Mindfulness
https://doi.org/10.1007/s12671-020-01505-4

ORIGINAL PAPER

The Development and Validation of the State Self-Compassion Scale (Long- and Short Form)

Kristin D. Neff[1] · István Tóth-Király[2] · Marissa C. Knox[1] · Ashley Kuchar[1] · Oliver Davidson[1]

Accepted: 11 September 2020

Abstract

Objectives The purpose of this research was to create two state measures of self-compassion based on the Self-Compassion Scale (SCS): an 18-item State Self-Compassion Scale-Long form (SSCS-L) that could be used to measure the six components of self-compassion, and a six-item State Self-Compassion Scale-Short form (SSCS-S) that could be used as a measure of global state self-compassion.

Methods Study 1 (N = 588) used a community sample to select items for the SSCS-L and SSCS-S. Confirmatory Factor Analyses, Exploratory Structural Equation Modeling (ESEM), and bifactor modeling were used to analyze the factor structure of the SSCS-L and SSCS-S. Predictive validity was assessed by examining associations with positive and negative affect. Study 2 (N = 411) used a student sample to examine the psychometric properties of the SSCS-L and SSCS-S after a self-compassion mindstate induction (SCMI) to determine if its factor structure would remain unchanged after manipulation. Study 3 (N = 139) examined the psychometric properties of the SSCS-S alone.

Results The SSCS-L had good psychometric properties and SSCS-S was also adequate. A bifactor-ESEM representation (with one global factor and six components) was supported for the SSCS-L, and a single factor was supported for the SSCS-S. Both scales were reliable. Psychometric properties were unchanged after the experimental manipulation of self-compassion. A total state self-compassion score and subscale scores were associated with positive and negative affect in the expected directions.

Conclusions The SSCS-L and SSCS-S appear to be valid measures of state self-compassion.

Keywords Self-compassion · State Self-Compassion Scale · Self-compassion manipulation · Experimental study · Bifactor-ESEM

Research into self-compassion has grown exponentially since the construct was first defined and measured by Neff (2003a, b) over 15 years ago. Self-compassion is a healthy way of relating to oneself in times of suffering, and applies to situations of failure, perceived inadequacy, or general life difficulties. As defined by Neff (2003b), a self-compassionate mindset represents the balance between increased compassionate and decreased uncompassionate self-responding to personal struggle. Specifically, it entails six distinct components that are all necessary for self-compassion: increased self-kindness, common humanity, mindfulness, reduced self-judgment, isolation, and overidentification. Self-kindness involves being supportive, caring, and understanding towards oneself in times of pain. Common humanity occurs when we recognize that all humans fail and make mistakes, so the experience of imperfection connects us to others. Mindfulness in the context of self-compassion means that one is aware of the present moment experience of suffering with perspective and balance. Self-judgment involves harshly criticizing oneself for one's failings and inadequacies. Isolation means we feel alone and cut off from others in the experience of suffering. Overidentification occurs when one becomes carried away with one's suffering to the point that perspective is lost.

Neff (2016) proposed that the elements of self-compassion can be loosely organized into three domains of responding to

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s12671-020-01505-4) contains supplementary material, which is available to authorized users.

✉ Kristin D. Neff
kneff@austin.utexas.edu

[1] Educational Psychology, University of Texas at Austin, 1912 Speedway, Suite 504, Austin, TX 78712-1289, USA

[2] Concordia University, Montreal, QC, Canada

Published online: 30 September 2020

suffering: affective, cognitive, and attentional. These are conceptually distinct and tap into more compassionate and less uncompassionate ways that individuals emotionally respond to suffering (with more kindness and less judgment), cognitively understand suffering (as part of the human experience rather than as isolating), and pay attention to suffering (in a more mindful and less overidentified manner). While the six elements of self-compassion are separable, they are thought to mutually impact one another and interact as a system. The system-level balance of these six elements represents a self-compassionate state of mind. The view of self-compassion as a system is supported by the fact that the components change in tandem (Ferrari et al. 2019), they mutually engender one another (Dreisoerner et al. 2020), and they are balanced within individuals (Phillips 2019).

Various measures of self-compassion exist. For instance, Gilbert et al. (2017) have created a measure of self-compassion that assesses two elements: engagement with suffering and action taken to alleviate it. Gu et al. (2019) have created a measure of self-compassion that assesses five elements: recognizing suffering; understanding the universality of suffering; feeling moved by suffering; tolerating uncomfortable feelings aroused in response to suffering; and the motivation to alleviate suffering. However, the vast majority of research on self-compassion has been conducted with the Self-Compassion Scale (SCS; Neff 2003a), which was designed to measure Neff's conceptualization of self-compassion.

