, it is worth re-examining their data and their choice of analytic methods (which we do in Study One), and also examining the generalizability of their findings to other datasets with more varied outcomes (which we do in Studies Two and Three) to see if another interpretation is possible. Before presenting these data, however, a brief review of the SCS will be provided.

The Self-Compassion Scale (SCS)

Self-compassion represents a particular way of relating to oneself in times of suffering, whether the pain is caused by failure, perceived inadequacy, or general life difficulties. As defined by Neff (2003b), self-compassion represents the balance between increased compassionate and reduced uncompassionate responding to personal struggle: increased self-kindness and reduced self-judgment, increased feelings of common humanity and reduced isolation, and increased mindfulness and reduced over-identification. These components are thought to interact as a dynamic system to create a self-compassionate state of mind. Self-kindness entails being more supportive and understanding toward oneself and less harshly judgmental. It involves greater recognition of the shared human experience, understanding that all humans are imperfect and lead imperfect lives, and fewer feelings of being isolated by one's imperfection. It entails more mindful awareness of personal suffering, while ruminating less about negative aspects of oneself or one's life experience. The six components of self-compassion are conceptually distinct and represent the increased compassionate and reduced uncompassionate ways individuals relate to themselves along three basic dimensions: how they emotionally respond to pain or failure (with kindness and less harsh judgment), cognitively understand their predicament (as part of the human experience and less isolating), and pay attention to suffering (in a mindful and less over-identified manner). These elements are separable and are not thought to co-vary in a lockstep manner, but they do mutually impact one another (Neff, 2016a, 2016b).

Since the construct was introduced into the scientific literature a decade and a half ago (Neff, 2003b), research on self-compassion has grown at an exponential rate. The vast majority of research studies have utilized the Self-Compassion Scale (SCS; Neff, 2003a) to measure the construct of self-compassion and its link to wellbeing. The SCS is intended to be used as a total score to measure self-compassion, or else as six subscale scores to assess its constituent elements. Items representing uncompassionate behaviors toward the self are reverse-coded to indicate their absence. Neff (2016a, 2016b) argues that the trait of self-compassion entails the relative presence of compassionate and absence of uncompassionate self-responding in times of suffering, which is why the SCS measures and combines both.

Although Pfattheicher et al. claim that "research on self-compassion has neglected analyses of construct validity and incremental predictive validity" (p. 160), this assertion is overstated. While more research establishing the validity of any measure is welcome, there is a research literature which establishes the construct validity and incremental predictive validity of score interpretations on the SCS. For example, higher scores on the SCS have been associated with greater levels of happiness, optimism, life satisfaction, body appreciation, perceived competence, and motivation (Hollis-Walker & Colosimo, 2011; Neff, Hsieh & Dejitthirat, 2005; Neff, Pisitsungkagarn & Hsieh, 2008; Neff, Rude, & Kirkpatrick, 2007); lower levels of depression, anxiety, stress, rumination, self-criticism, perfectionism, body shame and fear of failure (Breines, Toole, Tu, & Chen, 2014; Finlay-Jones, Rees, & Kane, 2015; Neff, 2003a; Neff et al., 2005; Raes, 2010), and healthier physiological responses to stress (Breines et al., 2014; Friis, Johnson, Cutfield & Consedine, 2016). This same pattern of results has been obtained with experimental methods involving behavioral interventions or mood manipulations designed to increase self-compassion (Albertson, Neff, & Dill-Shackleford, 2015; Arch et al., 2014; Breines & Chen, 2012; Diedrich, Grant, Hofmann, Hiller, & Berking, 2014; Johnson & O'Brien, 2013; Leary, Tate, Adams, Allen & Hancock, 2007; Mosewich, Crocker, Kowalski & DeLongis, 2013; Neff & Germer, 2013; Odou & Brinker, 2014; Shapira & Mongrain, 2010; Smeets, Neff, Alberts & Peters, 2014), adding robustness to these findings.

The SCS demonstrates good discriminate validity and is not significantly associated with social desirability as measured by the Marlowe Crowne Social Desirability Scale (Strahan & Gerbasi, 1972), $r = .05$, $p = .34$ (Neff, 2003a). Self-compassion can be empirically differentiated from self-esteem and demonstrates incremental predictive validity with regard to the construct both in terms of self-report (Neff & Vonk, 2009) and experimental studies differentially priming each construct (Brienes & Chen, 2012; Leary et al., 2007). Self-compassion can also be differentiated from self-criticism. Although a key feature of self-compassion is the lack of self-judgment, overall SCS scores still negatively predict anxiety and depression when controlling for self-criticism and negative affect (Neff, 2003a; Neff, Kirkpatrick & Rude, 2007). Neff, Rude and Kirkpatrick (2007) found that the SCS predicted significant variance in positive wellbeing after controlling for all of the Big Five personality traits. And a recent longitudinal study (Stutts, Leary, Zeveney & Hufnagle, in press) found that scores on the SCS at baseline while controlling for neuroticism predicted lower depression, anxiety, and negative affect after six months and also moderated the effects of stress so that it was less strongly related to negative outcomes, providing incremental predictive validity for self-compassion compared to neuroticism over time. Thus, although the literature is still growing, research supports the construct and incremental predictive validity of score interpretations on the SCS.

Factor structure of the SCS

In her original scale publication paper, Neff (2003a) used confirmatory factor analysis (CFA) to examine the factor structure of the SCS, and found adequate fit for a six-factor correlated model and marginal fit for a higher-order model, justifying use of the SCS as a total score or else six subscale scores. Since then several other validation studies have been carried out on the SCS (for an overview, see Tóth-Király, Bőthe, & Orosz, 2017), but a limitation of these studies is that they did not explicitly take into account the construct-relevant multidimensionality of the SCS (Morin, Arens, Tran, & Caci, 2016a; Morin, Arens, & Marsh, 2016b). Construct-relevant multidimensionality pertains to the fact that items of a scale can have more than one source of true score variance which does not refer to random measurement error, but simply to the fact that items tap into more than one construct and thus have more than one source of dimensionality (see Appendix 1 of the supporting information for a discussion of this issue).

The first source of construct-relevant multidimensionality refers to the assessment of conceptually-related constructs. The central assumption of this source of dimensionality is that scale items are fallible indicators by nature and are rarely pure indicators of their respective subscales, suggesting in turn that they are expected to demonstrate at least some degree of association with non-target, but still conceptually similar constructs (e.g., self-kindness and reduced self-judgment). The vast majority of validation studies of the SCS have been conducted with CFA (Tóth-Király et al., 2017). In CFA, items are only allowed to load on their target factors. Exploratory Structural Equation Modeling (ESEM) is specifically designed to model system level interactions (Asparouhov & Muthén, 2009; Marsh, Morin, Parker, & Kaur, 2014; Morin, Marsh, & Nagengast, 2013) as it allows for cross-loadings of items. Unlike Exploratory Factor Analyses (EFA), in which no a priori hypotheses about models are advanced, ESEM with target rotation (Browne, 2001) can model a priori hypotheses and therefore be directly compared to CFA models (Marsh et al., 2014; Tóth-Király, Bőthe, Rigó, & Orosz, 2017). Previous findings with the SCS (Hupfield & Ruffieux, 2011; Tóth-Király et al., 2017) have already demonstrated the value of ESEM in examining self-compassion compared to CFA, as it provides a more realistic representation of the construct (see Figure 1 for an example of a CFA versus ESEM first-order model).

INSERT FIGURE 1 ABOUT HERE

The second source of construct-relevant dimensionality refers to the assessment of global and specific constructs which is of central importance to self-compassion. There has been controversy over whether or not self-compassion should be measured as an overall construct, or if "positive" and "negative" self-compassion should be measured separately. Note that we prefer to use the terms compassionate self-responding (CS) and reduced uncompassionate self-responding (RUS), as this more accurately reflects the meaning of the positively and negatively worded self-compassion items. Some researchers have claimed that use of a total score is not justified through higher-order factor analyses, and have instead found support for separate factors (Costa, Marôco, Pinto-Gouveia, Ferreira, & Castilho, 2016; López et al., 2015). Although Neff et al. (2003b) initially proposed a higher-order model for the SCS to represent a global construct, this solution has been shown to be problematic (Gignac, 2016; Morin, Arens, et al., 2016a) due to the extremely strict assumption that the relations between items and the higher-order factor is only mediated by the first-order factors, more appropriate for constructs such as IQ. As an alternative, a bifactor approach (Reise, 2012; Rodriguez, Reise, & Haviland, 2016) provides a way to model a general factor and specific factors simultaneously by disaggregating the total item covariance matrix into global and specific components.

Neff (2016a) has argued that the higher-order model originally used to examine the factor structure of the SCS is theoretically inappropriate, writing "future attempts to…examine the properties of the SCS in specific populations should not attempt to justify use of a total SCS score using a higher-order model. Instead, researchers should examine a bi-factor model" (p. 268). She proposes that a bifactor approach is more theoretically consistent with the idea that self-compassion operates as a system. Neff, Whittaker, and Karl (2017) examined the SCS using CFA in four samples, and found that while a one-factor, two-factor correlated and higher-order model had poor fit across samples, a six-factor correlated and bifactor model generally had acceptable fit, and that over 90% of the variance in item responses was explained by a general factor (see Figure 2 for an example of a higher-order versus bifactor CFA model).

INSERT FIGURE 2 ABOUT HERE

With an overarching bifactor-ESEM framework (Morin, Arens, et al., 2016a, 2016b), it is possible to explicitly and simultaneously consider the two sources of construct-relevant multidimensionality inherent in the SCS. Initial findings of Tóth-Király et al. (2017) in relation to self-compassion suggest that the bifactor-ESEM framework provides a better way to examine the fit of a total score on the SCS and to measure the system-level interactions of SCS items.

In the context of a large international collaboration, Neff et al. (2017) employed this approach to examine the factor structure of the SCS in 20 samples. Five models were examined using both CFA and ESEM: a one-factor, two-factor correlated, six-factor correlated, and bifactor models with one general factor representing a general self-compassionate response or two correlated general factors (a general CS factor and three specific factors representing self-kindness, common humanity and mindfulness and a general RUS factor and three specific factors representing reduced self-judgment, isolation and over-identification). See Figure 3 for an example of a single bifactor ESEM versus two-bifactor ESEM model.

INSERT FIGURE 3 ABOUT HERE

The study included 7 English samples and 13 non-English samples, comprised of 10 community, 6 student, 1 mixed community/student, 1 meditator, and 2 clinical samples (N = 11,685). Analyses found that the one-factor, two-factor, and single bifactor models using CFA had poor fit across samples. While a two-bifactor CFA model had adequate fit in some samples, model fit for about half of the samples could not be identified due to negative residual variances and other model identification issues. Results using ESEM were generally superior to those using CFA. The one- and two-factor ESEM solutions to the SCS generally had an inadequate fit across samples. However, the six-factor correlated and single bifactor ESEM models had good fit and factor loadings in every sample examined. ESEM factor loadings revealed cross-loadings for eight out of the 26 SCS items (found equally within and across the CS and RUS dimensions), suggesting the items operate as a system. The single bifactor model was also found to be superior to the correlated two-bifactor ESEM model, given that factor loadings suggested poor differentiation of a CS versus RUS factor. Moreover, Omega values for the bifactor model revealed that 95% of the reliable variance in item responding was attributed to the general factor. Findings were interpreted as supporting use of an SCS total score (representing self-compassion) or six subscale scores (representing constituent elements of self-compassion), but not two separate CS and RUS scores.

Study One

In their study, Pfattheicher et. al (2017) state they want to “contribute to the ongoing debate about the factor structure of the SCS” (p. 162) by conducting psychometric analyses on the scale. Using CFA, they found that two higher-order models each representing the three CS and three RUS subscales had better fit than a single higher-order model explaining all six subscales. Although they cite Neff (2016a), they did not address her arguments about the theoretical inconsistency of using higher-order models to examine the factor structure of the SCS or her explicit advice against using this approach, nor did they use any of the recommended approaches for examining the SCS, including bifactor (Neff, Whittaker & Karl, 2017), ESEM (Hupfield & Ruffieux, 2011), or bifactor-ESEM (Morin, Arens, et al., 2016a, 2016b; Tóth-Király, Bőthe, & Orosz 2017). We therefore re-analyzed the original data from Pfattheicher et al. (available through open access) using the same set of analyses as used in Neff et al. (2017) to examine the factor structure of the SCS using more theoretically consistent methods.

Pfattheicher et. al also compared self-compassion to neuroticism using the NEO PI-R (Costa & McCrea, 1992). They used CFA to model the latent higher-order factor of neuroticism, and reported large correlations (Cohen, 1988) between the latent RUS higher-order factor and latent first-order factors representing the neuroticism facets of anxiety (r = .85), depression (r = .90) and self-consciousness (r = .85), leading them to claim that the negative SCS items are redundant with neuroticism. (Note that contrary to coding instructions for the SCS (Neff, 2003a), Pfattheicher et al. did not reverse code the negative items, leading to a positive correlation between RUS and neuroticism.) However, many have argued that ESEM is a better way to model the facets of the Five Factor personality regardless of the instruments at hand including 15 items (Marsh, Nagengast, & Morin, 2013), 44 items (Chiorri, Marsh, Ubbiali, & Donati, 2016), 60 items (Marsh et al., 2010), 240 items (Furnham, Guenole, Levine, & Chamorro-Premuzic, 2013) or even a smaller proportion of the factors (Marsh, Lüdtke, Nagengast, Morin, & Von Davier, 2013). Therefore, we opted to explore the factor structure of the NEO PI-R with ESEM as well.

Another goal of Pfattheicher et al. was to examine the incremental predictive validity of scores on the SCS by testing “whether the predictive power of self-compassion regarding life satisfaction is actually due to individual differences in neuroticism” (p. 165). Pfattheicher et al. found that the amount of additional variance explained in life satisfaction by the CS and RUS components of self-compassion, though significant, was “negligible” after controlling for the neuroticism facets of depression and anxiety. However, they did not report beta weights for the predictors in the final model which could be important because the predictor entered first in a regression typically explains the lion’s share of variance in outcomes. Therefore, in order to determine incremental validity, it is important to compare the size of standardized betas in the final model to assess the relative predictive power of each construct. While framing their argument in terms of redundancy with neuroticism as a whole, moreover, they did not actually conduct analyses with a general neuroticism score, only two of its facets. The facet of depression in particular shares a lot of conceptual and empirical overlap with life-satisfaction (Schimmack, Oishi, Furr & Funder, 2004). In order to test Pfattheicher et al.'s broad claim that self-compassion is redundant with neuroticism, we felt it was important to establish discriminate validity with a total Neuroticism score. We therefore examined Pfattheicher et al.'s predictive model using a general Neuroticism factor as well as the facets of depression and anxiety.

Based on previous analyses (Neff et al., 2017; Tóth-Király et al., 2017), we expected that use of two separate CS and RUS scores would not be justified, so planned to establish incremental validity with neuroticism and its facets using a total self-compassion score. We also examined beta weights allowing for comparison of predictors. We hypothesized that when modeled using theoretically consistent approaches, self-compassion would evidence meaningful incremental validity with regard to neuroticism in general and the neuroticism facets of depression and anxiety in particular.

Method

Participants

Pfattheicher et al. (2017) included 576 participants in their study, (58.3% female, M_{age} = 37.21). Please see the original publication for a full description of recruitment methods.

Measures

Life satisfaction was measured using the 7-item Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985; Pons, Atienza, Balaguer, & García-Merita, 2000).

Neuroticism was measured with the NEO PI-R (Costa & McCrea, 1992). This 48-item scale measures six facets of neuroticism: anxiety (e.g., “I often feel tense and jittery”), hostility (e.g., “It takes a lot to get me mad”), depression (e.g., “Sometimes things look pretty bleak and hopeless to me”), self-consciousness (e.g., “I feel comfortable in the presence of my bosses or other authorities”), impulsiveness (e.g., “I have trouble resisting my cravings”) and vulnerability (e.g., “I can handle myself pretty well in a crisis”). Responses are given on a five-point scale from 1 = “strongly disagree” to 5 = “strongly agree.” Note that almost half of the neuroticism items represent positive behaviors that are reverse-coded to indicate their absence. To calculate a total neuroticism score, a grand mean of all six facets is taken.

Self-compassion was measured with the 26-item Self-Compassion Scale (Neff, 2003a), which assesses six different components of self-compassion: Self-Kindness (e.g., “I try to be understanding and patient toward aspects of my personality I don't like”), Self-Judgment (e.g., “I’m disapproving and judgmental about my own flaws and inadequacies”), Common Humanity (e.g., “I try to see my failings as part of the human condition”), 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”), Mindfulness (e.g., “When something painful happens I try to take a balanced view of the situation”), and Over-identification (e.g., “When I’m feeling down I tend to obsess and fixate on everything that’s wrong”). Responses are given on a 5-point scale ranging from 1 = “Almost Never” to 5 = “Almost Always.” Negative items are reverse coded to that higher scores indicate their absence. To calculate a total self-compassion score, a grand mean of all six subscales is taken. Note that alphas for all study variables are presented in Table S1 of the supporting information.

Statistical analyses

All analyses were performed with Mplus 8 (Muthén & Muthén, 1998-2017) and models were estimated with the weighted least squares mean- and variance-adjusted (WLSMV) estimator which demonstrated (Finney & DiStefano, 2006; Rhemtulla, Brosseau-Liard, & Savalei, 2012; Sass, Schmitt, & Marsh, 2014) to be more suitable, relative to maximum-likelihood-based estimation methods, to the ordered-categorical nature of Likert scales with five or less answer categories which in turn results in more accurate estimates.

To investigate the potential sources of construct-relevant multidimensionality of the SCS, five corresponding CFA and ESEM (a, b) models were tested and contrasted: (1a, 1b) a one-factor model with a single self-compassion dimension; (2a, 2b) a two-factor correlated model with one factor representing CS and the other RUS; (3a, 3b) a six-factor correlated model representing the six components of self-compassion; (4a, 4b) a bifactor model with a general self-compassion factor and six specific factors that were orthogonal to each other; and (5a, 5b) a two-bifactor model including two correlated general CS and RUS factors, each with three CS or RUS group factors which were orthogonal to one another and the general factors as well. Note that we did not examine a higher-order model because Neff et al. (2017) showed that a CFA bifactor model was clearly superior to a CFA higher-model for the SCS in four different samples. Due to the complexity of the two-bifactor ESEM model as well as computational limitations, on the basis of previous applications (Tóth-Király, Morin, Bőthe, Orosz, & Rigó, 2018), the two general factors were specified as correlated CFA factors (cross-loadings were not estimated between the two general factors), while the six specific factors were specified as ESEM factors (cross-loadings were freely estimated between the six specific factors, but targeted to be zero). We also examined the parameter estimates and theoretical conformity of the alternative models to determine which had the best fit, as suggested by Morin and colleagues (2016a, 2016b; see Appendix 2 of the supporting information for more details about the model specification, including issues of orthogonality and model evaluation).

As bifactor models allow the partitioning of the different sources of variance into global and specific factors, two indices were calculated using standardized estimates (Rodriguez et al., 2016): first, omega (ω) estimated the proportion of the variance in the total score that was attributed to all sources of the variance (global and specific factors as well); second, omega hierarchical (ω_H) estimated the proportion of variance in the total score that is attributable to the general factor only. Omega divided by omega hierarchical indicates the amount of reliable variance explained by the general factor. Note that Reise, Bonifay, and Haviland (2013) suggest 75% or higher accounted for by the general factor as the ideal amount of variance to justify use of a total score.

To examine the factor structure of the NEO PI-R, we compared CFA and ESEM solutions which were specified beforehand to estimate a general neuroticism higher-order factor based on the six first order factors (6a and 6b in Table 1). As the ESEM model was expected to have a better fit and representation of the data, the ESEM model was re-expressed using the ESEM-within-CFA (EwC) method (Morin et al., 2013) and a higher-order neuroticism factor was incorporated which is of relevance in the present investigation. This was needed because it is currently not possible to directly model a higher-order structure in the ESEM framework.

In assessing and comparing the alternative models, instead of relying on the sample-size-sensitive chi-square test (Marsh, Hau, & Grayson, 2005), typical goodness-of-fit indices were examined with their respective thresholds (Hu & Bentler, 1999; Marsh et al., 2005; Marsh, Hau, & Wen, 2004; Yu, 2002): the Comparative Fit Index (CFI; $\geq .95$ for good, $\geq .90$ for acceptable), the Tucker–Lewis index (TLI; $\geq .95$ for good, $\geq .90$ for acceptable), the Root-Mean-Square Error of Approximation (RMSEA; $\leq .06$ for good, $\leq .08$ for acceptable) with its 90% confidence interval and the weighted root-mean-square residual (WRMR; ≤ 1.00 for acceptable) with the latter being specifically developed for this estimation method. Due to the fact that the ESEM-based models estimate more parameters than the corresponding CFA ones, the parsimony-adjusted CFI (PCFI) was also calculated to consider the fit of the estimated models relative to their complexity (Arbuckle, 2012). PCFI values above .50 indicate a better fitting model (Kim & Kim, 2013; Meyers, Gamst, & Guarino, 2016). However, model interpretation should not only be based on these statistical indices, but on the inspection of parameters estimates as well as the underlying theoretical conformity (Morin et al., 2016a).