The SCS contains 26 items written in a face-valid manner that assess how often individuals engage in the cognitive, attentional, and emotional behaviors associated with more compassionate and fewer uncompassionate responses to feelings of personal inadequacy and general life difficulties. The SCS has six subscales that can be used separately to represent the six components of self-compassion, or be combined to create a total score that represents the global mindset of self-compassion. Neff et al. (2019) argued that each of the three compassionate and uncompassionate components are conceptually meaningful and differentially contribute to the global self-compassion construct, and that differences between the positive and negative items within conceptual domains represent more than a simple wording effect. This is evidenced by factor analyses of the SCS, which did not support a three-factor solution (Brenner et al. 2017; Coroiu et al. 2018; Neff 2003a), and findings that the compassionate and uncompassionate components differentially explained the link between self-compassion and psychopathology (Neff et al. 2018a). The validity of the factor structure of the SCS—one global factor and six specific factors—has been confirmed in 23 samples (Neff et al. 2019; Neff et al. 2018b; Tóth-Király et al. 2017). Tóth-Király and Neff (2020) also demonstrated that the factor structure of the SCS is invariant across culture, gender, age, and population type (e.g., student, community, or clinical) in 18 international samples.

A large body of research indicates that self-compassion is linked to well-being (Zessin et al. 2015). For example, higher total scores on the SCS have been associated with higher levels of positive emotions such as life satisfaction, optimism, and happiness (Hollis-Walker and Colosimo 2011; Neff et al. 2007) as well as lower levels of negative emotions like depression, anxiety, and stress (MacBeth and Gumley 2012). While all six components of self-compassion contribute to well-being, reductions in psychopathology appear to be driven more powerfully by the lessened uncompassionate self-responding (i.e., reduced self-judgment, isolation, and over-identification) entailed by a self-compassionate mindset (Neff et al. 2018a). Most research using the SCS has used a total self-compassion score, but examination of the six components has been useful in examining specific well-being outcomes. For example, Körner et al. (2015) examined the link between the six self-compassion subscales and the trait of depression in a large community sample using regression analyses, and found that isolation predicted 18% of the variance in depressive symptomology, followed by overidentification and self-kindness which each predicted 2%, and mindfulness and self-judgment, which each predicted 1%. The use of the subscales helps to illuminate the mechanisms of action of self-compassion in terms of how it impacts outcomes.

The majority of research on self-compassion has been cross-sectional, and has used the SCS to examine trait levels of self-compassion and its relationship to other psychological traits. This approach, however, limits researchers' ability to make causal inferences. To address this limitation, there is an increasing trend toward examining how *change* in self-compassion impacts well-being. Some scholars have examined the efficacy of self-compassion interventions. For instance, Neff and Germer (2013) developed an 8-week self-compassion training program called Mindful Self-Compassion (MSC) that has been shown to increase self-compassion and enhance well-being for up to a year (see also Delaney 2018; Finlay-Jones et al. 2017; and Friis et al. 2016). Ferrari et al. (2019) recently conducted a meta-analysis of 27 randomized controlled trials of self-compassion interventions and found moderate to strong effect sizes in terms of increases in self-compassion and reductions in psychopathology, supporting the causal impact of self-compassion on well-being. They also found that all six subscales of the SCS changed significantly as a result of training, supporting the idea that the components of self-compassion operate in tandem as a system.

Another promising experimental approach to the study of self-compassion involves inducing a self-compassionate mindstate. One of the first studies to attempt to induce a self-compassionate mindstate was conducted by Leary et al. (2007), who asked participants to recall a past event that made them feel badly about themselves, then guided them through a series of writing prompts designed to evoke self-compassion.

The study found that compared with control conditions, those in the self-compassionate writing condition experienced a greater decrease in negative affect. Several researchers have used this induction in experimental studies of self-compassion (e.g., Blackie and Kocovski 2018; Odou and Brinker 2014). Other researchers have used variations on this writing task or different approaches such as guided meditation (e.g., Breines and Chen 2012; Kirschner et al. 2019) to determine if changes in state self-compassion impact well-being.

A limitation in the experimental study of self-compassion, however, stems from the fact that currently, there is not a validated measure of state self-compassion. Researchers have typically created ad hoc measures of state self-compassion which has involved taking a few items from the trait SCS and changing the wording to present tense to determine the degree of change observed in self-compassion after experimental induction (e.g., Blackie and Kocovski 2018; Breines and Chen 2012; Kirschner et al. 2019). However, these researchers have not presented psychometric evidence for the validity of these measures beyond calculating reliability. Also, these ad hoc measures have typically been designed to measure overall levels of self-compassion but not its components. A state scale that could assess the six components would be useful as it would allow for researchers to more clearly assess the mechanisms of state self-compassion in terms of impacts on well-being. It would also make it possible to determine if all six components change simultaneously, confirming that they operate together in real time.

However, a brief measure of state self-compassion would also be useful when used as a manipulation check for experimental studies, or when examination of the six components of self-compassion is not required. Several psychologists (e.g. Burisch 1997; Gosling et al. 2003) have demonstrated the value of very brief measures of constructs which, although not generally as psychometrically valid as their longer counterparts, greatly reduce participant burden and enable the inclusion of a measure in research that might not otherwise be possible due to time constraints.