Finally, in the correlation analyses and the predictive models, we simultaneously included a bifactor model (self-compassion), a re-expressed ESEM higher-order model (neuroticism), and a standard CFA single factor model (life satisfaction). Given the complexity of the models, we opted to rely on latent factor scores instead of fully latent variables and, in the process, decrease the number of freely estimated parameters (Morin, Meyer, Creusier, & Biétry, 2016). While latent factor scores do not control for measurement error the way fully latent variables do, they still provide a partial control for measurement errors by allocating more weight to the items with lower error variances (Skrondal & Laake, 2001). Latent factor scores were obtained from each measurement model separately using the FSCORES command of Mplus (Muthén & Muthén, 1996-2015). Moreover, factor scores preserve the nature of the a priori measurement model better relative to manifest scale scores (Morin, Meyer et al., 2016) and this procedure has already been used in a diverse range of studies (e.g., Gillet, Morin, Cougot, & Gagné, 2017; Litalien et al., 2017; Maïano, Aimé, Lepage, ASPQ Team, & Morin, 2017).

Results and Discussion

Goodness-of-fit statistics for the SCS are reported in Table 1. The one- and two-factor

CFA and ESEM solutions clearly resulted in a poor fit (CFI and TLI < .90; RMSEA > .08; WRMR > 1.00). Although the six-factor CFA model showed acceptable fit to the data (except WRMR = 1.33), the corresponding ESEM solution showed superior fit (ΔCFI = +.02; ΔTLI = +.02; ΔRMSEA = -.02; ΔWRMR = -.77). Table 2 shows parameter estimates for the six-factor, bifactor, and two bi-factor models. The parameter estimates for the six-factor model showed well-defined factors by their target loadings in both solutions (CFA: |λ| = .67 to .92, *M* = .81; ESEM: |λ| = .16 to .99, *M* = .56), whereas factor correlations were also substantially reduced in ESEM (|r| = .21 to .67, *M* = .46) relative to CFA (|r| = .51 to .93, *M* = .74). Additionally, while cross-loadings were small in magnitude (|λ| = .00 to .51, *M* = .12), they also suggest the presence of an unmodeled G-factor (or G-factors depending on the model).

The bifactor-CFA model did not have acceptable fit on most indices (e.g., TLI = .89; RMSEA = .13; WRMR = 2.20), while the bifactor ESEM had superior fit (ΔCFI = +.08; ΔTLI = +.08; ΔRMSEA = -.06; ΔWRMR = -1.73). The two-bifactor CFA had adequate to good fit (except for WRMR = 1.29), but the two-bifactor ESEM model had superior fit (ΔCFI = +.03; ΔTLI = +.03; ΔRMSEA = -.03; ΔWRMR = -.86) relative to the two-bifactor CFA solution. Also, note that in our 20 sample international study about half of the samples could not identify a two-bifactor CFA model due to problems with model identification (see also problems with model identification in Study Two), suggesting this solution is not generalizable. Moreover, the correlation between the two general factors representing CS and RUS in the two-bifactor CFA was so high that it calls into question the discriminant validity of the factors (r = .78). This high correlation is reduced (r = .00, p = .98) in the two-bifactor ESEM model (5b), suggesting it is a superior model to the two-bifactor CFA model (5a). We next addressed whether the two-bifactor ESEM (Model 5b) could provide an improved representation over the ESEM model with one G-factor representing a global self-compassion factor (Model 4b). As both models had good fit with only negligible differences, the examination of parameter estimates (Table 2) could highlight substantial differences between the models. Indeed, in model 5b, the two general factors were weakly defined (CS: $|\lambda|$ = .16 to .67, *M* = .43; RUS: $|\lambda|$ = .00 to .31, *M* = .16). This poor definition is likely responsible for the fact that the two factors were not significantly correlated. Also, the systems-level interaction of items appeared to be expressed in the cross-loading of items, which occurred both within and across the CS and RUS dimensions, rather than being expressed as two inter-correlated factors. For instance, many of the self-kindness items loaded on the self-judgment factor and vice versa. This argues against two G-factors representing CS and RUS and instead supports the superiority of the bifactor-ESEM model with one G-factor representing a global self-compassion factor.

As seen in Table 2, parameter estimates for this solution (4b) showed a well-defined G-factor ($|\lambda|$ = .50 to .84, *M* = .71) representing a general self-compassionate response. Regarding the S-factors after extraction of the variance due to the G-factor, common humanity retained a relatively high degree of specificity ($|\lambda|$ = .40 to .68, *M* = .56), reduced isolation ($|\lambda|$ = .26 to .53, *M* = .41), mindfulness ($|\lambda|$ = .22 to .46, *M* = .36) and reduced over-identification ($|\lambda|$ = .20 to .53, *M* = .36) retained a moderate degree of specificity, while self-kindness ($|\lambda|$ = .11 to .39, *M* = .26) and reduced self-judgment ($|\lambda|$ = .05 to .34, *M* = .17) retain almost no meaningful specificity (see Appendix 3 of the supporting information for a discussion on the interpretation of specific factors). Finally, cross-loadings also substantially decreased in magnitude ($|\lambda|$ = .00 to .28, *M* = .09) relative to the six-factor ESEM model.

We then calculated the amount of reliable variance in the total score attributable to the general self-compassion factor in the bifactor-ESEM model. With an omega value of .98 and an omega hierarchical of .94, we found that the general self-compassion factor explained 94% of the variance in item responding, well over the 75% threshold recommended by Reise et al. (2013) to justify use of a total score. Overall, by taking into account the construct-relevant multidimensionality of the SCS, our findings strongly counter the suggestion that a total SCS score should *not* be used. Given that a single score explains almost all the item variance, moreover, it is more parsimonious to use a single score than two separate CS and RUS scores even though model fit for the CFA and ESEM two-bifactor model was adequate. Note that fit for our final selected model (4b) was superior to solution identified by Pfattheicher et al. as their final model (ΔCFI = +.06, RMSEA was the same, and TLI was not reported by Pfattheicher et al.).

In the next step, based on previous findings (e.g., Furnham et al., 2013; Marsh et al., 2013), we re-examined the Neuroticism factor of the NEO PI-R with the model fit indices being reported in Table 1. Comparing the CFA and ESEM models (6a vs. 6b) reveals that the ESEM model is substantially better relative to the CFA solution (ΔCFI = +.13; ΔTLI = +.13; ΔRMSEA = -.05, ΔWRMR = -.05). Importantly, this solution also makes it possible to include all theoretically relevant facets in a way that it still provides good model fit as opposed to the selection and removal of items to achieve acceptable fit with the overly restrictive CFA framework. As a general neuroticism factor was our major interest, we re-expressed the ESEM solution in a standard CFA framework where the EwC solution has the same model fit indices (Morin et al., 2013). Note that the higher-order solution with a superordinated neuroticism factor and six-first order factors still provided good fit to the data (χ^2 = 1841, df = 864; CFI = .97; TLI = .97; RMSEA = .04, WRMR = .85). For more details, see Appendix 4 and Table S2 of the supporting information.

We then examined the correlation of self-compassion and neuroticism including the total self-compassion score as well as six specific factors, and a total neuroticism score as well as scores for the six facets of anxiety, hostility, depression, self-consciousness, impulsiveness, and vulnerability, respectively (Costa & McCrea, 1992), using factor scores saved from the ESEM (i.e., neuroticism) and bifactor-ESEM (i.e., self-compassion) measurement models detailed above. Significance values were set to $p < .01$ to reduce the risk of type I error given the relatively large sample size. As seen in Table 3, the global self-compassion factor had a large correlation with the global neuroticism factor ($r = -.76$) and the facet of depression ($r = -.75$), slightly smaller with angry hostility ($r = -.67$), impulsivity ($r = -.58$), and vulnerability ($r = -.56$), while the correlation was small with the facet of self-consciousness ($r = -.14$) and non-significant with anxiety ($r = .07$). The three specific factors of the SCS representing RUS (which were modeled after the variance of the general factor was taken into account, see Appendix 3 of the supporting information) had only small to medium correlations with a general neuroticism factor as well as the six facets. However, the smaller size of these correlations could be due to the fact that variance was reduced after accounting for the general factor in the bifactor model.

We also estimated correlations between the six components of self-compassion and the six neuroticism facets using factors obtained from the ESEM six-factor correlated models (see Table 4). Again, correlations were not so consistently strong ($|r\text{'s}| = .04 - .77$) as to suggest that the three components of self-compassion representing RUS are redundant with the depression, anxiety, and self-consciousness facets. Note also that these were not as strong as those found by Pfattheicher et al. found using factors obtained with CFA higher-order models ($|r\text{'s}| = .85\text{-}.90$).

Although the correlated two-bifactor CFA model had poor model fit on some indices and was not shown to be generalizable across samples in past research (Neff et al., 2017), we nonetheless include tables in the supplementary materials with correlations between factors found with this model and neuroticism and its facets (see Table S3 of the supporting information). These correlations were in the expected direction and magnitude for all self-compassion factors. The correlation between the RUS factor and total neuroticism as well as the depression facet was $r = -.79$. We also include a table presenting the zero-order correlations between observed scores (see Table S1 of the supporting information). When examining these zero-order correlations, self-compassion and neuroticism had a correlation of $r = -.76$, suggesting the two constructs share about 58% of their variance using standard scoring procedures. Due to the large correlation found between a global self-compassion factor and a global neuroticism factor as well as the depression facet, however, it is important to establish incremental validity between the two constructs to determine if they are redundant or merely overlapping.

In order to test the incremental validity of self-compassion over neuroticism in predicting life satisfaction (Model S1a), we conducted regression analyses (based on factor scores rather than fully latent variables due to the complexity of the models) in which neuroticism was entered in step 1, and self-compassion was entered in step 2 (see Table 5). In step 1, neuroticism significantly predicted life satisfaction ($\beta = -.56$), explaining 31.8% of its variance. When adding self-compassion to the model in step 2, the explained variance of life satisfaction increased by an additional 3.0%, and the size of the regression coefficient for neuroticism predicting life satisfaction was reduced ($\beta = -.36$). Moreover, the amount of variance predicted by self-compassion ($\beta = .26$) was in roughly the same range, suggesting that self-compassion has incremental validity in predicting life satisfaction compared to neuroticism. In order to directly compare results to those of Pfattheicher et al., we also investigated the incremental validity of self-compassion over the anxiety and depression facets of neuroticism. In Model S1b, self-compassion explained significant additional variance over and above depression (1.5%), although depression was a stronger predictor (depression: β = -.47; self-compassion: β = .19). In Model S1c, while anxiety was a significant predictor of life-satisfaction, adding self-compassion into the model explained 28.2% more additional variance, and self-compassion explained almost all of the variance in life satisfaction relative to anxiety (anxiety: β = .10; self-compassion: β = .53)[1]. The finding that depression was a stronger predictor of life satisfaction is not surprising given the previously demonstrated overlap between these two constructs (Schimmack et al, 2004).

Because the two-bifactor CFA model was most similar to the model used by Pfattheicher et al., we also investigated the incremental validity of an RUS factor compared to neuroticism (see Table S4 of the supporting information). These results are highly similar to those of the bifactor-ESEM model with one global factor in that the RUS factor provides additional explained variance over neuroticism, depression and anxiety with 2.2%, 1.0% and 28.8%, respectively. This added variance is also visible in the magnitude of standardized betas as well.

Taken as a whole, our reanalysis calls into question Pfattheicher et al.'s suggestion to drop the negative items (i.e. RUS) from the SCS. Firstly, our results indicated that a bifactor-ESEM model had a better fit than a two-bifactor model once parameter estimates were taken into account, and the fact that 94% of the reliable variance in item responding is explained by a general self-compassion factor provides a strong reason to view self-compassion as a holistic construct. While results also indicated that self-compassion had a large correlation with

[1] The results related to anxiety would appear to be somewhat surprising, especially when compared to the general neuroticism factor and the depression facet. However, it should be noted that the anxiety items only weakly defined this factor (i.e., the highest target loading was .49). Consequently, these target items also loaded highly on the other, non-target factors, indicating that their content do not clearly describe the construct of anxiety, but the other related neuroticism facets as well. Indeed, these findings underscore the importance of relying on latent variable models which take into account the imprecision of the scale indicators and sophisticated methods which provide a more accurate depiction of the constructs at hand (Marsh & Hau, 2007).

neuroticism, it provided incremental validity compared to neuroticism, including the depression and anxiety facets, in predicting life satisfaction scores. Moreover, when examining the incremental validity of the RUS factor in particular (based on the two-bifactor CFA model), results suggest that these items also show incremental validity compared to neuroticism and its depression and anxiety facets in predicting life satisfaction. These findings cast doubt on the claim that the negative items are so redundant with neuroticism - the depression and anxiety facets in particular – that they should be dropped from the SCS. Still, findings suggest that it is important to further establish the incremental validity of self-compassion and neuroticism given the large correlations between the two constructs. We do so with two more studies, therefore, examining outcomes other than life satisfaction.

Study Two

One of the major conceptual differences between neuroticism and self-compassion is that the former is focused on the tendency to experience negative affect generally, whereas self-compassion represents how we relate to ourselves in times of suffering. For this reason, we felt it would be informative to examine the incremental predictive validity of self-compassion compared to neuroticism in terms of how people deal with difficult emotional situations, particularly their ability to regulate difficult emotions. We decided to use the Difficulties with Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), which conceptualizes healthy versus unhealthy emotion regulation as a set of behaviors that involve the awareness and acceptance of difficult emotion as well as the ability to flexibly modulate emotional reactions. We collected a Mechanical Turk sample similar to that collected by Pfattheicher and colleagues so that we could also see if our psychometric analyses of the SCS conducted in Study One would be replicated.

Method

Participants

Initially, a total of 801 participants filled out survey questionnaires on Mechanical Turk. Participants needed to meet specified criteria (18 years or older and a US citizen) and were paid $2.00 for completion of the study. The study was approved by the relevant Institutional Review Board. After providing consent, participants filled out a demographic questionnaire, the SCS, the neuroticism items from the NEO PI-R, and the DERS. Participants who missed more than one attention check, who took on average less than three seconds per question, and/or had excessive missing data were dropped from the final dataset. In total, 581 participants were retained (59% female) who were aged between 18 and 74 (M_{age} = 36.40; *SD* = 11.40). In terms of ethnicity, 72% percent identified as White, 11% as Black/African-American, 7% as Asian American, 6% as Latino/Hispanic, and 4% other. In terms of education, 38% percent reported that they had a bachelor's college degree, 12% had an associate's degree, 27% completed some college, 10% had a high school degree only and 13% had a professional degree.

Measures

Participants completed the SCS and the NEO PI-R, as in Study One. They also completed the DERS (Gratz & Roemer, 2004). This 41-item scale contains items assessing difficulties with awareness and understanding of emotions, the acceptance of emotions, the ability to engage in goal-directed behavior and refrain from impulsive behavior when experiencing negative emotions, and access to effective emotion regulation strategies. Responses are given on a 5-point scale ranging from almost never to almost always. Although the DERS is multidimensional, a total score can also be calculated. Note that alphas for all study variables are presented in Table S5 of the supporting information.

Results and Discussion

Psychometric analyses in Study Two replicated those of Study One, and are mainly presented in the supplementary materials. Examination of model fit indices (see Table S6 of the supporting information) support our previous conclusions in that the ESEM solutions (particularly 3b, 4b, and 5b) outperformed their CFA counterparts (3a, 4a, and 5a). Again, the central question relates to the comparison of the bifactor-ESEM model (4b) with the models including two general factors (5a and 5b). Standardized parameter estimates (see Table S7 of the supporting information) revealed a well-defined general self-compassion factor for Model 4b ($|\lambda| = .53$ to $.88$, $M = .73$), and the six specific factors also retained small to moderate amount of specificity. In the two-bifactor CFA model (5a), while model fit was adequate (except for WRMR = 1.31), the association between the CS and RUS factors was excessively high ($r = .85$, $p < .001$) and the model also had identification issues, suggesting that it might not be a satisfactory solution. On the other hand, while model fit was better and the correlation was reduced between the two global factors ($r = -.02$, $p = .935$) in the two-bifactor ESEM model (5b), the factors were once again weakly defined (CS: $|\lambda| = .28$ to $.56$, $M = .40$; RUS: $|\lambda| = .01$ to $.32$, $M = .13$), as apparent by the low standardized factor loadings interpreted by the guidelines of Comrey and Lee (2013). These results corroborate our previous findings in that self-compassion (as measured by the SCS) is better modeled with one global self-compassion factor and six specific factors. Moreover, when we calculated the amount of reliable variance in the total score attributable to the general self-compassion factor in the bifactor-ESEM model, we found an omega value of .98 and an omega hierarchical of .94. This means that the general self-compassion factor explained 98% of the variance in item responding.

In the following step, similar to Study One, we examined the associations between global and specific factors of self-compassion (using the bifactor-ESEM model 4b) and Neuroticism which was also modeled the same way as in the previous study. The correlations (see Table S8 of the supporting information) revealed that self-compassion had a strong negative correlation with the global neuroticism factor (r = -.82). Regarding the specific self-compassion factors, mostly mindfulness and over-identification had additional associations with the neuroticism facets. Zero-order correlations of observed scores, presented in Table S5 of the supporting information, revealed that self-compassion and neuroticism has a correlation of (r = -.84), sharing 69% of their variance.

Regression analyses were conducted with neuroticism entered in Step 1 and self-compassion entered in Step 2, to establish incremental validity with regard to difficulties in emotion regulation. The main findings of these analyses are reported in Table 6 of the main document. In Step 1, neuroticism was negatively related to difficulties in emotion regulation. When self-compassion was entered in Step 2, ΔR^2 indicated that self-compassion added significant variance to the outcome (3.7%). Moreover, when examining the standardized betas after self-compassion was entered into the model, self-compassion explained a significant amount (β = -.33) of variance in emotion regulation after accounting for neuroticism (β = .55). As in Study 1, we also examined models in which depression and anxiety were the predictors, instead of a general neuroticism factor, to establish incremental validity with these facets. For the models examining depression (Models S2b), self-compassion provided an additional 14.2% of explained variance and a large regression coefficient (β = -.62) compared to depression (β = .19) This was also the case when anxiety was entered in Step 1 (Model S2c) with an additional 28.9% of R^2 change and a large regression coefficient. (β = -.66) compared to anxiety (β = .19).

Finally, although a two-bifactor CFA model could not be identified and separate CS and RUS factors were not well-defined in the two-bifactor ESEM model, we nevertheless decided to investigate the incremental validity of a mean of the self-judgment, isolation, and over-identification subscales (reverse-coded) compared to neuroticism and its depression and anxiety facets using observed scores to insure that findings were not due to the positive items only (see Table S9 of the supporting information). In each case RUS explained significant additional variance in outcomes, suggesting that the negative items were not redundant with neuroticism or its depression and anxiety facets. Thus, self-compassion displayed clear incremental validity with regard to neuroticism in predicting difficulties in emotion regulation.

Study Three

Neff, Rude and Kirkpatrick (2007) examined the incremental validity of the SCS with personality and found self-compassion explained significant variance in positive psychological health – specifically reflective and affective wisdom, happiness, optimism, personal initiative, curiosity/exploration and positive affect - after controlling for the "Big Five" personality traits, measured with the NEO-FFI S (Costa & McCrae, 1992). They did not test for incremental validity with neuroticism in particular, however, so this study presents a reanalysis of their data which does so. Because of the relatively small sample size of Study 3 (N = 177), we did not have the power needed to reliably conduct factor analyses as we did in Studies 1 and 2 (Wolf, Harrington, Clark & Miller, 2013). Thus, analyses were conducted on observed neuroticism scores and self-compassion scores. In addition, we calculated the mean of the self-kindness, common humanity and mindfulness subscales representing CS and also calculated the mean of the self-judgment, isolation, and over-identification subscales (reverse-coded) representing RUS. Even though our analyses in Studies 1 and 2 found that it is preferable to use a total score over a separate CS and RUS score, we felt that examining the incremental validity of a CS and RUS score with neuroticism separately would help us to more directly assess the validity of

Pfattheicher et al.'s claims. If the negative items are in fact redundant with neuroticism, we would expect that only a total SCS score (Tot SC) or CS but not a RUS score would explain meaningful additional variance in outcomes after controlling for neuroticism, as suggested by Pfattcheicer et al.'s analyses using separate "positive" and "negative" factor scores. We did not expect to find this, however, and instead expected each model to explain unique variance in outcomes over and above neuroticism.

We included the outcomes of reflective and affective wisdom, happiness, optimism, personal initiative, curiosity, and positive affect from the Neff et al. (2007) study. (Note that we did not include cognitive wisdom, as this was not found to be significantly associated with self-compassion in that study). Moreover, we included three additional outcomes collected for but not presented in Neff et al. (2007) that we felt were of interest to a comparison with neuroticism: negative affect, self-esteem, and psychological wellbeing. Although we were not able to examine the facets of neuroticism as in the prior two studies because the NEO-FFI S was used, we believed that this brief measure of neuroticism would still provide useful information.

Method

Participants

The study included 177 undergraduate students (58 men; 119 women; M_{age} 20.19 years; SD = 2.26) who were randomly assigned from an educational-psychology subject pool at a large Southwestern university in the United States. The ethnic breakdown of the sample was 55.4% Caucasian, 25.4% Asian, 13.6% Hispanic, 4.5% Mixed Ethnicity, and 1.1% Other. For a full description of participant recruitment procedures, please see Neff et al. (2007).

Measures

Self-compassion was measured with the 26-item SCS (Neff, 2003a). Neuroticism was measured using the neuroticism subscale of the standard 60-item NEO Five-Factor Inventory, Form S (NEO-FFI S; Costa & McCrae, 1992). Wisdom was measured with the 39-item Three-Dimensional Wisdom Scale (Ardelt, 2003), but only findings with the 12-item reflective and 13-item affective wisdom subscales are reported here (cognitive wisdom was not significantly linked to self-compassion). Happiness was measured with the 4-item Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). Optimism was measured with the 6-item Life Orientation Test-Revised (Scheier, Carver, & Bridges, 1994). Curiosity was measured with the 4-item and Curiosity and Exploration Inventory (Kashdan, Rose, & Fincham, 2004). Personal initiative was measured with the 9-item Personal Growth Initiative Scale (Robitschek, 1998). Affect was measured with the 20-item Positive and Negative Affect Schedule (Watson, Clark & Tellegen, 1988). Self-esteem was measured with the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965). Psychological well-being was measured with the 54-item Psychological Well-being Scales (Ryff & Keyes, 1994). Note that alphas for all study variables are presented in Table S10 of the supporting information.

Results and Discussion

We first examined the association of neuroticism with Tot SC, a CS and RUS scores. As shown in Table S10 of the supporting information, significant correlations were found between neuroticism and Tot SC, (r = -.65) as well as with CS (r = -.49) and RUS (r = -.67). Correlations suggest that that these constructs shared less than half their variance using observed scores. We also conducted regression analyses to determine the incremental validity of Tot SC over neuroticism in predicting wellbeing (Model S3a), a second set of analyses examining the incremental validity of CS (Model S3b), and a third set of analyses examining the incremental validity of RUS (Model S3c). Results, which are presented in Table 7, suggest that whether a Tot

SC, a CS or RUS score was used, significant additional variance was explained in most of the outcomes examined. For reflective wisdom, happiness, optimism, self-esteem, and psychological wellbeing, each displayed incremental validity with neuroticism and standardized betas suggest that Tot SC, CS, and RUS predicted approximately the same amount of variance in outcomes as did neuroticism. For affective wisdom, RUS explained all the unique variance in outcomes once it was entered into the model, and neuroticism was no longer a significant predictor. For curiosity, only CS but not Tot SC or RUS explained additional variance in outcomes. For personal initiative, Tot SC and CS but not RUS explained additional variance. Findings with positive and negative affect were especially interesting given that neuroticism is in many ways a measure of habitual affect. It was found that both Tot SC and CS scores explained additional variance in positive affect after accounting for neuroticism, and that neuroticism was no longer a significant predictor once these were entered into the models. When examining negative affect, however, neither Tot SC nor CS explained additional variance over neuroticism, but RUS did, suggesting that uncompassionate responses to the self and neuroticism are not simply identical measures of negative affect. Overall, these results suggest that the positive and negative items of the SCS (representing CS and RUS) explain incremental variance compared to neuroticism.

General Discussion

Results from our reanalysis of Pfattheicher et al.'s data in Study One and the additional data presented in Studies Two and Three do not support the extreme suggestion of "excluding the negative items from the SCS, as these purely reflect neuroticism" (p. 166). Firstly, Studies One and Two demonstrated that a single self-compassion factor was found to have superior psychometric properties compared to separate CS and RUS factors using a more theoretically-consistent bifactor-ESEM approach (Morin, Arens, et al., 2016a, 2016b), as well as compared to the two higher-order CFA model proposed by Pfattheicher et al. One could argue that model fit will always be better with ESEM-based models, given that they are less restrictive compared to the classical CFA methods. While we agree that CFA-based models are more parsimonious and generally preferable, they are also overly restrictive in the case of complex multidimensional measures. In such situations when the restrictive assumptions of CFA are violated, Morin et al. (2016a) propose that CFA and ESEM models should be systematically contrasted to find the most suitable model. If the discrepancy is small between the two models (i.e., similar fit indices and parameter estimates), then the CFA model should be preferred as it is more parsimonious. However, the present findings reinforced the importance of relying on sophisticated statistical methods that take into account the different sources of construct-relevant psychometric multidimensionality stemming from the fallible nature of indicators.

In addition, a general score was found to explain 94% of the reliable variance in item responding in Study One and 98% in Study Two. These data suggest that items representing CS and RUS in the SCS are part of a single system-level global construct of self-compassion. Thus, one of Pfattheicher et al.'s main justifications for advocating that the negative items of the SCS be dropped – that they form a separate general factor from the positive items – was not borne out when more appropriate psychometric models were used. Moreover, the three specific factors of self-compassion representing RUS - reduced self-judgment, isolation and over-identification - had only small to moderate correlations with general neuroticism, depression and self-consciousness, and nonsignificant correlations with anxiety in our bifactor-ESEM model. When examining correlations of the ESEM model with six first-order factors with neuroticism, while correlations were stronger, they did not suggest that the negative items are redundant with neuroticism either.

It should be noted that we did find a large correlation of a general self-compassion factor with a general neuroticism factor and the depression facet in Study One (*r* = -.76 for both) as well as in Study Two (r = -.82 and -.80, respectively), confirming that the constructs are overlapping and share about two-thirds of their variance. Nonetheless, self-compassion evidenced incremental validity compared to neuroticism and its depression and anxiety facets in predicting life satisfaction in Study One and emotion regulation in Study Two. Moreover, when examining a RUS factor (using a CFA two-bifactor model) in Study One or a RUS mean (based on observed scores) in Study Two, incremental validity was still established. Finally, when examining the specific contribution of a Tot SC, CS or RUS mean compared to a neuroticism mean (based on observed scores) for outcomes such as positive and negative affect, self-esteem, psychological wellbeing, optimism, happiness, personal initiative and reflective and affective wisdom in Study Three, all three clearly demonstrated incremental validity. These findings of incremental validity are in line with the recent longitudinal study by Stutts et al. (in press) showing that self-compassion predicts well-being over time while controlling for neuroticism.

Although the large correlations found between neuroticism and self-compassion may raise concerns, strong correlations between constructs do not necessarily mean they are measuring exactly the same thing, especially if incremental validity is established. Thus, while self-compassion and neuroticism clearly overlap, the evidence presented here suggests that neither self-compassion as a whole nor the items representing RUS are identical or fully redundant with neuroticism or its facets, countering the claim that the negative items of the SCS should be dropped.

When examining the content of the negative SCS items and the neuroticism items of the NEO PI-R, there are differences which help explain why they are not redundant. The SCS measures reduced uncompassionate ways of relating to oneself in times of suffering along three basic dimensions - emotional responding, e.g. “When times are really difficult, I tend to be tough on myself;” cognitive understanding, e.g. “When I’m feeling down, I tend to feel like most other people are probably happier than I am;” and paying attention to suffering “When something painful happens I tend to blow the incident out of proportion.” These items are reverse coded to indicate their relative absence. Neuroticism items, in contrast, are designed to measure habitual negative mood-states in general without reference to how individuals respond to instances of suffering in particular, and are not structured along the dimensions of emotional responding, cognitive understanding or paying attention to that suffering. Rather, they tap into six dimensions of positive or negative affect (with positive items reverse-coded to indicate their absence): anxiety, e.g. “I often feel tense and jittery;” hostility, e.g. “It takes a lot to get me mad;” depression, e.g. “Sometimes things look pretty bleak and hopeless to me;” self-consciousness “I feel comfortable in the presence of my bosses or other authorities.;” impulsiveness “I have trouble resisting my cravings;” and vulnerability “I can handle myself pretty well in a crisis.” Thus, while the items of the SCS and neuroticism both tap into self-related affect, the items are distinct.

There is another important reason to retain the negative items of the SCS: they are crucial for measuring what changes when individuals learn to be more self-compassionate. A large and an ever-growing body of research indicates that self-compassion training increases compassionate and reduces uncompassionate behavior toward the self. The vast majority of intervention studies examining change in self-compassion have documented a simultaneous increase in self-kindness, common humanity and decrease in self-judgment, isolation and over-identification subscale scores. For instance, after eight weeks of Mindful Self-Compassion training (Neff & Germer, 2013) participants reported a 30% increase in compassionate self-responding and a 33% percent decrease in uncompassionate self-responding (Neff, 2016). This pattern has been observed for a wide variety of methodologies such as self-compassion meditation training (Albertson et al., 2015; Toole & Craighead, 2016; Wallmark, Safarzadeh, Daukantaitė, & Maddux, 2013); online psycho-education (Finlay-Jones Kane & Rees, 2017[2]; Krieger, Martig, van den Brink, & Berger, 2016); Affect Training (Hildebrandt, McCall, & Singer, 2017); Imaginal Exposure Therapy (Hoffart, Øktedalen, & Langkaas, 2015); Self-Compassion Field Training (Khorami, Moeini, & Ghamarani, 2016); Compassion-Based Kg-Free weight reduction training (Pinto-Gouveia et al., 2016); Compassion Focused Therapy (Beaumont, Irons, Rayner, & Dagnall, 2016; Kelly & Carter, 2015); Compassionate Mind Training (Arimitsu, 2016; Beaumont, Rayner, Durkin & Bowling, 2017) and Mindful Self-Compassion (Finlay-Jones, Xie, Huang, Ma, & Guo, in press; Friis et al., 2016[2]; Neff, 2016a). Mindfulness-based interventions also yield a simultaneous increase in compassionate and decrease in uncompassionate SCS subscale scores: e.g., Mindfulness-Based Stress Reduction (Birnie, Speca, & Carlson, 2010; Raab, Sogge, Parker, & Flament, 2015); Mindfulness-Based Cognitive Therapy (Kuyken et al., 2010[2]); and Koru (Greeson, Juberg, Maytan, James, & Rogers, 2014). In most of these studies, the size of change in compassionate and uncompassionate self-responding was equivalent.

If reduced levels of self-judgment, isolation and over-identification were not an intrinsic part of self-compassion, why would teaching people to be more self-compassionate so consistently yield simultaneous changes in CS and RUS? In fact, one could argue that the negative items *must* be included in the SCS in order to fully capture how self-responding

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[2] Results obtained by personal communication with the lead author.

changes as a result of self-compassion training. These findings also highlight why there is so much excitement about the construct of self-compassion in the field of psychology: It is a skill that can be learned, and it is a skill that lasts. Neff and Germer (2013) found that after completing the Mindful Self-Compassion program, self-compassion gains were maintained by participants for at least a year.

In order for Pfattheicher et al. to support their claim that the SCS commits the "jangle fallacy" and its negative items are simply a measure of neuroticism under a new name, they would need to demonstrate that after relatively brief self-compassion interventions neuroticism scores change to the same degree as the negative items of the SCS (or rather a total SCS score, since our psychometric evidence counters the idea that there are separate CS and RUS factors). While it is likely that neuroticism would lessen after self-compassion training given that neuroticism has been shown to be changeable (Ormel et al., 2013), it is not clear that it would do so to the same extent as self-compassionate behaviors, which are the explicit target of such interventions.

Of course, it is likely that neuroticism and self-compassion interact, so that more neurotic individuals are less likely to treat themselves compassionately. Similarly, it is likely that individuals who are more self-compassionate are less likely to experience the negative mood-states associated with neuroticism. However, learning the skill of self-compassion may help neurotic individuals change the balance of compassionate versus uncompassionate self-responding when faced with difficult thoughts and emotions, so that their neurotic tendencies are lessened. An interesting and potentially productive line of future research would involve determining how the two interact, whether individuals high in neuroticism respond to self-compassion training differently than those low in the trait, and whether self-compassion is actually a useful way to lessen the vulnerability to psychopathology associated with this personality type (Ormel, Rosmalen & Farmer, 2004).

In their conclusion, Pfattheicher et al. acknowledge that “we do not question the meaningfulness of self-compassion per se. In fact, research on self-compassion can inform us how to adaptively deal with painful experiences. The strength of self-compassion is that it reflects a differentiated construct emphasizing different strategies for dealing with negative emotions and experiences (i.e., being self-kind, believing in common humanity and engaging in mindfulness and being less judgmental, feeling less isolated and over-identifying less with difficult emotions). In contrast, neuroticism encompasses individual differences in emotional reactivity to environmental stimuli and in the perception, reaction to or coping with them, but the definition of neuroticism does not include explicit coping strategies. These considerations speak to the possibility that neuroticism and self-compassion largely overlap on a personality level in that neuroticism can substitute for the trait self-compassion, especially the negative factor. Yet on a strategic level (i.e. how individuals deal exactly with negative events), self-compassion is more specific than neuroticism” (p. 167).

We agree that an important difference between neuroticism and self-compassion is that the former represents habitual mood-states and negative reactivity, while the latter represents the habitual use of more adaptive coping strategies for dealing with distress. We do not agree, however, that neuroticism can substitute for trait self-compassion on a personality or measurement level. It is unclear exactly what the implications of this view are. Would it suggest that researchers interested in how compassionately people respond to themselves in instances of suffering at the trait level should use a neuroticism measure instead of the SCS? The SCS directly assesses increased compassionate and decreased uncompassionate behavior in response to suffering that measures of neuroticism do not. This difference presumably accounts for the incremental validity of self-compassion compared to neuroticism demonstrated in the three studies reported here. The fact that neuroticism does not refer to the way that individuals relate to themselves in times of distress, but rather refers to negative mood states that are more reflective of psychopathology itself, means that it is distinct from self-compassion by definition. The two constructs are overlapping, but distinct.

Given that the SCS measures a set of behaviors that directly map on to what changes in self-compassion interventions, whereas neuroticism may be a better proxy for the lessened negative mood states that are the *outcomes* of such interventions, there is not a strong reason to substitute neuroticism for self-compassion as a trait. To do so would result in far less precision in identifying the behaviors displayed by individuals high in trait self-compassionate or that change after self-compassion training, and would run the risk of conflating outcomes with mechanisms of action. Far from being old wine in a new bottle, we would argue that self-compassion represents an adaptive strategy for relating to distressing experiences that can be learned, offering a new framework for understanding how to cope with personal suffering in a way that pre-existing models of neuroticism do not typically address.

References

Albertson, E.R., Neff, K.D., & Dill-Shackleford, K.E. (2015). Self-compassion and body dissatisfaction in women: A randomized controlled trial of a brief meditation intervention. *Mindfulness*, *6*, 444-454.

Arbuckle, J. L. (2010). *IBM SPSS Amos 19 user's guide*. Crawfordville, FL: Amos Development Corporation.

Arimitsu, K. (2016). The effects of a program to enhance self-compassion in Japanese individuals: A randomized controlled pilot study. *The Journal of Positive Psychology*, *11*, 559-571.

Arch, J. J., Brown, K. W., Dean, D. J., Landy, L. N., Brown, K. D., & Laudenslager, M. L. (2014). Self-compassion training modulates alpha-amylase, heart rate variability, and subjective responses to social evaluative threat in women. *Psychoneuroendocrinology*, *42*, 49-58.

Ardelt, M. (2003). Empirical assessment of a three-dimensional wisdom scale. *Research on aging*, *25*, 275-324.

Asparouhov, T., & Muthén, B. (2009). Exploratory structural equation modeling. *Structural Equation Modeling, 16,* 397-438.

Baer, R.A., Smith, G.T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, *13*, 27-45.

Barnard, L.K., & Curry, J.F. (2011). Self-compassion: Conceptualizations, correlates, & interventions. *Review of general psychology*, *15*, 289-303.

Beaumont, E., Irons, C., Rayner, G., & Dagnall, N. (2016). Does Compassion-Focused Therapy Training for Health Care Educators and Providers Increase Self-Compassion and Reduce Self-Persecution and Self-Criticism?. *Journal of Continuing Education in the Health Professions*, *36*, 4-10.

Beaumont, E. A., Rayner, G., Durkin, M. & Bowling, G. (2017) The effects of compassionate mind training on student psychotherapists. *The Journal of Mental Health Training, Education and Practice, 12*, 300-312.

Birnie, K., Speca, M., & Carlson, L.E. (2010). Exploring self-compassion and empathy in the context of mindfulness-based stress reduction (MBSR). *Stress and Health*, *26*, 359-371.

Breines, J.G., & Chen, S. (2012). Self-compassion increases self-improvement motivation. *Personality and Social Psychology Bulletin*, *38*(9), 1133-1143.

Breines, J.G., Thoma, M. V., Gianferante, D., Hanlin, L., Chen, X., & Rohleder, N. (2014). Self-compassion as a predictor of interleukin-6 response to acute psychosocial stress. *Brain, Behavior, and Immunity*, *37*, 109-114.

Breines, J., Toole, A., Tu, C., & Chen, S. (2014). Self-compassion, body image, and self-reported disordered eating. *Self and Identity*, *13*(4), 432-448.

Browne, M. (2001). An overview of analytic rotation in exploratory factor analysis. *Multivariate Behavioral Research, 36*, 111-150.

Chiorri, C., Marsh, H.W., Ubbiali, A., & Donati, D. (2016). Testing the factor structure and measurement invariance across gender of the big five Inventory through exploratory structural equation modeling. *Journal of Personality Assessment*, *98*, 88-99.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. London: Routledge.

Comrey, A. L., & Lee, H. B. (2013). *A First Course in Factor Analysis.* New York, NY: Psychology Press.

Costa, J., Marôco, J., Pinto-Gouveia, J., Ferreira, C., & Castilho, P. (2016). Validation of the psychometric properties of the self-compassion scale. Testing the factorial validity and factorial invariance of the measure among borderline personality disorder, anxiety disorder, eating disorder and general populations. *Clinical psychology & psychotherapy*, *23*, 460-468.

Costa, P.T.Jr., & McCrae, R.R. (1992). *NEO-PI-R professional manual*. Odessa, FL: Psychological Assessment Resources.

Deci, E.L., & Ryan, R.M. (2008). Hedonia, eudaimonia, and well-being: An introduction. *Journal of happiness studies*, *9*, 1-11.

Diedrich, A., Grant, M., Hofmann, S. G., Hiller, W., & Berking, M. (2014). Self-compassion as an emotion regulation strategy in major depressive disorder. *Behaviour Research and Therapy*, *58*, 43-51.

Diener, E.D., Emmons, R.A., Larsen, R.J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*, 71-75.

Eaton, N.R., Krueger, R.F., & Oltmanns, T.F. (2011). Aging and the structure and long-term stability of the internalizing spectrum of personality and psychopathology. *Psychology and Aging*, *26*, 987-993.

Finlay-Jones, A., Kane, R., & Rees, C. (2017). Self-Compassion Online: A Pilot Study of an Internet-Based Self-Compassion Cultivation Program for Psychology Trainees. *Journal of clinical psychology*, *73*, 797-816.

Finlay-Jones, A.L., Rees, C.S., & Kane, R.T. (2015). Self-compassion, emotion regulation and stress among Australian psychologists: Testing an emotion regulation model of self-compassion using structural equation modeling. *PLoS ONE*, *10*(7).

Finney, S.J.., & DiStefano, C. (2006). Non-normal and categorical data in structural equation modeling. In G.R. Hancock & R.D. Mueller (Eds.), *Structural equation modeling: a second course* (pp. 269–314). Charlotte: Information Age Publishing.

Friis, A.M., Johnson, M.H., Cutfield, R.G., & Consedine, N.S. (2016). Kindness matters: a randomized controlled trial of a mindful self-compassion intervention improves depression, distress, and HbA1c among patients with diabetes. *Diabetes care, 39*, 1963-1971.

Furnham, A., Guenole, N., Levine, S.Z., & Chamorro-Premuzic, T. (2013). The NEO Personality Inventory–Revised: Factor structure and gender invariance from exploratory structural equation modeling analyses in a high-stakes setting. *Assessment*, *20*, 14-23.

Gignac, G.E. (2016). The higher-order model imposes a proportionality constraint: That is why the bifactor model tends to fit better. *Intelligence, 55*, 57–68.

Gillet, N., Morin, A.J.S., Cougot, B., & Gagné, M. (2017). Workaholism profiles: Associations with determinants, correlates, and outcomes. *Journal of Occupational and Organizational Psychology*. Early view doi: 10.1111/joop.12185

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of psychopathology and behavioral assessment*, *26*(1), 41-54.

Greeson, J.M., Juberg, M.K., Maytan, M., James, K., & Rogers, H. (2014). A randomized controlled trial of Koru: a mindfulness program for college students and other emerging adults. *Journal of American College Health*, *62*, 222-233.

Hildebrandt, L.K., McCall, C., & Singer, T. (2017). Differential Effects of Attention-, Compassion-, and Socio-Cognitively Based Mental Practices on Self-Reports of Mindfulness and Compassion. *Mindfulness*, 1-25. Early view doi: 10.1007/s12671-017-0716-z

Hoffart, A., Øktedalen, T., & Langkaas, T.F. (2015). Self-compassion influences PTSD symptoms in the process of change in trauma-focused cognitive-behavioral therapies: a study of within-person processes. *Frontiers in psychology*, *6:*1273.

Hollis-Walker, L., & Colosimo, K. (2011). Mindfulness, self-compassion, and happiness in non-meditators: A theoretical and empirical examination. *Personality and Individual Differences*, *50*, 222-227.

Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55.

Hupfeld, J., & Ruffieux, N. (2011). Validierung einer deutschen version der self-compassion scale (SCS-D) [validation of a German version of the self-compassion scale (SCS-D)]. *Zeitschrift für Klinische Psychologie und Psychotherapie, 40*, 115–123.

Johnson, E.A., & O'Brien, K.A. (2013). Self-compassion soothes the savage ego-threat system: Effects on negative affect, shame, rumination, and depressive symptoms. *Journal of Social and Clinical Psychology*, *32*(9), 939-963.

Kelley, T. L. (1927). *Interpretation of Educational Measurements*. Oxford, UK: World Book Co.

Kelly, A.C., & Carter, J.C. (2015). Self-compassion training for binge eating disorder: A pilot randomized controlled trial. *Psychology and psychotherapy: Theory, research and practice*, *88*, 285-303.

Khorami, E.S., Moeini, M., & Ghamarani, A. (2016). The Effectiveness of Self-Compassion Training: a field Trial. *Global Journal of Medicine Researches and Studies*, *3*, 15-20.

Kim, T., & Kim, H. (2013). Analysis of the effects of intra-urban spatial structures on carbon footprint of residents in Seoul, Korea. *Habitat International*, *38*, 192-198.

Krieger, T., Berger, T., & grosse Holtforth, M. (2016). The relationship of self-compassion and depression: Cross-lagged panel analyses in depressed patients after outpatient therapy.

Journal of affective disorders, *202*, 39-45.

Krieger, T., Martig, D.S., van den Brink, E., & Berger, T. (2016). Working on self-compassion online: A proof of concept and feasibility study. *Internet Interventions*, *6*, 64-70.

Kuyken, W., Watkins, E., Holden, E., White, K., Taylor, R. S., Byford, S., ... & Dalgleish, T. (2010). How does mindfulness-based cognitive therapy work?. *Behaviour research and therapy*, *48*, 1105-1112.

Larsen, K. R., & Bong, C. H. (2016). A Tool for Addressing Construct Identity in Literature Reviews and Meta-Analyses. *MIS Quarterly*, *40*(3), 529-551.

Leary, M.R., Tate, E.B., Adams, C.E., Allen, A.B., & Hancock, J. (2007). Self-compassion and reactions to unpleasant self-relevant events: The implications of treating oneself kindly. *Journal of Personality and Social Psychology, 92,* 887-904.

Litalien, D., Morin, A.J.S., Gagné, M., Vallerand, R.J., Losier, G.F., & Ryan, R.M. (2017). Evidence of a continuum structure of academic self-determination: A two-study test using a bifactor-ESEM representation of academic motivation. *Contemporary Educational Psychology, 51*, 67-82.

López, A., Sanderman, R., Smink, A., Zhang, Y., van Sonderen, E., Ranchor, A., et al. (2015). A reconsideration of the self-compassion scale's total score: self-compassion versus self-criticism. *PloS One,10*(7).

Lyubomirsky, S., & Lepper, H.S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social indicators research*, *46*, 137-155.

Maïano, C., Aimé, A., Lepage, G., Morin, A.J.S., & ASPQ Team. (2017). Psychometric properties of the Weight Self-Stigma Questionnaire (WSSQ) among a sample of overweight/obese French-speaking adolescents. *Eating and Weight fDisorders-Studies on*

Anorexia, Bulimia and Obesity, 1-9. Early view doi: 10.1007/s40519-017-0382-0

Marsh, H. W., & Hau, K. T. (2007). Applications of latent-variable models in educational psychology: The need for methodological-substantive synergies. *Contemporary Educational Psychology, 32*, 151–170.

Marsh, H.W., Hau, K.-T., & Grayson, D. (2005). Goodness of Fit in Structural Equation Models. In A. Maydeu-Olivares & J. J. McArdle (Eds.), *Multivariate applications book series. Contemporary psychometrics: A festschrift for Roderick P. McDonald* (pp. 275-340). Mahwah, NJ: Lawrence Erlbaum Associates.

Marsh, H.W., Hau, K.-T., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings. *Structural Equation Modeling*, *11*, 320-341.

Marsh, H.W., Lüdtke, O., Muthén, B., Asparouhov, T., Morin, A.J.S., Trautwein, U., & Nagengast, B. (2010). A new look at the big five factor structure through exploratory structural equation modeling. *Psychological Assessment*, *22*, 471-491.

Marsh, H.W., Lüdtke, O., Nagengast, B., Morin, A.J.S., & Von Davier, M. (2013). Why item parcels are (almost) never appropriate: Two wrongs do not make a right—Camouflaging misspecification with item parcels in CFA models. *Psychological methods*, *18*, 257-284.

Marsh, H.W., Morin, A.J.S., Parker, P., & Kaur, G. (2014). Exploratory structural equation modeling: An integration of the best features of exploratory and confirmatory factor analysis. *Annual Review of Clinical Psychology, 10*, 85-110.

Marsh, H.W., Nagengast, B., & Morin, A.J.S. (2013). Measurement invariance of big-five factors over the life span: ESEM tests of gender, age, plasticity, maturity, and la dolce vita effects. *Developmental psychology*, *49*, 1194-1218.

Meyers, L. S., Gamst, G., & Guarino, A. J. (2016). *Applied multivariate research: Design and interpretation*. Sage publications.

Morin, A.J.S., Arens, A., & Marsh, H. (2016a). A bifactor exploratory structural equation modeling framework for the identification of distinct sources of construct-relevant psychometric multidimensionality. *Structural Equation Modeling*, *23*, 116-139.

Morin, A.J.S., Arens, K., Tran, A., & Caci, H. (2016b). Exploring sources of construct-relevant multidimensionality in psychiatric measurement: A tutorial and illustration using the Composite Scale of Morningness. *International Journal of Methods in Psychiatric Research*, *25*, 277-288.

Morin, A.J.S., Marsh, H.W., & Nagengast, B. (2013). Exploratory structural equation modeling. In G.R. Hancock & R.O. Mueller (Eds.), *Structural equation modeling: a second course* (pp. 395–436). Charlotte: Information Age.

Morin, A.J.S., Meyer, J.P., Creusier, J., & Biétry, F. (2016). Multiple-group analysis of similarity in latent profile solutions. *Organizational Research Methods*, *19*, 231-254.

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

Muthén, L.K., & Muthén, B.O. (1998-2017). *Mplus user's guide (8th ed.)*. Los Angeles: Muthén & Muthén.

Neff, K.D. (2003a). The development and validation of a scale to measure self-compassion. *Self and Identity, 2*, 223–250.

Neff, K.D. (2003b). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and identity*, *2*, 85-101.

Neff, K.D. (2016a). The self-compassion scale is a valid and theoretically coherent measure of self-compassion. *Mindfulness, 7*, 264-274.

Neff, K.D. (2016b). Does self-compassion entail reduced self-judgment, isolation, and over-identification? A response to Muris, Otgaar, and Petrocchi (2016). *Mindfulness, 7*, 791–797.

Neff, K. D., Hseih, Y., & Dejitthirat, K. (2005). Self-compassion, achievement goals, and coping with academic failure. *Self and Identity, 4,* 263-287.

Neff, K. D. & Germer, C. (2017). Self-Compassion and Psychological Wellbeing. In J. Doty (Ed.) *Oxford Handbook of Compassion Science*. Oxford University Press.

Neff, K. D., & Germer, C. K. (2013). A pilot study and randomized controlled trial of the mindful self-compassion program. *Journal of Clinical Psychology, 69(1)*, 28-44.

Neff, K.D., Kirkpatrick, K.L., & Rude, S.S. (2007). Self-compassion and adaptive psychological functioning. *Journal of research in personality*, *41*, 139-154.

Neff, K. D., Pisitsungkagarn, K., & Hseih, Y. (2008). Self-compassion and self-construal in the United States, Thailand, and Taiwan. *Journal of Cross-Cultural Psychology, 39,* 267-285.

Neff, K. D., & Rude, S. S., & Kirkpatrick, K. (2007). An examination of self-compassion in relation to positive psychological functioning and personality traits. *Journal of Research in Personality, 41,* 908-916.

Neff, K. D., Tóth-Király, I., Yarnell, L. M., Arimitsu, K., Castilho, P. Ghorbani, N., . . . Mantzios, M. (2017). *Examining the factor structure of the Self-Compassion Scale in 20 samples with bifactor ESEM: Support for use of a total score but not separate positive and negative scores.* Manuscript submitted for publication.

Neff, K.D., & Vonk, R. (2009). Self-compassion versus global self-esteem: Two different ways of relating to oneself. *Journal of Personality*, *77*, 23-50.

Neff, K.D., Whittaker, T.A., & Karl, A. (2017). Examining the factor structure of the Self-Compassion Scale in four distinct populations: Is the use of a total scale score justified?. *Journal of Personality Assessment*, 1-12.

Odou, N., & Brinker, J. (2014). Exploring the relationship between rumination, self-compassion, and mood. *Self and Identity*, *13*(4), 449-459.

Olaru, G., Witthöft, M., & Wilhelm, O. (2015). Methods matter: Testing competing models for designing short-scale Big-Five assessments. *Journal of Research in Personality, 59*, 56–68.

Ormel J., Jeronimus, B. F., Kotov, M., Riese, H., Bos, E. H., Hankin, B. (2013). "Neuroticism and common mental disorders: Meaning and utility of a complex relationship". *Clinical Psychology Review*. 33 (5): 686–697.

Ormel, J., Rosmalen, J., & Farmer, A. (2004). Neuroticism: a non-informative marker of vulnerability to psychopathology. *Social psychiatry and psychiatric epidemiology*, *39*, 906-912.

Pfattheicher, S., Geiger, M., Hartung, J., Weiss, S., & Schindler, S. (2017). Old Wine in New Bottles? The Case of Self-compassion and Neuroticism. *European Journal of Personality*, *31*, 160-169.

Pinto-Gouveia, J., Carvalho, S.A., Palmeira, L., Castilho, P., Duarte, C., Ferreira, C., ... & Costa, J. (2016). Incorporating psychoeducation, mindfulness and self-compassion in a new programme for binge eating (BEfree): Exploring processes of change. *Journal of health psychology.*

Pons, D., Atienza, F.L., Balaguer, I., & García-Merita, M.L. (2000). Satisfaction with life scale: Analysis of factorial invariance for adolescents and elderly persons. *Perceptual and Motor*

Skills, *91*, 62-68.

Raab, K., Sogge, K., Parker, N., & Flament, M.F. (2015). Mindfulness-based stress reduction and self-compassion among mental healthcare professionals: a pilot study. *Mental Health, Religion & Culture*, *18*, 503-512.

Raes, F. (2010). Rumination and worry as mediators of the relationship between self-compassion and depression and anxiety. *Personality and Individual Differences, 48*,757–761.

Reise, S.P. (2012). The rediscovery of bifactor measurement models. *Multivariate behavioral research*, *47*, 667-696.

Reise, S. P., Bonifay, W. E., & Haviland, M. G. (2013). Scoring and modeling psychological measures in the presence of multidimensionality. *Journal of Personality Assessment, 95*(2), 129-140.

Rhemtulla, M., Brosseau-Liard, P.É., & Savalei, V. (2012). When can categorical variables be treated as continuous? A comparison of robust continuous and categorical SEM estimation methods under suboptimal conditions. *Psychological Methods*, *17*, 354-373.

Rodriguez, A., Reise, S.P., & Haviland, M.G. (2016). Evaluating bifactor models: calculating and interpreting statistical indices. *Psychological Methods, 21*, 137–150.

Rosenberg, M. (1965). *Society and the adolescent self-image* (Vol. 11, p. 326). Princeton, NJ: Princeton university press.

Ryff, C. (1989). Happiness is everything, or is it? Explorations of the meaning of psychological wellbeing. *Journal of Personality and Social Psychology, 57*, 1069–1081.

Ryff, C & Keyes, C. (1995). The structure of psychological wellbeing revisited. *Journal of Personality and Social Psychology, 69*, 719-727.

Sánchez-Oliva, D., Morin, A.J.S., Teixeira, P.J., Carraça, E.V., Palmeira, A.L., & Silva, M.N.

(2017). A bifactor exploratory structural equation modeling representation of the structure of the basic psychological needs at work scale. *Journal of Vocational Behavior*, *98*, 173-187.

Sass, D.A., Schmitt, T.A., & Marsh, H.W. (2014). Evaluating model fit with ordered categorical data within a measurement invariance framework: A comparison of estimators. *Structural Equation Modeling: A Multidisciplinary Journal*, *21*, 167-180.

Sbarra, D.A., Smith, H.L., & Mehl, M.R. (2012). When leaving your ex, love yourself: Observational ratings of self-compassion predict the course of emotional recovery following marital separation. *Psychological Science, 23*, 261-269.

Scheier, M.F., Carver, C.S., & Bridges, M.W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): a reevaluation of the Life Orientation Test. *Journal of personality and social psychology*, *67*, 1063-1078.

Schimmack, U., Oishi, S., Furr, R.M., & Funder, D.C. (2004). Personality and life satisfaction: A facet-level analysis. *Personality and Social Psychology Bulletin*, *30*, 1062-1075.

Shapira, L. B., & Mongrain, M. (2010). The benefits of self-compassion and optimism exercises for individuals vulnerable to depression. *The Journal of Positive Psychology*, 5, 377-389.

Skrondal, A., & Laake, P. (2001). Regression among factor scores. *Psychometrika*, *66*, 563-575.

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

Strahan, R., & Gerbasi, K. C. (1972). Short, homogeneous versions of the Marlowe-Crowne social desirability scale. *Journal of Clinical Psychology, 28*, 191–193.

Stutts, L., Leary, M., Zeveney, A., & Hufnagle, A. (in press). A longitudinal analysis of the relationship between self-compassion and the psychological effects of perceived stress. *Self and Identity*.

Thorndike, E. (1904). *An introduction to the theory of mental and social measurements*. New York: Science Press.

Toole, A.M., & Craighead, L.W. (2016). Brief self-compassion meditation training for body image distress in young adult women. *Body image*, *19*, 104-112.

Tóth-Király, I., Bőthe, B., & Orosz, G. (2017). Exploratory Structural Equation Modeling Analysis of the Self-Compassion Scale. *Mindfulness*, *8*, 881-892.

Tóth-Király, I., Bőthe, B., Rigó, A., & Orosz, G. (2017). An Illustration of the Exploratory Structural Equation Modeling (ESEM) Framework on the Passion Scale. *Frontiers in Psychology*, *8*:1968.

Tóth-Király, I., Morin, A. J. S., Bőthe, B., Orosz, G., & Rigó, A. (2018). Investigating the multidimensionality of need fulfillment: A bifactor exploratory structural equation modeling representation. *Structural Equation Modeling, 25*(2), 267-286.

Viken, R.J., Rose, R.J., Kaprio, J., & Koskenvuo, M. (1994). A developmental genetic analysis of adult personality: extraversion and neuroticism from 18 to 59 years of age. *Journal of personality and social psychology*, *66*, 722-730.

Wallmark, E., Safarzadeh, K., Daukantaitė, D., & Maddux, R. E. (2013). Promoting altruism through meditation: an 8-week randomized controlled pilot study. *Mindfulness*, *4*, 223-234.

Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample size requirements for structural equation models an evaluation of power, bias, and solution propriety. *Educational and Psychological Measurement, 73*, 913–934.

Yu, C. Y. (2002). *Evaluating cutoff criteria of model fit indices for latent variable models with* *binary and continuous outcomes.* Los Angeles: University of California.

Table 1

Goodness-of-Fit Statistics for the Estimated Models for the Self-Compassion Scale, the Neuroticism factor of the NEO P-RI and the Satisfaction with Life Scale in Study One (N = 576)

Model	χ^2	df	CFI	TLI	RMSEA	90% CI	WRMR	PCFI
Self-Compassion Scale								
1a. One-factor CFA: One G-factor (SC)	4241*	299	.83	.81	.15	.15-.16	3.17	.76
1b. One-factor ESEM: One G-factor (SC)	4241*	299	.83	.81	.15	.15-.16	3.17	.76
2a. Two-factor CFA: Two G-factors (CS, RUS)	2396*	298	.91	.90	.11	.11-.12	2.03	.83
2b. Two-factor ESEM: Two G-factors (CS, RUS)	2477*	274	.90	.89	.12	.11-.12	1.67	.76
3a. Six-factor CFA: Six S-factors (SK, SJ, CH, IS, MI, OI)	1231*	284	.96	.95	.08	.07-.08	1.33	.84
3b. Six-factor ESEM: Six S-factors (SK, SJ, CH, IS, MI, OI)	580*	184	.98	.97	.06	.06-.07	0.56	.55
4a. Bifactor CFA: One G-factor (SC) Six S-factors (SK, SJ, CH, IS, MI, OI)	2420*	273	.91	.89	.12	.11-.12	2.20	.76
4b. Bifactor ESEM: One G-factor (SC) Six S-factors (SK, SJ, CH, IS, MI, OI)	465*	164	.99	.97	.06	.05-.06	0.47	.50
5a. Two-bifactor CFA: Two G-factors (CS, RUS) Six S-factors (SK, SJ, CH, IS, MI, OI)	1164*	272	.96	.95	.08	.07-.08	1.29	.80
5b. Two-bifactor ESEM: Two G-factors (CS, RUS) Six S-factors (SK, SJ, CH, IS, MI, OI)	383*	157	.99	.98	.05	.04-.06	0.43	.48
NEO Personality Inventory Revised								
6a. Six-factor CFA	5518*	1065	.84	.83	.09	.08-.09	2.27	.79
6b. Six-factor ESEM	1628*	855	.97	.96	.04	.04-.04	0.84	.74
Satisfaction with Life Scale								
7a. One-factor	30*	5	1	1	.09	.06-.13	0.54	.50

Note. χ^2 = Chi-square test of exact fit; df = Degrees of freedom; CFI = Comparative fit index; TLI = Tucker-Lewis index; RMSEA = Root mean square error of approximation; 90% CI = 90% confidence interval of the RMSEA; WRMR = Weighted root-mean-square residual; PCFI = Parsimony-corrected CFI; SC = Self-Compassion; CS = Compassionate Self-responding; RUS = Reduced Uncompassionate Self-responding; SK = Self-Kindness; SJ = Self-Judgment (reduced); CH = Common Humanity; IS = Isolation (reduced); MI = Mindfulness; OI = Over-Identification (reduced); G-factor = Global factor; S-factor = Specific factor; *p < .01.

Table 2

Standardized Parameter Estimates for the CFA and ESEM Solutions of the Self-Compassion Scale (SCS) in Study One (N = 576)

	Model 3a: Six-Factor CFA	Model 3b: Six-Factor ESEM						Model 4a: Bifactor CFA		Model 4b: Bifactor ESEM						
	SF (λ)	SK (λ)	SJ (λ)	CH (λ)	IS (λ)	MI (λ)	OI (λ)	SC (λ)	SF (λ)	SC (λ)	SK (λ)	SJ (λ)	CH (λ)	IS (λ)	MI (λ)	OI (λ)
Self-kindness																
sk5	**.76**	**.71**	*.01*	.14	*-.04*	*.04*	*-.01*	**.66**	**.41**	**.67**	**.35**	*-.04*	.14	-.11	.17	-.11
sk12	**.86**	**.83**	.14	*.04*	.10	*-.02*	-.13	**.75**	**.47**	**.79**	**.39**	*.03*	*.04*	*-.04*	.08	-.19
sk19	**.85**	**.76**	.15	*-.03*	*.02*	.16	-.07	**.73**	**.50**	**.79**	**.30**	*-.04*	*-.01*	-.13	.11	-.20
sk23	**.74**	**.16**	.34	.10	*.06*	.40	*-.04*	**.68**	**.20**	**.72**	**-.13**	*.02*	*.01*	-.11	*.04*	-.20
sk26	**.84**	**.25**	.18	.09	.11	.51	*-.04*	**.77**	**.24**	**.81**	***-.11***	-.14	.05	-.13	.15	-.22
Self-judgment																
sj1	**.80**	.14	**.63**	.06	*.06*	*.00*	.17	**.73**	**.41**	**.76**	-.05	**.34**	-.13	*.01*	-.19	*.04*
sj8	**.84**	.30	**.43**	-.07	.24	*-.06*	.19	**.77**	**.37**	**.79**	.09	***.13***	-.17	.10	-.18	.12
sj11	**.77**	.11	**.38**	.12	.11	.06	.23	**.72**	**.28**	**.74**	*-.02*	***.05***	*-.02*	*.02*	-.12	.13
sj16	**.92**	.19	**.46**	.12	.19	-.10	.29	**.86**	**.29**	**.84**	.06	**.23**	-.06	.12	-.13	.19
sj21	**.84**	.23	**.36**	*.08*	.17	*-.01*	.23	**.79**	**.21**	**.81**	.09	***-.11***	*-.05*	*.02*	-.25	.18
Common humanity																
ch3	**.75**	*-.06*	-.12	**.75**	.09	*.03*	*.04*	**.53**	**.54**	**.50**	*.02*	-.12	**.55**	.05	.16	*.03*
ch7	**.82**	-.06	.10	**.99**	*.04*	*-.07*	-.19	**.57**	**.66**	**.57**	*.03*	-.06	**.68**	*.01*	*-.03*	-.11
ch10	**.79**	*.02*	*.04*	**.86**	-.15	*.00*	*.03*	**.55**	**.60**	**.52**	*.05*	.09	**.61**	-.07	.18	*-.03*
ch15	**.84**	*.06*	*-.04*	**.54**	.12	.17	*.00*	**.63**	**.41**	**.61**	*.00*	*-.06*	**.40**	*.02*	.19	-.07
Isolation																
is4	**.86**	*-.01*	.29	.11	**.53**	-.10	.15	**.77**	**.27**	**.74**	*-.03*	*.11*	*-.03*	**.31**	-.17	.16
is13	**.84**	*.01*	-.12	*-.02*	**.99**	*.05*	*-.05*	**.73**	**.51**	**.72**	*-.04*	*-.01*	*.00*	**.53**	*.05*	*.03*
is18	**.80**	*-.03*	-.10	*.04*	**.93**	*-.02*	*-.03*	**.69**	**.51**	**.67**	*-.03*	*.00*	*.03*	**.52**	*.01*	.07
is25	**.85**	*.01*	.23	*.05*	**.52**	*.05*	.11	**.76**	**.26**	**.75**	-.07	*.05*	-.04	**.26**	-.09	.09
Mindfulness																
mi9	**.67**	.22	-.25	.18	*-.02*	***.20***	.45	**.58**	**.45**	**.53**	.10	*-.01*	.18	*-.01*	**.46**	.22
mi14	**.82**	.30	-.28	.13	.19	**.30**	.31	**.74**	**.44**	**.70**	.10	-.20	.17	*.03*	**.40**	.11
mi17	**.83**	.35	*-.05*	.23	*-.03*	**.29**	.24	**.75**	**.37**	**.72**	.08	*.02*	.19	-.08	**.38**	*.00*
mi22	**.78**	.23	*.08*	.21	.11	**.44**	*-.09*	**.72**	**.11**	**.71**	*-.07*	*-.06*	.16	-.08	**.22**	-.24
Over-identification																
oi2	**.88**	*.06*	.39	*.02*	.13	*.02*	**.49**	**.81**	**.28**	**.77**	*-.04*	.28	-.13	.10	*.02*	**.31**
oi6	**.87**	*.06*	.36	*.00*	.25	*.06*	**.35**	**.81**	**.18**	**.78**	*-.06*	.21	-.12	.14	*-.02*	**.20**
oi20	**.77**	-.17	.11	.09	.11	.10	**.73**	**.68**	**.50**	**.66**	-.10	*-.08*	*-.02*	.09	*.06*	**.53**
oi24	**.78**	*-.05*	.09	*-.02*	*.09*	.22	**.68**	**.69**	**.47**	**.69**	-.09	*-.07*	-.08	*.04*	.14	**.42**

Table 2 (Cont.)

Standardized Parameter Estimates for the CFA and ESEM Solutions of the Self-Compassion Scale (SCS) in Study One (N = 576)

	Model 5a: Two-Bifactor CFA			Model 5b: Two-Bifactor ESEM							
	CS (λ)	RUS (λ)	SF[1]	CS (λ)	RUS (λ)	SK (λ)	SJ (λ)	CH (λ)	IS (λ)	MI (λ)	OI (λ)
Self-kindness											
sk5	**.73**		**.27**	**.44**		**.43**	.41	*.02*	.14	.31	*.03*
sk12	**.83**		**.39**	**.46**		**.51**	.49	-.16	.33	.14	*.07*
sk19	**.82**		**.25**	**.36**		**.60**	.44	*-.03*	.19	.20	.09
sk23	**.75**		**-.19**	**.16**		**.58**	.34	.26	*.08*	*.02*	.25
sk26	**.84**		**-.10**	**.30**		**.66**	.25	.23	.21	*.11*	.26
Self-judgment											
sj1		**.77**	**.51**		***.08***	.33	**.68**	.08	.18	-.08	.36
sj8		**.82**	**.16**		***.12***	.35	**.61**	*.00*	.38	.07	.26
sj11		**.76**	**.09**		***.12***	.34	**.54**	.24	.23	.17	.22
sj16		**.90**	**.12**		***.08***	.30	**.70**	.12	.33	.15	.34
sj21		**.83**	***-.03***		**.27**	.41	**.52**	.18	.45	.18	*.10*
Common humanity											
ch3	**.57**		**.50**	**.51**		.10	.17	**.41**	.25	.22	.12
ch7	**.61**		**.62**	**.60**		.14	.29	**.52**	.27	*.04*	*.00*
ch10	**.59**		**.56**	**.67**		*.07*	.26	**.34**	.14	.09	.20
ch15	**.67**		**.35**	**.49**		.26	.19	**.31**	.26	.15	.20
Isolation											
is4		**.80**	**.18**		***.05***	.22	.49	.11	**.58**	*.00*	.33
is13		**.76**	**.47**		**-.30**	.25	.40	.20	**.56**	.20	.32
is18		**.72**	**.47**		**-.28**	.18	.41	.21	**.55**	.19	.29
is25		**.79**	**.18**		***.00***	.32	.43	.15	**.50**	*.05*	.33
Mindfulness											
mi9	**.63**		**.41**	**.36**		.17	.18	.10	.11	**.48**	.38
mi14	**.79**		**.33**	**.37**		.37	.18	.18	.28	**.50**	.30
mi17	**.80**		**.25**	**.44**		.39	.29	.16	.12	**.34**	.34
mi22	**.77**		***-.07***	**.43**		.55	.15	.17	.23	***.02***	.30
Over-identification											
oi2		**.83**	**.18**		***.15***	.22	.56	*.02*	.32	.14	**.54**
oi6		**.83**	**.07**		***.09***	.28	.53	.07	.35	.10	**.46**
oi20		**.71**	**.48**		**.31**	.11	.31	.16	.41	.35	**.46**
oi24		**.72**	**.43**		**.26**	.24	.27	.12	.36	.36	**.48**

Note. CFA = confirmatory factor analysis; ESEM = exploratory structural equation modeling; SC = global self-compassion factor; SF = intended specific factor of the Self-Compassion Scale; CS = Compassionate Self-responding factor; RUS = Reduced

Uncompassionate Self-responding factor; SK = self-kindness; SJ = self-judgment (reduced); CH = common humanity; IS = isolation (reduced); MI = mindfulness; OI = over-identification (reduced); Note that negative SCS items are reverse-coded; λ = standardized factor loadings; [1] = Each item loaded on their respective specific factor, while cross-loadings were constrained to zero; Target factor loadings are in bold. Non-significant parameters (*p* ≥ .05) are italicized.

Table 3

Correlations (based on factor scores) between the Global and Specific Factors of Self-Compassion (derived from the Bifactor-ESEM Model 4b) and Neuroticism in Study One (N = 576)

	Tot N		Anxiety		Angry hostility		Depression		Self-conscious.		Impulsivity		Vulnerability	
	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p
Tot SC	-.76 [-.79, -.72]	< .001	.07 [-.01, .15]	.074	-.67 [-.71, -.62]	< .001	-.75 [-.78, -.71]	< .001	-.14 [-.22, -.06]	.001	-.58 [-.63, -.52]	< .001	-.56 [-.61, -.50]	< .001
SK	-.03 [-.11, .05]	.482	.14 [.06, .22]	< .001	.00 [-.08, .08]	.919	-.13 [-.21, -.05]	.002	.12 [.04, .20]	.004	-.01 [-.09, .07]	.821	.03 [-.05, .11]	.540
SJ	-.09 [-.17, -.01]	.041	-.02 [-.10, .06]	.715	.02 [-.06, .10]	.683	-.19 [-.27, -.11]	< .001	-.22 [-.30, -.14]	< .001	-.09 [-.17, -.01]	.040	-.06 [-.14, .02]	.167
CH	.06 [-.02, .14]	.130	.06 [-.02, .14]	.124	.04 [-.04, .12]	.354	.04 [-.04, .12]	.392	.19 [.11, .27]	< .001	.14 [.06, .22]	.001	-.05 [-.13, .03]	.226
IS	-.17 [-.25, -.09]	< .001	-.01 [-.09, .07]	.829	-.14 [-.22, -.06]	.001	-.19 [-.27, -.11]	< .001	-.18 [-.26, -.10]	< .001	-.12 [-.20, -.04]	.003	-.11 [-.19, -.03]	.009
MI	-.12 [-.20, -.04]	.006	-.03 [-.11, .05]	.460	-.08 [-.16, .00]	.070	.00 [-.08, .08]	.889	.23 [.15, .31]	< .001	-.06 [-.14, .02]	.146	-.29 [-.36, -.21]	< .001
OI	-.34 [-.41, -.27]	< .001	-.05 [-.13, .03]	.282	-.37 [-.44, -.30]	< .001	-.15 [-.23, -.07]	< .001	-.13 [-.21, -.05]	.002	-.31 [-.38, -.24]	< .001	-.28 [-.35, -.20]	< .001

Note. Tot SC = Total Self-Compassion; SK = Self-Kindness; SJ = Reduced Self-judgment; CH = Common Humanity; IS = Reduced Isolation; MI = Mindfulness; OI = Reduced Over-Identification; Tot N = Total Neuroticism; CI = confidence interval; Note that negative SCS items are reverse coded.

Table 4

Correlations (based on factor scores) between the First-Order Six Factor ESEM Models of the Self-Compassion Scale (derived from the Six-Factor ESEM Model 3b) and the NEO PI-R Neuroticism Facets in Study One (N = 576)

	Anxiety		Angry hostility		Depression		Self-consciousness		Impulsivity		Vulnerability	
	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p
SK	-.11 [-.19, -.03]	.007	-.51 [-.57, -.45]	< .001	-.67 [-.71, -.62]	< .001	-.20 [-.28, -.12]	< .001	-.45 [-.51, -.38]	< .001	-.42 [-.49, -.35]	< .001
SJ	-.15 [-.23, -.07]	< .001	-.47 [-.53, -.40]	< .001	-.63 [-.68, -.58]	< .001	-.48 [-.54, -.42]	< .001	-.46 [-.52, -.39]	< .001	-.25 [-.33, -.17]	< .001
CH	-.10 [-.18, -.02]	.014	-.44 [-.50, -.37]	< .001	-.57 [-.62, -.51]	< .001	-.10 [-.18, -.02]	.018	-.32 [-.39, -.25]	< .001	-.42 [-.49, -.35]	< .001
IS	-.21 [-.29, -.13]	< .001	-.65 [-.69, -.60]	< .001	-.77 [-.80, -.74]	< .001	-.42 [-.49, -.35]	< .001	-.57 [-.62, -.51]	< .001	-.48 [-.54, -.42]	< .001
MI	-.15 [-.23, -.07]	< .001	-.38 [-.45, -.31]	< .001	-.42 [-.49, -.35]	< .001	-.04 [-.12, .04]	.344	-.31 [-.38, -.24]	< .001	-.39 [-.46, -.32]	< .001
OI	-.27 [-.34, -.19]	< .001	-.72 [-.76, -.68]	< .001	-.71 [-.75, -.67]	< .001	-.33 [-.40, -.26]	< .001	-.64 [-.69, -.59]	< .001	-.59 [-.64, -.54]	< .001

Note. SK = Self-Kindness; SJ = Self-judgment (reduced); CH = Common Humanity; IS = Isolation (reduced); MI = Mindfulness; OI = Over-Identification (reduced); CI = confidence interval; Note that negative SCS items are reverse coded.

Table 5

Incremental Validity Predicting Life Satisfaction using Regression Analyses (based on Factor Scores Derived from the Bifactor-ESEM Model), with Total Neuroticism Score Entered in Step 1 (Model S1a), Depression Entered Step 1 (Model S1b), or Anxiety Entered in Step 1 (Model S1c) with Total Self-Compassion Score Entered in Step 2 for All Models in Study One (N = 576)

	R^2	ΔR^2	β	95% CI for β	p
Model S1a: *Life Satisfaction*					
Step 1	31.8				
Tot N			-.56	[-.62, -.51]	< .001
Step 2	34.8	3.0*			
Tot N			-.36	[-.46, -.27]	< .001
Tot SC			.26	[.17, .36]	< .001
Model S1b: *Life Satisfaction*					
Step 1	37.0				
Depression			-.61	[-.66, -.56]	< .001
Step 2	38.5	1.5*			
Depression			-.47	[-.56, -.37]	< .001
Tot SC			.19	[.09, .29]	< .001
Model S1c: *Life Satisfaction*					
Step 1	1.9				
Anxiety			.14	[.06, .22]	.001
Step 2	30.1	28.2*			
Anxiety			.10	[.03, .17]	.006
Tot SC			.53	[.48, .59]	< .001

Note. R^2 = proportion of explained variance; ΔR^2 = change in explained variance; β = standardized regression coefficient; Tot N = Total Neuroticism Score; Tot SC = Total Self-Compassion Score; CI = confidence interval; *$p < .01$.

Table 6

Incremental Validity Predicting Difficulties in Emotion Regulation using Regression Analyses (based on Factor Scores derived from the ESEM bifactor model), with Total Neuroticism Score Entered in Step 1 (Model S1a), Depression Entered Step 1 (Model S1b), or Anxiety Entered in Step 1 (Model S1c) with Total Self-Compassion Score Entered in Step 2 for All Models in Study Two (N = 581)

	R^2	ΔR^2	β	95% CI for β	p
Model S2a: *Diff. in Emo. Regulation*					
Step 1	66.5				
Tot N			.82	[.79, .84]	< .001
Step 2	70.2	3.7*			
Tot N			.55	[.47, .62]	< .001
Tot SC			-.33	[-.41, -.26]	< .001
Model S2b: *Diff. in Emo. Regulation*					
Step 1	47.4				
Depression			.69	[.65, .73]	< .001
Step 2	61.6	14.2*			
Depression			.19	[.11, .28]	< .001
Tot SC			-.62	[-.70, -.54]	< .001
Model S2c: *Diff. in Emo. Regulation*					
Step 1	33.8				
Anxiety			.58	[.53, .64]	< .001
Step 2	62.7	28.9*			
Anxiety			.19	[.13, .25]	< .001
Tot SC			-.66	[-.72, -.61]	< .001

Note. R^2 = proportion of explained variance; ΔR^2 = change in explained variance; β = standardized regression coefficient; Tot N = Total Neuroticism Score; Tot SC = Total Self-Compassion Score; CI = confidence interval; *$p < .01$.

Table 7

Incremental Validity Predicting Wellbeing Outcomes using Regression Analyses (Based on Observed Scores), with Total Neuroticism score entered in Step 1, and in Step 2 either a Total Self-Compassion Score (Model S3a), Compassionate Self-Responding Score (Model S3b) or Reduced Uncompassionate Self-Responding Score (Model S3c) in Study Three (N = 177)

Model S3a Neuroticism and Self-Compassion	R^2	ΔR^2	β	95% CI	p
Reflective Wisdom					
Step 1	31.2				
Tot N			-.56	[-.66, -.45]	< .001
Step 2	41.3	10.1*			
Tot N			-.29	[-.44, -.14]	< .001
Tot SC			.42	[.27, .56]	< .001
Affective Wisdom					
Step 1	5.0				
Tot N			-.22	[-.37, -.08]	.004
Step 2	7.0	2.0			
Tot N			-.10	[-.30, .09]	.299
Tot SC			.19	[-.01, .38]	.063
Happiness					
Step 1	29.8				
Tot N			-.55	[-.65, -.44]	< .001
Step 2	37.6	7.8*			
Tot N			-.31	[-.46, -.15]	< .001
Tot SC			.37	[.22, .52]	< .001
Optimism					
Step 1	36.4				
Tot N			-.60	[-.70, -.51]	< .001
Step 2	44.9	8.5*			
Tot N			-.36	[-.50, -.21]	< .001
Tot SC			.38	[.24, .53]	< .001
Curiosity					
Step 1	7.1				
Tot N			-.27	[-.41, -.13]	.001
Step 2	9.4	2.3*			
Tot N			-.14	[-.33, .05]	.159
Tot SC			.20	[.01, .39]	.046
Personal Initiative					
Step 1	19.7				
Tot N			-.44	[-.57, -.32]	< .001
Step 2	23.8	4.1*			
Tot N			-.27	[-.44, -.10]	.003
Tot SC			.27	[.10, .44]	.003

Model S3b Neuroticism and CS	R^2	ΔR^2	β	95% CI	p
Reflective Wisdom					
Step 1	31.2				
Tot N			-.56	[-.66, -.45]	< .001
Step 2	38.6	7.4*			
Tot N			-.41	[-.54, -.28]	< .001
CS			.31	[.18, .44]	< .001
Affective Wisdom					
Step 1	5.0				
Tot N			-.22	[-.37, -.08]	.004
Step 2	5.5	0.5			
Tot N			-.19	[-.35, -.02]	.033
CS			.08	[-.09, .25]	.372
Happiness					
Step 1	29.8				
Tot N			-.55	[-.65, -.44]	< .001
Step 2	35.0	5.2*			
Tot N			-.42	[-.55, -.29]	< .001
CS			.26	[.12, .40]	< .001
Optimism					
Step 1	36.4				
Tot N			-.60	[-.70, -.51]	< .001
Step 2	45.6	9.2*			
Tot N			-.44	[-.56, -.32]	< .001
CS			.35	[.22, .47]	< .001
Curiosity					
Step 1	7.1				
Tot N			-.27	[-.41, -.13]	.001
Step 2	11.2	4.1*			
Tot N			-.16	[-.32, .00]	.062
CS			.23	[.07, .39]	.008
Personal Initiative					
Step 1	19.7				
Tot N			-.44	[-.57, -.32]	< .001
Step 2	23.5	3.8*			
Tot N			-.34	[-.48, -.19]	< .001
CS			.22	[.08, .37]	.005

Model S3c Neuroticism and RUS	R^2	ΔR^2	β	95% CI	p
Reflective Wisdom					
Step 1	31.2				
Tot N			-.56	[-.66, -.45]	< .001
Step 2	38.0	6.7*			
Tot N			-.33	[-.48, -.17]	< .001
RUS			.35	[.19, .50]	< .001
Affective Wisdom					
Step 1	5.0				
Tot N			-.22	[-.37, -.08]	.004
Step 2	8.0	3.0*			
Tot N			-.07	[-.27, .13]	.491
RUS			.23	[.04, .42]	.023
Happiness					
Step 1	29.8				
Tot N			-.55	[-.65, -.44]	< .001
Step 2	35.6	5.8*			
Tot N			-.33	[-.49, -.17]	< .001
RUS			.32	[.16, .48]	< .001
Optimism					
Step 1	36.4				
Tot N			-.60	[-.70, -.51]	< .001
Step 2	39.6	3.2*			
Tot N			-.45	[-.59, -.30]	< .001
RUS			.24	[.08, .40]	.004
Curiosity					
Step 1	7.1				
Tot N			-.27	[-.41, -.13]	.001
Step 2	7.3	0.2			
Tot N			-.23	[-.42, -.03]	.026
RUS			.06	[-.26, .14]	.562
Personal Initiative					
Step 1	19.7				
Tot N			-.44	[-.57, -.32]	< .001
Step 2	21.7	2.0*			
Tot N			-.32	[-.49, -.14]	.001
RUS			.19	[.01, .37]	.042

								Positive Affect									
Step 1	7.8					Step 1	7.8					Step 1	7.8				
Tot N			-.28	[-.42, -.14]	< .001	Tot N			-.28	[-.42, -.14]	< .001	Tot N			-.28	[-.42, -.14]	< .001
Step 2	11.7	3.9*				Step 2	17.0	9.2*				Step 2	7.8	0			
Tot N			-.11	[-.30, .08]	.249	Tot N			-.11	[-.27, .04]	.163	Tot N			-.27	[-.46, -.08]	.008
Tot SC			.26	[.07, .44]	.008	CS			.35	[.20, .50]	< .001	RUS			.02	[-.21, .18]	.877
								Negative Affect									
Step 1	26.6					Step 1	26.6					Step 1	26.6				
Tot N			.52	[.40, .63]	< .001	Tot N			.52	[.40, .63]	< .001	Tot N			.52	[.40, .63]	< .001
Step 2	26.9	0.3				Step 2	26.7	0.1				Step 2	28.7	2.1*			
Tot N			.47	[.31, .63]	< .001	Tot N			.54	[.41, .67]	< .001	Tot N			.39	[.22, .55]	< .001
Tot SC			-.08	[-.25, .10]	.395	CS			.05	[-.10, .19]	.548	RUS			-.19	[-.36, -.02]	.031
								Self-Esteem									
Step 1	35.3					Step 1	35.3					Step 1	35.3				
Tot N			-.59	[-.69, -.50]	< .001	Tot N			-.59	[-.69, -.50]	< .001	Tot N			-.59	[-.69, -.50]	< .001
Step 2	46.8	11.5*				Step 2	45.2	9.9*				Step 2	41.5	6.2*			
Tot N			-.31	[-.45, -.16]	< .001	Tot N			-.42	[-.54, -.30]	< .001	Tot N			-.37	[-.52, -.22]	< .001
Tot SC			.45	[.31, .58]	< .001	CS			.36	[.24, .48]	< .001	RUS			.33	[.18, .49]	< .001
								Psychological Wellbeing									
Step 1	35.9					Step 1	35.9					Step 1	35.9				
Tot N			-.60	[-.70, -.50]	< .001	Tot N			-.60	[-.70, -.50]	< .001	Tot N			-.60	[-.70, -.50]	< .001
Step 2	39.9	4.0*				Step 2	39.2	3.4*				Step 2	38.1	2.2*			
Tot N			-.43	[-.58, -.28]	< .001	Tot N			-.50	[-.62, -.38]	< .001	Tot N			-.47	[-.62, -.31]	< .001
Tot SC			.26	[.11, .42]	.001	CS			.21	[.08, .34]	.003	RUS			.20	[.04, .36]	.016

Note. R^2 = proportion of explained variance; ΔR^2 = percent change in explained variance; β = standardized regression coefficient; CI = confidence interval; Tot N = Total Neuroticism Score; Tot SC = Total Self-Compassion Score; CS = Compassionate Self-responding; RUS = Reduced Uncompassionate Self-responding; Note that negative SCS items are reverse coded; $^*p \leq .05$.

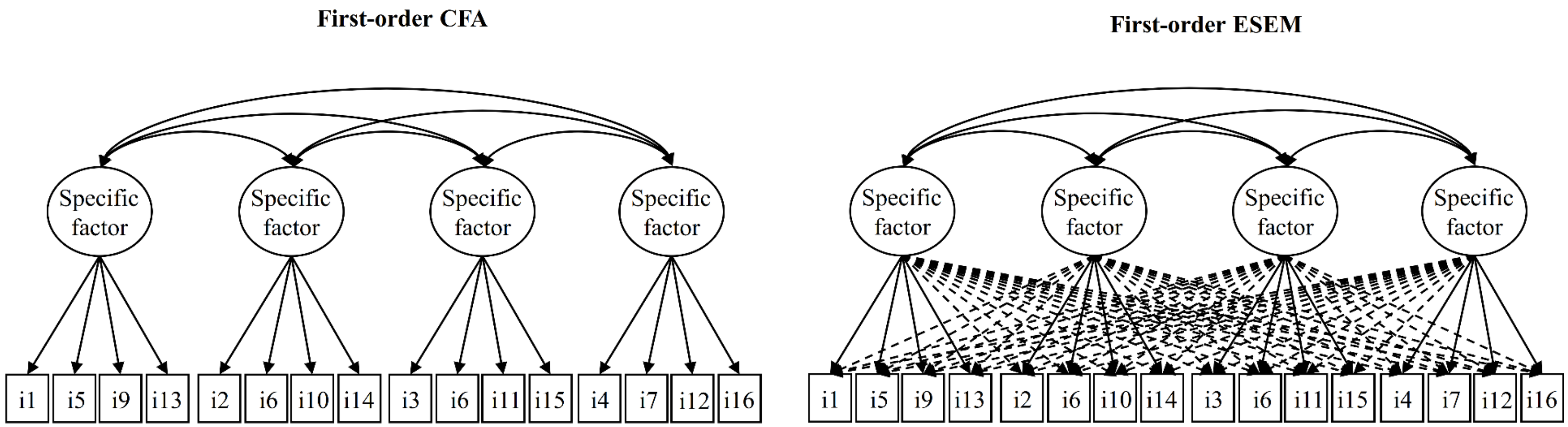

Figure 1

Schematic comparison of six-factor CFA and ESEM models

Note. CFA = confirmatory factor analysis; ESEM = exploratory structural equation modeling; Circles represent latent variables, squares represent scale items. One-headed full arrows represent factor loadings, one-headed dashed arrows represent cross-loadings, and two-headed arrows represent factor correlations.

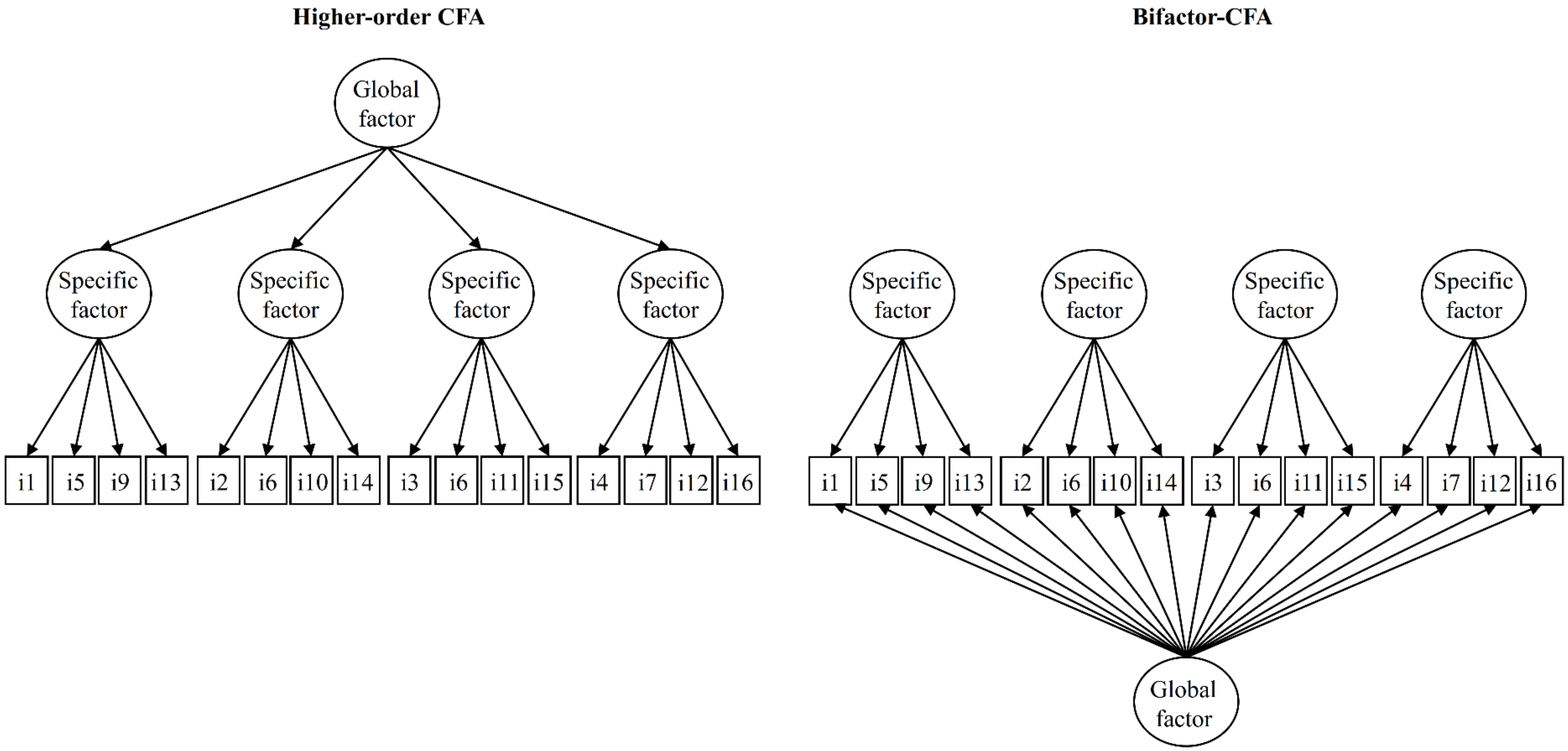

Figure 2
Schematic comparison of the higher-order and bifactor CFA models
Note. CFA = confirmatory factor analysis; Circles represent latent variables, squares represent scale items. One-headed full arrows represent factor loadings.

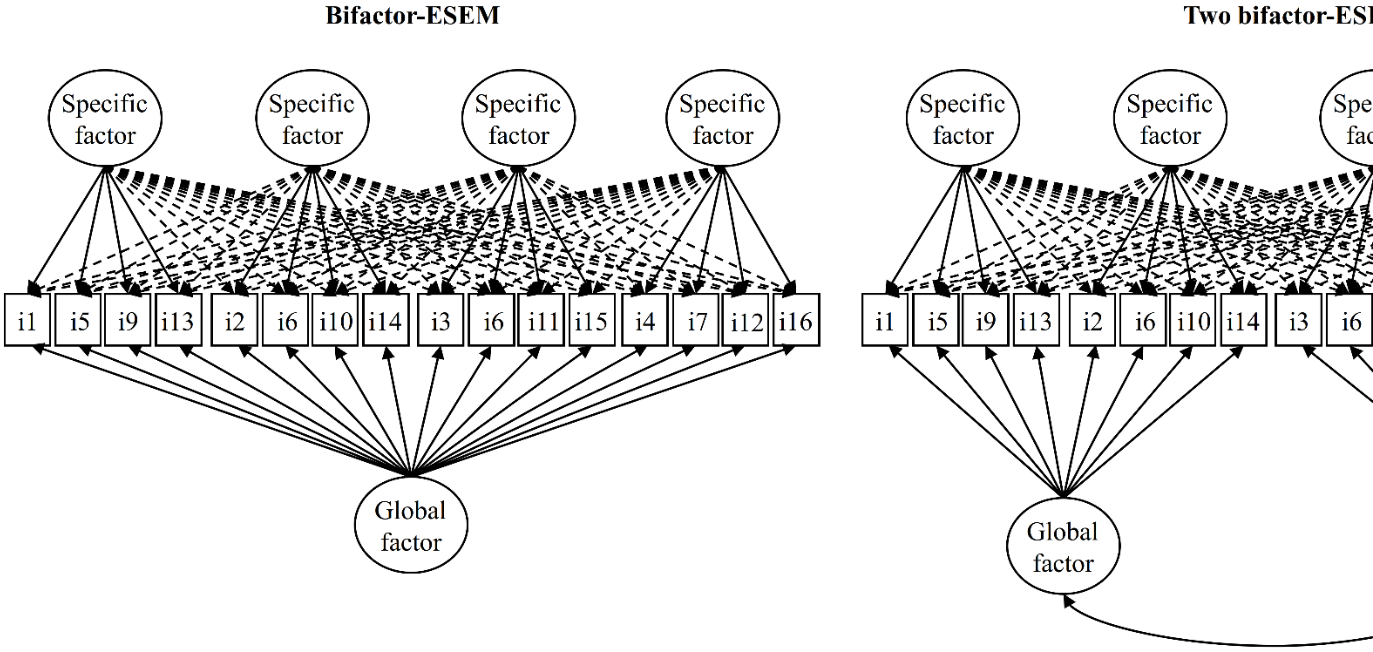

Figure 3
Schematic comparison of the single bifactor and two bifactor (or two-tier) ESEM models
Note. ESEM = exploratory structural equation modeling; Circles represent latent variables, squares represent scale items. One-headed full arrows represent factor loadings, one-headed dashed arrows represent cross-loadings, and two-headed arrows represent factor correlations.

Supporting Information for:

Self-compassion is best measured as a global construct and is overlapping with but distinct from neuroticism: A response to Pfattheicher, Geiger, Hartung, Weiss, and Schindler (2017)

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Table S9: Incremental Validity Predicting Difficulties in Emotion Regulation using Regression Analyses with Observed Scores, with Total Neuroticism Score Entered in Step 1 (Model S2a), Depression Entered Step 1 (Model S2b), or Anxiety Entered in Step 1 (Model S2c), and Reduced Uncompassionate Self-Responding Score Entered in Step 2 for all Models in Study Two (N = 581)

Table S10: Cronbach's Alphas and Zero-Order Correlations between Observed Scores for all Variables in Study Three (N = 177)

References

Appendix 1: The two sources of construct-relevant multidimensionality

Morin and colleagues (Morin, Arens, et al., 2016a, 2016b; Morin, Boudrias, et al., 2016, 2017) argued that in the case of complex multidimensional measures, such as the Self-Compassion Scale, it is highly important to investigate the two sources of construct-relevant multidimensionality. Specifically, these sources do not refer to some form of random measurement error, but rather reflect on that scale items are often associated with more than one latent construct. Subsequently, they developed the bifactor-ESEM framework for investigating these sources of psychometric multidimensionality.

The first element of this framework relates to the assessment of conceptually-related constructs. Multidimensional scales often constitute of subscales that are conceptually similar to one another and given the fallible nature of scale item that rarely present true score associations with their respective target factors, a certain degree of item association could be present between items and non-target, yet conceptually related factors. In psychometrics, confirmatory factor analysis (CFA) has been used as a default procedure where items are only allowed to load on their target factors, whereas non-target loadings are explicitly forced to zero, which could lead to distorted results and erroneous conclusions. Indeed, a recent review of simulation studies (Asparouhov, Muthén, & Morin, 2015) showed that parameter estimates become biased even if small cross-loadings are forced to zero. While exploratory factor analysis (EFA) would appear to be more suitable for multidimensional measures due to the fact that it relaxes the strict assumption of CFA, it lacks the methodological advances associated with CFA. More recently, EFA and CFA have been combined into the exploratory structural equation modeling (ESEM; Asparouhov & Muthén, 2009; Marsh, Morin, Parker, & Kaur, 2014; Morin, Marsh, & Nagengast, 2013) framework which, in conjunction with the development of target rotation (Asparouhov & Muthén, 2009; Browne, 2001), makes it possible to rely on a completely "confirmatory" setup.

The second element of this framework stems from the simultaneous assessment of global and specific factors that are assessed from the same set of items. For a long time, higher-order (or hierarchical) models have been suggested as a way to investigate the presence of a global factor. However, this model relies on the extremely strict assumption that the relations between the items and the higher-order factor is only mediated by the first-order factors which is seldom the case (for more details, see Gignac, 2016 and Howard, Gagné, Morin, & Forest, 2017). As an alternative to a higher-order model, the bifactor approach (Reise, 2012; Rodriguez, Reise, & Haviland, 2016) has been "rediscovered" which provides a way to simultaneously assess a general factor and several specific factors by disaggregating the total item covariance matrix into global and specific components.

The application of the bifactor ESEM framework is important due to the fact that each alternative model can absorb unmodeled sources of multidimensionality: (a) when cross-loadings are unmodeled, they tend to either inflate factor correlations in CFA or target loadings on the G-factor in bifactor-CFA; and (b) when a G-factor is unmodeled, it tends to inflate factor correlations in CFA or cross-loadings in ESEM. The value of this framework has previously been demonstrated in the field of self-determination theory (Litalien et al., 2017; Sànchez-Oliva et al., 2017).

When both of these sources are expected to be present (which is often the case for multidimensional measures), the overarching bifactor-ESEM framework can be used to systematically investigate the presence of construct-relevant multidimensionality. Ignoring the use of this framework and the sources of multidimensionality could result in inflated parameter estimates that, in turn, could lead to biased results and interpretations (Morin, Arens, et al., 2016a).

Appendix 2: Model specification and evaluation

In CFA models (1a-5a), items were set to load on their a priori factors, factor correlations were freely estimated, but cross-loadings were explicitly forced to be zero. In the ESEM models (1b-5b), apart from the CFA specifications, cross-loadings were freely estimated, but "targeted" to be close to zero (Browne, 2001). In the bifactor-CFA model with one general factor (4a), an item simultaneously defined one general factor and one specific factor and these specific factors were specified as orthogonal to the general factor and to each other as well as per standard bifactor specifications (Morin, Arens, et al., 2016a; Reise, 2012). In the bifactor-ESEM model with one general factor (4b), apart from the bifactor-CFA specifications, item cross-loadings were freely estimated, but "targeted" to be close to zero. In the two-bifactor models (5a and 5b), the two general factors were allowed to correlate with each other, but not with the specific factors, while the rest of the specifications were the same to their bifactor counterparts (4a and 4b, respectively). Although the fact that specific factors are not allowed to correlate in bifactor models (i.e. they are specified as orthogonal) is perhaps counter-intuitive, this improves interpretability. For instance, it models those aspects of an item (e.g., When something upsets me I try to keep my emotions in balance) that is shared by all items in the general factor (e.g., self-compassion), as well as those aspects that are only shared by other items in its group factor (e.g., mindfulness).

Following the suggestion of Morin and colleagues (2016a, 2016b), apart from model fit indices, we also examined key parameter estimates (i.e., factor loadings, factor correlations) as well as the theoretical conformity of the models when identifying the final solution due to the fact that each alternative model could absorb unmodeled sources of construct-relevant multidimensionality. First, when comparing the first-order models, apart from the definition of the factors, the differences in the magnitude of factor correlations is the most relevant (Asparouhov et al., 2015). The ESEM model should be retained as long as factor correlations substantially differ compared to CFA. Second, the retained CFA or ESEM model should be compared to its bifactor counterpart with the bifactor model being favored as a final solution as long as it has a well-defined general factor and at least some well-defined specific factors.

Appendix 3: Differences in the interpretation of first-order and S-factors

While the bifactor-ESEM framework provides a sound and flexible way to disaggregate construct-relevant global and specific factors, it is important to note that the interpretation of these specific factors differ from that of basic first-order factors (Howard et al., 2017; Litalien et al., 2017). With the bifactor-ESEM solution, the specific factors can be interpreted as referring to the residual covariance between the items that is left once the general factor has been taken into account. For example, the common humanity specific factor reflects the unique properties of this particular factor after the global self-compassion factor has been accounted for, whereas the common humanity first-order factor (e.g., in correlated CFA or ESEM models) would include the unique aspects of the common humanity items and the global self-compassion factor. As suggested by Litalien et al. (2017), these residual scores (i.e., specific factors) do not necessarily reflect the original constructs in and of themselves, and thus both the general and specific factors should be taken into account when one investigates the potential effects of the specific factors.

Appendix 4: Psychometric analysis of the Neuroticism factor of the NEO PI-R

As it was noted in the main document, the ESEM solution of the NEO PI-R provided a superior representation to the CFA model in terms of substantially better fit indices (CFI: .97 vs. 84; TLI: .96 vs. .83; RMSEA: .40 vs. .85; WRMR: 0.84 vs. 2.27). Although the CFA solution had well-defined first-order factors ($|\lambda| = .22$ to .87, $M = .62$), the associations between the factors were so high ($|r| = .66$ to .95, $M = .77$) that they would appear to be redundant. On the contrary, the ESEM solution not only resulted in improved fit, but smaller associations between the factors ($|r| = .03$ to .55, $M = .31$). In terms of factor definitions (see Table S2), four of the six factors (angry hostility, depression, impulsivity and vulnerability) were well-defined by their target loadings, while anxiety and self-consciousness were rather weakly defined. This can be attributed to the fact that many anxiety and self-consciousness items loaded more strongly on the adjacent factors (e.g., item 136 on depression or item 31 on vulnerability). Still, to be consistent with the underlying theory instead of arbitrarily selecting items, we opted to retain this model. Also, these results are less concerning for the present investigation due to the use of latent variables which are naturally corrected for measurement errors.

In the subsequent step, the final ESEM model was transformed in a standard CFA framework which, in line with personality theory, makes it possible to incorporate a higher-order neuroticism factor. While model fit was still adequate, interestingly, the weakly defined anxiety and self-consciousness facets did not load in the general neuroticism factor ($\lambda_{\text{Anxiety}} = -.10$, $p = .205$; $\lambda_{\text{Self-consciousness}} = .01$, $p = .933$). On the other hand, the other four factors were strongly associated with the general factor ($\lambda_{\text{Angry hostility}} = .73$, $p < .001$; $\lambda_{\text{Depression}} = .65$, $p < .001$; $\lambda_{\text{Impulsivity}} = .76$, $p < .001$; $\lambda_{\text{Vulnerability}} = .64$, $p < .001$). For the purpose of the subsequent investigations, factor scores were saved from this preliminary higher-order ESEM measurement model.

Table S1

Cronbach Alphas and Zero-Order Correlations between Observed Scores for all Variables in Study One (N = 576)

	α	SK	SJ	CH	IS	MI	OI	Tot N	ANX	AH	DEP	SC	IMP	VUL	LS
Tot SC	.96	.87	.89	.71	.85	.82	.85	-.76	-.58	-.59	-.81	-.60	-.44	-.64	.54
		[.85, .89]	[.87, .91]	[.67, .75]	[.83, .87]	[.79, .85]	[.83, .87]	[-.79, -.72]	[-.63, -.52]	[-.64, -.54]	[-.84, -.78]	[-.65, -.55]	[-.50, -.37]	[-.69, -.59]	[.48, .60]
SK	.88	--	.72	.63	.61	.77	.60	-.56	.-.40	-.42	-.65	-.43	-.33	-.48	.47
			[.68, .76]	[.58, .68]	[.56, .66]	[.74, .80]	[.55, .65]	[-.61, -.50]	[-.47, -.33]	[-.49, -.35]	[-.69, -.60]	[-.49, -.36]	[-.40, -.26]	[-.54, -.42]	[.40, .53]
SJ	.89		--	.45	.78	.57	.80	-.70	-.55	-.54	-.77	-.56	-.43	-.54	.47
				[.38, .51]	[.75, .81]	[.51, .62]	[.77, .83]	[-.74, -.66]	[-.60, -.49]	[-.60, -.48]	[-.80, -.74]	[-.61, -.50]	[-.49, -.36]	[-.60, -.48]	[.40, .53]
CH	.84			--	.47	.70	.42	-.40	-.27	-.34	-.45	-.29	-.18	-.38	.37
					[.40, .53]	[.66, .74]	[.35, .49]	[-.47, -.33]	[-.34, -.19]	[-.41, -.27]	[-.51, -.38]	[-.36, -.21]	[-.26, -.10]	[-.45, -.31]	[.30, .44]
IS	.87				--	.56	.75	-.71	-.54	-.53	-.76	-.61	-.40	-.58	.52
						[.50, .61]	[.71, .78]	[-.75, -.67]	[-.60, -.48]	[-.59, -.47]	[-.79, -.72]	[-.66, -.56]	[-.47, -.33]	[-.63, -.52]	[.46, .58]
MI	.81					--	.61	-.59	-.44	-.46	-.60	-.42	-.35	-.57	.46
							[.56, .66]	[-.64, -.54]	[-.50, -.37]	[-.52, -.39]	[-.65, -.55]	[-.49, -.35]	[-.42, -.28]	[-.62, -.51]	[.39, .52]
OI	.86						--	-.80	-.56	-.63	-.77	-.64	-.50	-.68	.42
								[-.83, -.77]	[-.61, -.50]	[-.68, -.58]	[-.81, -.74]	[-.69, -.59]	[-.56, -.44]	[-.72, -.63]	[.35, .49]
Tot N	.94							--	.81	.76	.88	.82	.73	.87	-.51
									[.78, .84]	[.72, .79]	[.86, .90]	[.79, .85]	[.69, .77]	[.85, .89]	[-.57, -.45]
ANX	.75								--	.53	.66	.62	.50	.66	-.35
										[.47, .59]	[.61, .70]	[.57, .67]	[.44, .56]	[.61, .70]	[-.42, -.28]
AH	.80									--	.59	.47	.49	.59	-.36
											[.54, .64]	[.40, .53]	[.43, .55]	[.54, .64]	[-.43, -.29]
DEP	.87										--	.73	.54	.71	-.57
												[.69, .77]	[.48, .60]	[.67, .75]	[-.62, -.51]
SC	.73											--	.53	.67	-.42
													[.47, .59]	[.62, .71]	[-.49, -.35]
IMP	.76												--	.55	-.27
														[.49, .60]	[-.34, -.19]
VUL	.83													--	-.45
															[-.51, -.38]
LS	.92														--

Note. Tot SC = Total Self-Compassion; SK = Self-Kindness; SJ = Self-judgment (reduced); CH = Common Humanity; IS = Isolation (reduced); MI = Mindfulness; OI = Over-Identification (reduced); Tot N = Total Neuroticism Score; ANX = Anxiety; AH = Angry Hostility; DEP = Depression; SC = Self-Consciousness; IMP = Impulsivity; VUL = Vulnerability; LS = Life Satisfaction; Note that negative SCS items are reverse-coded; Numbers in brackets are 95% confidence intervals; All correlations are significant at $p < .001$.

Table S2

Standardized parameter estimates for the first-order ESEM representation of the neuroticism factor of the NEO PI-R

	CFA	ESEM					
	S-factors[1]	Anx. (λ)	An. Ho. (λ)	Dep. (λ)	S-Co. (λ)	Imp. (λ)	Vul. (λ)
Anxiety							
NEO_91	**.81**	***.05***	.33	.25	.17	*.08*	.22
NEO_61	**.56**	**.49**	.12	*.10*	*-.03*	.11	.13
NEO_31	**.57**	**.22**	.15	*-.04*	.33	*.02*	.36
NEO_01	**.36**	**.42**	*.07*	*.00*	*-.05*	.13	*.05*
NEO_151	**.73**	**.30**	.24	.29	.44	*-.02*	*.02*
NEO_211	**.66**	**.14**	.17	.27	.40	.11	*-.04*
NEO_121	**.26**	**.37**	*-.05*	*.01*	-.12	.12	.11
NEO_181	**.30**	**.33**	-.11	*-.02*	*-.01*	.11	.24
Angry hostility							
NEO_36	**.66**	*-.05*	**.63**	*.02*	-.29	*-.04*	.27
NEO_06	**.70**	*.01*	**.61**	*.05*	*.06*	*.02*	*.06*
NEO_96	**.55**	.11	**.50**	-.11	-.27	*.08*	.20
NEO_66	**.50**	-.11	**.77**	-.15	-.15	.11	-.08
NEO_156	**.50**	.13	**.58**	-.12	-.32	*-.03*	.19
NEO_126	**.59**	*-.01*	**.61**	*.05*	.09	*.01*	-.08
NEO_186	**.76**	*.07*	**.43**	.31	.22	.12	-.23
NEO_216	**.79**	.12	**.58**	*.06*	.31	*.02*	*.00*
Depression							
NEO_41	**.87**	-.10	.12	**.73**	.08	*.05*	.11
NEO_101	**.70**	*.06*	*.02*	**.43**	.27	.25	*-.03*
NEO_131	**.68**	*.04*	.09	**.45**	.32	*.04*	*.06*
NEO_161	**.80**	-.14	*.02*	**.75**	*-.03*	*-.03*	.27
NEO_191	**.84**	*-.07*	.17	**.67**	.09	.07	.05
NEO_11	**.58**	.44	.16	**.46**	-.28	*.05*	-.11
NEO_221	**.85**	-.13	.16	**.42**	.13	.20	.27
NEO_71	**.60**	.56	.14	**.50**	-.26	*.00*	-.11
Self-consciousness							
NEO_46	**.22**	.27	*-.08*	*.07*	**-.30**	.20	*.07*
NEO_16	**.67**	.19	*.06*	.16	**.40**	.16	.18
NEO_106	**.25**	.20	*-.10*	*.06*	**-.16**	*.10*	.24
NEO_76	**.81**	*.01*	*.05*	.50	**.25**	.22	*.03*
NEO_136	**.85**	*.00*	-.06	.62	**.15**	.11	.26
NEO_166	**.53**	.11	*-.07*	.18	***-.05***	.16	.37
NEO_196	**.61**	*.10*	*-.05*	.20	**.37**	.11	.28
NEO_226	**.32**	*.03*	*-.09*	*-.05*	**.40**	.20	.15

Impulsivity							
NEO_51	**.81**	*-.05*	*.06*	*-.04*	.12	**.79**	*-.02*
NEO_21	**.37**	.12	*-.04*	-.12	-.28	**.58**	*.01*
NEO_111	**.63**	*.04*	.09	-.17	.33	**.67**	-.12
NEO_81	**.30**	.21	*-.09*	*.05*	-.31	**.29**	*.09*
NEO_171	**.71**	-.13	.13	*-.03*	.12	**.59**	*.07*
NEO_231	**.54**	*.08*	.14	.11	-.30	**.21**	.21
NEO_201	**.69**	*-.07*	*.05*	.09	.08	**.63**	*-.07*
NEO_141	**.37**	.16	-.11	-.11	-.32	**.61**	*.05*
Vulnerability							
NEO_56	**.68**	*-.06*	*.05*	.32	-.19	.10	**.49**
NEO_26	**.79**	-.17	.20	.21	*.07*	.30	**.29**
NEO_116	**.59**	.29	.11	-.25	.15	-.14	**.81**
NEO_86	**.84**	*.03*	.23	.26	.27	.13	**.27**
NEO_176	**.67**	.15	*-.02*	-.13	.15	*-.02*	**.88**
NEO_146	**.72**	*-.02*	.14	.13	.17	.31	**.25**
NEO_206	**.67**	*.05*	*.03*	.17	-.12	.10	**.58**
NEO_236	**.73**	*.02*	.34	.21	-.18	.10	**.32**

Note. CFA = confirmatory factor analysis; ESEM = exploratory structural equation modeling; Anx. = anxiety facet; An. Ho. = angry hostility facet; Dep. = depression facet; S-Co. = self-consciousness facet; Imp. = impulsivity facet; Vul. = vulnerability facet.; λ = standardized factor loading; [1] = Each item loaded on their respective specific factor, while cross-loadings were constrained to zero; Target factor loadings are in bold. Note that negative items of the NEO are reverse-coded.; Non-significant parameters ($p \geq .05$) are italicized.

Table S3

Correlations (based on factor scores) between the Compassionate and Reduced Uncompassionate Self-Responding Global Factors and Specific Factors of Self-Compassion (Derived from the Correlated Two-Bifactor CFA Model 5a) and Neuroticism in Study One (N = 576)

	Tot N		Anxiety		Angry hostility		Depression		Self-consciousness		Impulsivity		Vulnerability	
	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p
CS	-.67 [-.71, -.62]	< .001	.09 [.01, .17]	.041	-.58 [-.63, -.52]	< .001	-.68 [-.72, -.63]	< .001	-.03 [-.11, .05]	.493	-.49 [-.55, -.43]	< .001	-.54 [-.60, -.48]	< .001
RUS	-.79 [-.81, -.76]	< .001	.06 [-.02, .14]	.142	-.70 [-.74, -.66]	< .001	-.78 [-.81, -.75]	< .001	-.23 [-.31, -.15]	< .001	-.63 [-.68, -.58]	< .001	-.56 [-.61, -.50]	< .001
SK	-.04 [-.12, .04]	.336	.13 [.05, .21]	.002	-.02 [-.10, .06]	.688	-.14 [-.22, -.06]	.001	.02 [-.06, .10]	.647	-.03 [-.11, .05]	.417	.06 [-.02, .14]	.185
SJ	-.02 [-.10, .06]	.728	.04 [-.04, .12]	.395	.00 [-.08, .08]	.951	-.07 [-.15, .01]	.081	-.11 [-.19, -.03]	.012	-.03 [-.11, .05]	.548	.06 [-.02, .14]	.146
CH	-.05 [-.13, .03]	.217	.05 [-.03, .13]	.250	.01 [-.07, .09]	.778	.03 [-.05, .11]	.459	.12 [.04, .20]	.006	.12 [.04, .20]	.003	-.03 [-.11, .05]	.515
IS	-.08 [-.16, .00]	.053	.00 [-.08, .08]	.925	-.08 [-.16, .00]	.058	-.10 [-.18, -.02]	.017	-.04 [-.12, .04]	.309	-.04 [-.12, .04]	.362	-.07 [-.15, .01]	.104
MI	-.21 [-.29, -.13]	< .001	.02 [-.06, .10]	.627	-.18 [-.26, -.10]	< .001	-.07 [-.15, .01]	.110	.20 [.12, .28]	< .001	-.15 [-.23, -.07]	< .001	-.34 [-.41, -.27]	< .001
OI	-.27 [-.34, -.19]	< .001	-.09 [-.17, -.01]	.032	-.35 [-.42, .28]	< .001	-.01 [-.09, .07]	.786	-.02 [-.10, .06]	.642	-.24 [-.32, -.16]	< .001	-.26 [-.33, -.18]	< .001

Note. CS = Compassionate Self-responding; RUS = Reduced Uncompassionate Self-responding; SK = Self-Kindness; SJ = Self-judgment (reduced); CH = Common Humanity; IS = Isolation (reduced); MI = Mindfulness; OI = Over-Identification (reduced); Tot N = Total Neuroticism Score; CI = confidence interval; Note that negative SCS items are reverse-coded.

Table S4

Incremental Validity Predicting Life Satisfaction using Regression Analyses (based on factor scores), with Total Neuroticism Score Entered in Step 1 (Model S1a), Depression Entered Step 1 (Model S1b), or Anxiety Entered in Step 1 (Model S1c) with a Reduced Uncompassionate Self-Responding Factor (Derived from the Correlated Two-Bifactor CFA Model 5a) Score Entered in Step 2 for All Models in Study One (N = 576)

	R^2	ΔR^2	β	95% CI for β	p
Model S1a: *Life Satisfaction*					
Step 1	31.8				
Tot N			-.56	[-.62, -.51]	< .001
Step 2	34.0	2.2*			
Tot N			-.37	[-.48, -.27]	< .001
RUS			.24	[.14, .35]	< .001
Model S1b: *Life Satisfaction*					
Step 1	37.0				
Depression			-.61	[-.66, -.56]	< .001
Step 2	38.0	1.0*			
Depression			-.49	[-.58, -.39]	< .001
RUS			.16	[.05, .26]	.003
Model S1c: *Life Satisfaction*					
Step 1	1.9				
Anxiety			.14	[.06, .22]	.001
Step 2	29.9	28.8*			
Anxiety			.10	[.04, .17]	.003
RUS			.53	[.47, .59]	< .001

Note. R^2 = proportion of explained variance; ΔR^2 = change in explained variance; *β* = standardized regression coefficient; Tot N = Total Neuroticism Score; RUS = Reduced Uncompassionate Self-responding; CI = confidence interval; Note that negative SCS items are reverse-coded.; **p* < .01.

Table S5

Cronbach's Alphas and Zero-Order Correlations between Observed Scores for all Variables in Study Two (N = 581)

	α	CS	RUS	SK	SJ	CH	IS	MI	OI
Tot SC	.96	.92 [.91, .93]	.94 [.93, .95]	.88 [.86, .90]	.90 [.88, .92]	.76 [.72, .79]	.87 [.85, .89]	.84 [.82, .86]	.86 [.84, .88]
CS	.94	--	.74 [.70, .77]	.90 [.88, .91]	.72 [.68, .76]	.89 [.87, .91]	.68 [.63, .72]	.91 [.90, .92]	.67 [.62, .71]
RUS	.95		--	.74 [.70, .77]	.93 [.92, .94]	.58 [.52, .63]	.93 [.92, .94]	.68 [.63, .72]	.93 [.92, .94]
SK	.90			--	.77 [.74, .80]	.66 [.61, .70]	.67 [.62, .71]	.76 [.72, .79]	.64 [.59, .69]
SJ	.90				--	.54 [.48, .60]	.81 [.78, .84]	.64 [.59, .69]	.78 [.75, .81]
CH	.85					--	.56 [.50, .61]	.71 [.67, .75]	.51 [.45, .57]
IS	.86						--	.61 [.56, .66]	.79 [.76, .82]
MI	.84							--	.66 [.61, .70]
OI	.87								--
Tot N	.96								
ANX	.88								
AH	.83								
DEP	.91								
SC	.69								
IMP	.81								
VUL	.88								
DERS	.89								

(continued on following page)

Table S5 (continued)

	Tot N	ANX	AH	DEP	SC	IMP	VUL	DERS
Tot SC	-.84	-.72	-.66	-.84	-.72	-.57	-.71	-.51
	[-.86, -.82]	[-.76, -.68]	[-.70, -.61]	[-.86, -.82]	[-.76, -.68]	[-.62, -.51]	[-.75, -.67]	[-.57, -.45]
CS	-.70	-.59	-.57	-.72	-.60	-.47	-.61	-.36
	[-.74, -.66]	[-.64, -.54]	[-.62, -.51]	[-.76, -.68]	[-.65, -.55]	[-.53, -.41]	[-.66, -.56]	[-.43, -.29]
RUS	-.84	-.75	-.67	-.84	-.73	-.58	-.70	-.57
	[-.86, -.82]	[-.78, -.71]	[-.71, -.62]	[-.86, -.82]	[-.77, -.69]	[-.63, -.52]	[-.74, -.66]	[-.62, -.51]
SK	-.68	-.58	-.53	-.72	-.59	-.48	-.56	-.34
	[-.72, -.63]	[-.63, -.52]	[-.59, -.47]	[-.76, -.68]	[-.64, -.54]	[-.54, -.42]	[-.61, -.50]	[-.41, -.27]
SJ	-.76	-.66	-.61	-.79	-.67	-.55	-.61	-.51
	[-.79, -.72]	[-.70, -.61]	[-.66, -.56]	[-.82, -.76]	[-.71, -.62]	[-.60, -.49]	[-.66, -.56]	[-.57, -.45]
CH	-.53	-.43	-.44	-.56	-.44	-.34	-.45	-.29
	[-.59, -.47]	[-.49, -.36]	[-.50, -.37]	[-.61, -.50]	[-.50, -.37]	[-.41, -.27]	[-.51, -.38]	[-.36, -.21]
IS	-.75	-.67	-.57	-.78	-.66	-.50	-.61	-.51
	[-.78, -.71]	[-.71, -.62]	[-.62, -.51]	[-.81, -.75]	[-.70, -.61]	[-.56, -.44]	[-.66, -.56]	[-.57, -.45]
MI	-.69	-.58	-.56	-.67	-.60	-.47	-.65	-.35
	[-.73, -.65]	[-.63, -.52]	[-.61, -.50]	[-.71, -.62]	[-.65, -55]	[-.53, -.41]	[-.69, -.60]	[-.42, -.28]
OI	-.83	-.76	-.67	-.77	-.70	-.58	-.73	-.59
	[-.85, -.80]	[-.79, -.72]	[-.71, -.62]	[-.80, -.74]	[-.74, -.66]	[-.63, -.52]	[-.77, -.69]	[-.64, -.54]
Tot N	--	.88	.81	.92	.86	.76	.90	.60
		[-.90, -.86]	[.78, .94]	[.91, .93]	[.84, .88]	[.72, .79]	[.88, .91]	[.55, .65]
ANX		--	.63	.77	.74	.58	.78	.55
			[.58, .68]	[.74, .80]	[.70, .77]	[.52, .63]	[.75, .81]	[.49, .60]
AH			--	.67	.59	.57	.69	.52
				[.62, .71]	[.54, .64]	[.51, .62]	[.65, .73]	[.46, .58]
DEP				--	.80	.82	.78	.55
					[.77, .83]	[.79, .84]	[.75, .81]	[.49, .60]
SC					--	.55	.74	.49
						[.49, .60]	[.70, .77]	[.43, .55]
IMP						--	.63	.41
							[.58, .68]	[.34, .48]
VUL							--	.56
								[.50, .61]
DERS								--

Note. Tot SC = Total Self-Compassion; CS = Compassionate Self-responding; RUS = Reduced Uncompassionate Self-responding; SK = Self-Kindness; SJ = Self-judgment (reduced); CH = Common Humanity; IS = Isolation (reduced); MI = Mindfulness; OI = Over-Identification (reduced); Tot N = Total Neuroticism Score; ANX = Anxiety; AH = Angry Hostility; DEP = Depression; SC = Self-Consciousness; IMP = Impulsivity; VUL = Vulnerability; DERS = Difficulties in Emotion Regulation Scale; Note that negative SCS items are reverse-coded; Numbers in brackets are 95% confidence intervals; All correlations are significant at $p < .001$.

Table S6

Goodness-of-Fit Statistics for the Estimated Models for the Self-Compassion Scale, the Neuroticism factor of the NEO P-RI and the Difficulties in Emotion Regulation Scale in Study Two (N = 581)

Model	χ^2	df	CFI	TLI	RMSEA	90% CI	WRMR	PCFI
Self-Compassion Scale								
1a. One-factor CFA: One G-factor (SC)	4313*	299	.87	.86	.15	.15-.16	2.87	.80
1b. One-factor ESEM: One G-factor (SC)	4313*	299	.87	.86	.15	.15-.16	2.87	.80
2a. Two-factor CFA: Two G-factors (CS, RUS)	2765*	298	.92	.91	.12	.12-.12	2.13	.84
2b. Two-factor ESEM: Two G-factors (CS, RUS)	2641*	274	.92	.91	.12	.12-.13	1.76	.84
3a. Six-factor CFA: Six S-factors (SK, SJ, CH, IS, MI, OI)	1641*	284	.96	.95	.09	.09-.10	1.48	.84
3b. Six-factor ESEM: Six S-factors (SK, SJ, CH, IS, MI, OI)	470*	184	.99	.98	.05	.05-.06	0.48	.56
4a. Bifactor CFA: One G-factor (Sc) Six S-factors (SK, SJ, CH, IS, MI, OI)	2164*	273	.94	.93	.11	.11-.11	1.83	.79
4b. Bifactor ESEM: One G-factor (Sc) Six S-factors (SK, SJ, CH, IS, MI, OI)	379*	164	.99	.99	.05	.04-.05	0.41	.50
5a. Two-bifactor CFA: Two G-factors (CS, RUS) Six S-factors (SK, SJ, CH, IS, MI, OI)†	1336*	272	.97	.96	.08	.08-.09	1.31	.81
5b. Two-bifactor ESEM: Two G-factors (CS, RUS) Six S-factors (SK, SJ, CH, IS, MI, OI)	306*	157	.99	.99	.04	.03-.05	0.38	.48
NEO Personality Inventory Revised								
6a. Six-factor CFA	4406*	1065	.91	.91	.07	.07-.08	1.86	.86
6b. Six-factor ESEM	1839*	855	.97	.97	.05	.04-.05	0.84	.74
Difficulties in Emotional Regulation Scale								
7a. Six-factor CFA	4934*	579	.89	.88	.11	.11-.12	2.78	.82
7b. Six-factor ESEM	1094*	429	.98	.98	.05	.05-.06	0.60	.67

Note. χ^2 = Chi-square test of exact fit; df = Degrees of freedom; CFI = Comparative fit index; TLI = Tucker-Lewis index; RMSEA = Root mean square error of approximation; 90% CI = 90% confidence interval of the RMSEA; WRMR = Weighted root-mean-square residual; PCFI = Parsimony-corrected CFI; SC = Self-Compassion; CS = Compassionate Self-responding; RUS = Reduced Uncompassionate Self-responding; SK = Self-kindness; SJ = Self-judgment (reduced); CH = Common humanity; IS = Isolation (reduced); MI = Mindfulness; OI = over-identification (reduced); G-factor = global factor; S-factor = specific factor; † = The model had a negative residual variance for an observed variable, resulting in identification issues and possible over-parameterization.;*$p < .01$.

Table S7

Standardized Parameter Estimates for the CFA and ESEM Solutions of the Self-Compassion Scale in Study Two (N = 581)

	Model 3a: Six-Factor CFA	Model 3b: Six-Factor ESEM						Model 4a: Bifactor CFA		Model 4b: Bifactor ESEM						
	SF (λ)	SK (λ)	SJ (λ)	CH (λ)	IS (λ)	MI (λ)	OI (λ)	SC (λ)	SF (λ)	SC (λ)	SK (λ)	SJ (λ)	CH (λ)	IS (λ)	MI (λ)	OI (λ)
Self-kindness																
sk5	**.79**	**.72**	*-.03*	.16	*.05*	*.01*	*-.03*	**.69**	**.46**	**.69**	**.43**	-.13	.14	*-.04*	*.02*	-.11
sk12	**.86**	**.80**	*.03*	.07	*.04*	*.02*	*.02*	**.76**	**.49**	**.76**	**.47**	-.09	.06	-.05	*.01*	-.08
sk19	**.87**	**.67**	*.01*	*.04*	.10	.17	*.03*	**.79**	**.37**	**.76**	**.43**	*.01*	.09	*.02*	.13	*.01*
sk23	**.81**	**.33**	.44	*-.04*	*.02*	.32	*-.04*	**.75**	**.17**	**.73**	**.17**	.29	*-.04*	*-.05*	.16	-.09
sk26	**.84**	**.43**	.33	*.06*	*.04*	.31	-.13	**.77**	**.24**	**.74**	**.27**	.24	.07	*-.03*	.19	-.12
Self-judgment																
sj1	**.84**	.18	**.58**	*.02*	.09	*.00*	.20	**.79**	**.39**	**.81**	*.00*	**.28**	-.12	*-.02*	-.14	*.00*
sj8	**.85**	.29	**.32**	.09	.15	-.07	.28	**.81**	**.25**	**.82**	.08	**.11**	*-.04*	*.03*	-.14	.08
sj11	**.76**	.15	**.50**	.08	.13	*.05*	*.05*	**.71**	**.33**	**.73**	*.01*	**.26**	*-.04*	*.01*	-.08	-.07
sj16	**.90**	.10	**.51**	*-.02*	.27	.10	.16	**.85**	**.25**	**.86**	-.06	**.22**	-.15	.07	-.06	*-.02*
sj21	**.84**	.47	**.19**	*.02*	.14	-.11	.31	**.80**	**.17**	**.79**	.23	***.09***	*-.03*	.06	-.15	.16
Common humanity																
ch3	**.70**	-.09	-.17	**.46**	.17	.29	*.07*	**.55**	**.33**	**.53**	*-.03*	-.15	**.34**	.07	.26	*.04*
ch7	**.84**	*.04*	*-.05*	**.91**	*.05*	-.09	*-.04*	**.62**	**.62**	**.61**	.08	-.07	**.63**	*-.01*	*-.02*	-.06
ch10	**.85**	*.03*	*.00*	**.93**	-.12	*.04*	*-.01*	**.63**	**.65**	**.61**	.09	*-.01*	**.66**	-.10	.08	*-.04*
ch15	**.87**	*.06*	*.03*	**.60**	.08	.22	*-.06*	**.69**	**.42**	**.65**	.09	*.04*	**.45**	*.01*	.19	*-.04*
Isolation																
is4	**.87**	*-.03*	.26	.20	**.36**	*.02*	.22	**.81**	**.16**	**.82**	-.12	*-.02*	*-.01*	**.14**	-.07	*.02*
is13	**.81**	.06	*.00*	-.09	**.85**	.05	*-.01*	**.71**	**.45**	**.71**	*.00*	.07	-.06	**.51**	*.00*	.05
is18	**.78**	*-.04*	-.13	*-.03*	**1.06**	*-.02*	*-.05*	**.68**	**.67**	**.69**	-.06	*-.03*	*-.02*	**.58**	*-.04*	.05
is25	**.86**	*.06*	.30	.32	**.27**	-.14	.20	**.80**	**.11**	**.81**	*-.05*	*.04*	.08	**.08**	-.18	*.00*
Mindfulness																
mi9	**.69**	.14	-.14	*.05*	*-.06*	**.48**	.39	**.61**	**.36**	**.58**	.07	-.11	.07	*-.06*	**.38**	.26
mi14	**.85**	.14	-.06	.16	.08	**.58**	.15	**.75**	**.53**	**.72**	.08	-.09	.15	*-.01*	**.45**	.07
mi17	**.86**	.08	.07	.22	*.05*	**.51**	.14	**.77**	**.35**	**.76**	*.01*	-.06	.14	-.05	**.38**	*.00*
mi22	**.80**	.37	*.00*	.20	*.08*	**.39**	-.11	**.72**	**.21**	**.65**	.26	*.01*	.21	*.00*	**.31**	-.09
Over-identification																
oi2	**.89**	*-.06*	.28	.11	.22	.09	**.45**	**.82**	**.27**	**.83**	-.16	.06	-.06	.08	*-.03*	**.20**
oi6	**.90**	*.00*	.46	.12	.21	.04	**.25**	**.84**	**.07**	**.88**	-.18	*-.04*	-.17	*-.03*	-.10	***-.10***
oi20	**.79**	*-.05*	*.01*	*.01*	.12	.13	**.75**	**.69**	**.58**	**.71**	-.14	-.05	-.08	.07	.05	**.46**
oi24	**.78**	*.00*	*.00*	*-.05*	*-.01*	.23	**.79**	**.68**	**.52**	**.69**	-.09	*.01*	-.08	*.01*	.14	**.54**

Table S7 (Cont.)

Standardized Parameter Estimates for the CFA and ESEM Solutions of the Self-Compassion Scale in Study Two (N = 581)

	Model 5a: Two-Bifactor CFA			Model 5b: Two-Bifactor ESEM							
	CS (λ)	RUS (λ)	SF[1]	CS (λ)	RUS (λ)	SK (λ)	SJ (λ)	CH (λ)	IS (λ)	MI (λ)	OI (λ)
Self-kindness											
sk5	**.74**		**.42**	**.37**		**.58**	.34	.24	.21	.16	.08
sk12	**.82**		**.38**	**.37**		**.61**	.42	.20	.22	.14	.14
sk19	**.84**		**.22**	**.47**		**.50**	.41	.18	.26	*-.01*	.30
sk23	**.81**		**-.11**	**.31**		**.20**	.69	*.11*	.17	*.07*	.22
sk26	**.83**		***.01***	**.42**		**.26**	.62	.18	.20	*.07*	.17
Self-judgment											
sj1		**.82**	**.29**		***-.13***	.25	**.71**	.13	.28	.11	.25
sj8		**.84**	***.07***		***-.06***	.39	**.57**	.21	.30	.19	.28
sj11		**.74**	**.27**		***.01***	.21	**.69**	.20	.23	.17	.14
sj16		**.88**	**.19**		***-.12***	.21	**.71**	.15	.38	.09	.31
sj21		**.84**	***-.05***		***.06***	.51	**.51**	.21	.24	.12	.35
Common humanity											
ch3	**.58**		**.29**	**.34**		*.06*	.12	**.41**	.27	.25	.24
ch7	**.65**		**.58**	**.28**		.24	.21	**.74**	.20	.08	.09
ch10	**.66**		**.62**	**.36**		.19	.25	**.75**	.10	.10	.13
ch15	**.72**		**.38**	**.41**		.14	.32	**.53**	.23	.13	.18
Isolation											
is4		**.83**	**.11**		***-.16***	.23	.46	.26	**.49**	.24	.28
is13		**.73**	**.37**		***.23***	.18	.41	.12	**.65**	.12	.29
is18		**.70**	**.72**		***.16***	.16	.31	.15	**.73**	.08	.29
is25		**.82**	**.06**		***-.16***	.29	.49	.35	**.42**	*.06*	.27
Mindfulness											
mi9	**.64**		**.29**	**.36**		.14	.20	.15	.13	**.34**	.48
mi14	**.78**		**.51**	**.48**		.16	.32	.24	.24	**.45**	.34
mi17	**.80**		**.26**	**.40**		.13	.41	.28	.23	**.42**	.30
mi22	**.75**		**.12**	**.56**		.23	.35	.25	.24	***.13***	.19
Over-identification											
oi2		**.84**	**.22**		***-.19***	.18	.48	.20	.41	.17	**.49**
oi6		**.86**	***.00***		**-.32**	.23	.58	.16	.43	.21	**.26**
oi20		**.71**	**.55**		***-.11***	.15	.29	.15	.30	.18	**.71**
oi24		**.70**	**.50**		***-.01***	.15	.32	.14	.17	.27	**.75**

Note. CFA = confirmatory factor analysis; ESEM = exploratory structural equation modeling; SC = global self-compassion factor; SF = intended specific factor of the Self-Compassion Scale; CS = Compassionate Self-responding factor; RUS = Reduced Uncompassionate Self-responding factor; SK = self-kindness; SJ = self-judgment (reduced); CH = common humanity; IS = isolation (reduced); MI = mindfulness; OI = over-identification (reduced); Note that negative SCS items are reverse-coded; λ = standardized factor loadings; [1] = Each item loaded on their respective specific factor, while cross-loadings were constrained to zero; Target factor loadings are in bold. Non-significant parameters ($p \geq .05$) are italicized.

Table S8

Correlations (based on factor scores) between the Global and Specific Factors of Self-Compassion (using the Bifactor-ESEM Model 4b) and Neuroticism in Study Two (N = 581)

	Tot N		Anxiety		Angry hostility		Depression		Self-consciousness		Impulsivity		Vulnerability	
	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p	r [95% CI]	p
Tot SC	-.82 [-.84, -.79]	< .001	-.59 [-.64, -.54]	< .001	-.56 [-.61, -.50]	< .001	-.80 [-.83, -.77]	< .001	-.01 [-.09, .07]	.883	-.66 [-.70, -.61]	< .001	-.56 [-.61, -.50]	< .001
SK	.02 [-.06, .10]	.700	.11 [.03, .19]	.010	.01 [-.07, .09]	.769	-.06 [-.14, .02]	.185	.06 [-.02, .14]	.148	.02 [-.06, .10]	.706	.02 [-.06, .10]	.702
SJ	-.09 [-.17, -.01]	.032	-.10 [-.18, -.02]	.016	-.02 [-.10, .06]	.598	-.10 [-.18, .02]	.021	-.02 [-.10, .06]	.968	-.11 [-.19, -.03]	.009	.03 [-.05, .11]	.501
CH	.07 [-.01, .15]	.097	.12 [.04, .20]	.004	-.01 [-.09, .07]	.877	.01 [-.07, .09]	.850	.13 [.05, .21]	.002	.13 [.05, .21]	.003	-.01 [-.09, .07]	.793
IS	-.08 [-.16, .00]	.065	-.12 [-.20, -.04]	.003	-.05 [-.13, .03]	.238	-.12 [-.20, -.04]	.004	-.03 [-.11, .05]	.444	-.04 [-.12, .04]	.378	.03 [-.05, .11]	.460
MI	-.15 [-.23, -.07]	< .001	-.13 [-.21, -.05]	.002	-.09 [-.17, -.01]	.035	.02 [-.06, .10]	.626	.19 [.11, .27]	< .001	-.09 [-.17, -.01]	.037	-.30 [-.37, -.23]	< .001
OI	-.22 [-.30, -.14]	< .001	-.21 [-.29, -.13]	< .001	-.34 [-.41, -.27]	< .001	.00 [-.08, .08]	.970	.04 [-.04, .12]	.318	-.20 [-.28, -.12]	< .001	-.21 [-.29, -.13]	< .001

Note. Tot SC = Total Self-Compassion; SK = Self-Kindness; SJ = Self-judgment (reduced); CH = Common Humanity; IS = Isolation (reduced); MI = Mindfulness; OI = Over-Identification (reduced); Tot N = Total Neuroticism Score; CI = confidence interval; Note that negative SCS items are reverse-coded.

Table S9

Incremental Validity Predicting Difficulties in Emotion Regulation using Regression Analyses with Observed Scores, with Total Neuroticism Score Entered in Step 1 (Model S2a), Depression Entered Step 1 (Model S2b), or Anxiety Entered in Step 1 (Model S2c), and Reduced Uncompassionate Self-Responding Score Entered in Step 2 for all Models in Study Two (N = 581)

	R^2	ΔR^2	β	95% CI for β	p
Model S2a: *Diff. in Emo. Regulation*					
Step 1	62.2				
Tot N			.79	[.76, .82]	< .001
Step 2	63.6	1.4*			
Tot N			.61	[.53, .70]	< .001
RUS			-.21	[-.30, -.12]	< .001
Model S2b: *Diff. in Emo. Regulation*					
Step 1	58.1				
Depression			.76	[.73, .80]	< .001
Step 2	60.6	2.5*			
Depression			.52	[.43, .61]	< .001
RUS			-.29	[-.39, -.20]	< .001
Model S2c: *Diff. in Emo. Regulation*					
Step 1	44.6				
Anxiety			.67	[.62, .71]	< .001
Step 2	56.3	11.7*			
Anxiety			.29	[.20, .37]	< .001
RUS			-.51	[-.59, -.44]	< .001

Note. R^2 = proportion of explained variance; ΔR^2 = change in explained variance; β = standardized regression coefficient; CI = confidence interval; Tot N = Total Neuroticism Score; RUS – Reduced Uncompassionate Self-Responding score; Note that negative SCS items are reverse-coded.; $*p < .01$.

Table S10

Cronbach's Alphas and Zero-Order Correlations between Observed Scores for all Variables in Study Three (N = 177)

	α	Tot SC	CS	RUS	SK	SJ	CH	IS	MI	OI
Tot SC	.91	--	.85** [.80, .89]	.88** [.84, .91]	.78** [.72, .83]	.76** [.69, .82]	.67** [.58, .74]	.77** [.70, .82]	.74** [.67, .80]	.77** [.70, .82]
CS	.88		--	.50** [.38, .60]	.87** [.83, .90]	.44** [.31, .55]	.84** [.79, .88]	.45** [.33, .56]	.85** [.80, .89]	.43** [.30, .54]
RUS	.87			--	.50** [.38, .60]	.86** [.82, .89]	.35** [.21, .47]	.88** [.84, .91]	.45** [.33, .56]	.88** [.84, .91]
SK	.81				--	.51** [.39, .61]	.59** [.49, .68]	.41** [.28, .53]	.65** [.56, .73]	.40** [.27, .52]
SJ	.71					--	.25** [.11, .38]	.63** [.53, .71]	.38** [.25, .50]	.66** [.57, .74]
CH	.72						--	.36** [.23, .48]	.54** [.43, .64]	.30** [.16, .43]
IS	.76							--	.37** [.24, .49]	.64** [.54, .72]
MI	.71								--	.41** [.28, .53]
OI	.73									--
Tot N	.74									
RW	.73									
AW	.67									
HAP	.88									
OPT	.73									
CUR	.73									
PI	.89									
PA	.90									
NA	.85									
SE	.89									
PWB	.95									

(continued on following page)

Table S10 (continued)

	Tot N	RW	AW	HAP	OPT	CUR	PI	PA	NA	SE	PWB
Tot SC	-.65**	.61**	.26**	.57**	.62**	.28**	.45**	.34**	-.36**	.64**	.54**
	[-.73, -.55]	[.51, .69]	[.12, .39]	[.46, .66]	[.52, .70]	[.14, .41]	[.32, .56]	[.20, .46]	[-.48, -.23]	[.54, .72]	[.43, .64]
CS	-.48**	.53**	.20**	.47**	.56**	.32**	.39**	.39**	-.20**	.56**	.45**
	[-.59, -.35]	[.42, .63]	[.06, .34]	[.35, .58]	[.45, .65]	[.18, .45]	[.26, .51]	[.26, .51]	[-.34, -.05]	[.45, .65]	[.32, .56]
RUS	-.67**	.54**	.26**	.53**	.52**	.18*	.40**	.22**	-.42**	.55**	.50**
	[-.75, -.58]	[.43, .64]	[.12, .39]	[.41, .63]	[.40, .62]	[.03, .32]	[.27, .52]	[.07, .36]	[-.53, -.29]	[.44, .65]	[.38, .60]
SK	-.46**	.41**	.16*	.45**	.51**	.23**	.38**	.35**	-.20**	.49**	.39**
	[-.57, -.33]	[.28, .53]	[.01, .03]	[.32, .56]	[.39, .61]	[.09, .37]	[.24, .50]	[.21, .47]	[-.34, -.05]	[.37, .59]	[.26, .51]
SJ	-.50**	.41**	.20**	.45**	.43**	.08	.28**	.15	-.34**	.46**	.35**
	[-.61, -.38]	[.28, .53]	[.06, .34]	[.32, .56]	[.30, .54]	[-.07, .23]	[.14, .41]	[.00, .29]	[-.46, -.20]	[.34, .57]	[.21, .48]
CH	-.36**	.42**	.15	.38**	.45**	.25**	.35**	.35**	-.09	.48**	.40**
	[-.49, -.22]	[.29, .53]	[.00, .29]	[.24, .50]	[.32, .56]	[.11, .38]	[.21, .48]	[.21, .47]	[-.23, .06]	[.36, .59]	[.27, .52]
IS	-.62**	.49**	.25**	.52**	.47**	.19*	.40**	.20**	-.36**	.54**	.51**
	[-.71, -.52]	[.37, .59]	[.11, .38]	[.40, .62]	[.35, .58]	[.04, .33]	[.27, .52]	[.05, .34]	[-.48, -.23]	[.43, .64]	[.39, .61]
MI	-.42**	.52**	.20**	.36**	.46**	.34**	.26**	.30**	-.22**	.47**	.36**
	[-.54, -.29]	[.40, .62]	[.06, .34]	[.22, .48]	[.34, .57]	[.20, .47]	[.12, .39]	[.16, .43]	[-.36, -.08]	[.35, .58]	[.22, .48]
OI	-.59**	.50**	.22**	.40**	.46**	.19*	.33**	.21**	-.40**	.44**	.43**
	[-.68, -.48]	[.38, .60]	[.08, .36]	[.27, .52]	[.34, .57]	[.04, .33]	[.19, .46]	[.07, .35]	[-.52, -.27]	[.31, .55]	[.30, .54]
Tot N	--	-.56**	-.22**	-.55**	-.60**	-.27**	-.44**	-.28**	.52**	-.59**	-.60**
		[-.66, -.45]	[-.36, -.07]	[-.65, -.44]	[-.69, -.50]	[-.40, -.13]	[-.56, -.31]	[-.41, -.13]	[.40, .62]	[-.68, -.48]	[-.69, -.49]
RW		--	.47**	.47**	.59**	.37**	.38**	.22**	-.39**	.61**	.64**
			[.35, .58]	[.35, .58]	[.49, .68]	[.24, .49]	[.24, .50]	[.08 .36]	[-.51, -.26]	[.51, .70]	[.54, .72]
AW			--	.35**	.27**	.18*	.15	.10	-.22**	.30**	.44**
				[.21, .48]	[.13, .40]	[.03, .32]	[.00, .29]	[-.05, .24]	[-.36, -.08]	[.16, .43]	[.31, .55]
HAP				--	.58**	.33**	.58**	.42**	-.30**	.62**	.62**
					[.47, .67]	[.19, .46]	[.47, .67]	[.29, .54]	[-.43, -.16]	[.52, .70]	[.52, .70]
OPT					--	.34**	.52**	.37**	-.34**	.66**	.61**
						[.16, .50]	[.40, .62]	[.24, .49]	[-.46, -.20]	[.68, .74]	[.51, .70]
CUR						--	.44**	.37**	-.08	.41**	.42**
							[.31, .55]	[.24, .49]	[-.23, .07]	[.28, .53]	[.29, .54]
PI							--	.47**	-.25**	.61**	.67**
								[.35, .58]	[-.39, .10]	[.51, .70]	[.58, .75]
PA								--	.04	.34**	.25**
									[-.11, .19]	[.20, .46]	[.10, .39]
NA									--	-.35**	-.35**
										[-.47, -.21]	[-.48, -.21]
SE										--	.72**
											[.64, .79]
PWB											--

Note. Tot SC = Total Self-Compassion; CS = Compassionate Self-responding; RUS = Reduced Uncompassionate Self-responding; SK = Self-Kindness; SJ = Self-judgment (reduced); CH = Common Humanity; IS = Isolation (reduced); MI = Mindfulness; OI = Over-Identification (reduced); Tot N = Total Neuroticism Score; ANX = Anxiety; AH = Angry Hostility; DEP = Depression; SC = Self-Consciousness; IMP = Impulsivity; VUL = Vulnerability; RW = Reflective Wisdom; AW = Affective Wisdom; HAP = Happiness; OPT = Optimism; CUR = Curiosity;

PI = Personal Initiative; PA = Positive Affect; NA = Negative Affect; SE = Self-Esteem; PWB = Psychological Wellbeing; Note that negative SCS items are reverse-coded; *p < .05; **p < .01.

References for the Supplementary Materials

Asparouhov, T., & Muthén, B. (2009). Exploratory structural equation modeling. *Structural Equation Modeling, 16,* 397-438.

Asparouhov, T., Muthén, B., & Morin, A.J.S. (2015). Bayesian Structural equation modeling with cross-loadings and residual covariances: Comments on Stromeyer et al. *Journal of Management, 41*, 1561-1577.

Browne, M. (2001) An overview of analytic rotation in exploratory factor analysis. *Multivariate Behavioral Research, 36*, 111-150.

Gignac, G.E. (2016). The higher-order model imposes a proportionality constraint: That is why the bifactor model tends to fit better. *Intelligence, 55*, 57–68.

Howard, J.L., Gagné, M., Morin, A.J.S., & Forest, J. (2017). Using bifactor exploratory structural equation modeling to test for a continuum structure of motivation. *Journal of Management.* Early view: doi: 10.1177/0149206316645653

Litalien, D., Morin, A.J.S., Gagné, M., Vallerand, R.J., Losier, G.F., & Ryan, R.M. (2017). Evidence of a continuum structure of academic self-determination: A two-study test using a bifactor-ESEM representation of academic motivation. *Contemporary Educational Psychology, 51*, 67-82.

Marsh, H., Morin, A.J.S., Parker, P., & Kaur, G. (2014). Exploratory structural equation modeling: An integration of the best features of exploratory and confirmatory factor analysis. *Annual Review of Clinical Psychology, 10*, 85-110.

Morin, A.J.S., Arens, A., & Marsh, H. (2016a). A bifactor exploratory structural equation modeling framework for the identification of distinct sources of construct-relevant psychometric multidimensionality. *Structural Equation Modeling*, *23*, 116-139.

Morin, A.J.S., Arens, K., Tran, A., & Caci, H. (2016b). Exploring sources of construct-relevant multidimensionality in psychiatric measurement: A tutorial and illustration using the Composite Scale of Morningness. *International Journal of Methods in Psychiatric Research*, *25*, 277-288.

Morin, A.J.S., Boudrias, J.-S., Marsh, H.W., Madore, I., & Desrumeaux, P. (2016). Further reflections on disentengling shape and level effects in person-centered analyses: An illustration exploring the dimensionality of psychological health. *Structural Equation Modeling, 23*, 438-454.

Morin, A.J.S., Boudrias, J.-S., Marsh, H.W., McInerney, D.M., Dagenais-Desmarais, V., Madore, I., & Litalien, D. (2017). Complementary variable- and person-centered approaches to the dimensionality of psychometric constructs: Application to psychological wellbeing at work. *Journal of Business and Psychology, 32*, 395-419.

Morin, A.J.S., Marsh, H.W., & Nagengast, B. (2013). Exploratory structural equation modeling. In G.R. Hancock & R.O. Mueller (Eds.), *Structural equation modeling: a second course* (pp. 395–436). Charlotte: Information Age.

Reise, S.P. (2012). The rediscovery of bifactor measurement models. *Multivariate Behavioral Research, 47*, 667-696.

Rodriguez, A., Reise, S.P., & Haviland, M.G. (2016). Evaluating bifactor models: Calculating and interpreting statistical indices. *Psychological Methods, 21*, 137-150.

Sànchez-Oliva, D., Morin, A.J.S., Teixeira, P.J., Carraça, E.V., Palmeira, A.L., & Silva, M.N. (2017). A bifactor-exploratory structural equation modeling representation of the structure of basic psychological needs at work scale. *Journal of Vocational Behavior*, *98*, 173-187.