For this reason, the series of studies presented here were designed to create and validate two measures of state self-compassion based on Neff's theoretical model—a state self-compassion scale-long form (SSCS-L) that can assess a global self-compassionate mindstate and its six constituent components, as well as a state self-compassion scale-short form (SSCS-S) that can be used as a brief measure of a global self-compassionate mindstate only. Study 1 was aimed at developing and selecting items for the SSCS-L and SSCS-S. We planned to cross-validate the factor structure of scales in study 2 and also included a self-compassion mindstate induction (SCMI) to determine if the scales could effectively measure change in state self-compassion. The purpose of study 3 was to replicate findings with the SSCS-S from study 2 when the short scale was given on its own.

Study 1

Our goal was to create measures of state self-compassion that were as brief as possible to reduce participant burden and to facilitate their use in experimental settings. We planned to create the SSCS-L with three items per subscale—the minimum number of items needed for adequate model identification (Kline 2015). We planned to create the SSCS-S with one item per subscale—the minimum need to create a brief but comprehensive and face-valid proxy measure of global state self-compassion (Smith et al. 2000). Brief measures are useful when researchers have limited time resources or when the constructs are measured multiple times (e.g., during experiments or interventions; Danner et al. 2019; Konrath et al. 2018). In addition to examining reliability, we examined whether the SSCS-S items would have a unitary factor structure given that specification of a complex multidimensional model was not possible. We were unsure how strong model fit would be, because research demonstrates that SCS items do not form a single factor (Neff et al. 2019). We also wanted to determine if the SSCS-S was correlated strongly enough with the SSCS-L to suggest it could serve as a proxy measure of global self-compassion. We included measures of positive and negative affect to provide predictive validity for both scales.

Method

Participants

Participants were recruited from Mechanical Turk, a labor marketplace, which has been shown to produce reliable data even at low levels of remuneration (Buhrmester et al. 2011). Mechanical Turk workers located in the USA who had at least a 95% HIT approval rate were invited to participate in the study. Workers who agreed to participate were paid $1.00 to fill out a 5-min survey. There were originally 614 respondents to the study, but 26 failed to pass an attention check and were therefore excluded. A total of 588 participants were retained in this study. The mean age was 35.2 (SD = 10.1, range 18–74). In terms of self-reported gender, 58% identified as male, 40.6% as female, while the remaining identified as other or did not wish to indicate. In terms of self-reported race/ethnicity, 68.4% were White; 12.1% Asian, 8.0% Black, 7.1% Hispanic, and 6.8% other. In terms of education, 0.9% did not finish high school, 7% had a high school diploma, 21.4% had some college, 12.8% had an associate's degree, 42.5% had a bachelor's degree, and 15.1% had a graduate degree.

Procedures

Participants were told that the purpose of the study was to examine self-attitudes when experiencing painful or difficult

emotions. They next filled out basic demographic questions, followed by 26 state self-compassion items, followed by a measure of positive and negative affect. Two attention check items were included that instructed participants to select a certain response to ensure they were paying attention.

Measures

State Self-Compassion Scale Item Pool The trait SCS is a 26-item measure that assesses the general tendency to respond self-compassionately by directing respondents to think about "How I typically act toward myself in difficult times." Items are designed to tap into different types of suffering including feelings of personal inadequacy, mistakes and failures, and life difficulties. Response options for the trait SCS range from 1 (almost never) to 5 (almost always), assessing the trait of self-compassion over time. To create a state version of the SCS, we followed the procedure used by other researchers when creating state measures of traits such as emotion regulation (Lavender et al. 2017) or rumination (Marchetti et al. 2018). First, we rewrote the 26 SCS items so that they included present moment language. For instance, "I'm kind to myself when I'm experiencing suffering" became "I'm being kind to myself." We also modified the response instructions. Because it was necessary that responses to items be focused on a single instance of suffering occurring in the moment (given that self-compassion is a response to suffering), participants were directed to "Think about a situation you are experiencing right now that is painful or difficult. It could be some challenge in your life, or perhaps you are feeling inadequate in some way. Please indicate how well each statement applies to how you are feeling toward yourself right now as you think about this situation." Items were created that referred to the type of response itself, independent of whether life difficulties or personal inadequacies were being considered. For instance, "When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world" was rewritten as "I'm feeling separate and cut off from the rest of the world." Response options ranged from 1 (not at all true for me) to 5 (very true for me), allowing for assessment of participants' current level of self-compassion. Note that items representing self-judgment, isolation, and overidentification were reverse-coded to indicate their relative absence.

Positive and Negative Affect The PANAS (Watson et al. 1988) is a 20-item self-report measure of positive and negative mood. Participants are asked to rate how they are feeling in the moment using a series of adjectives (e.g., strong, distressed). Responses are given on a scale of 1 (very slightly or not at all) to 5 (extremely). A mean is taken of the negative items for negative affect, and a mean of the positive items for positive affect. We used this version of the PANAS because it is reliable and has been validated in a number of studies (e.g., Crawford and Henry 2004), and has also been used in prior studies with the SCS (e.g., Neff et al. 2018a). Both subscales were found to be reliable in the current study: positive affect ($\alpha = 0.909$); negative affect ($\alpha = 0.917$).

Data Analyses

We validated the factor structure of the SSCS-L drawing on methods used in recently conducted studies of the SCS (Neff et al. 2018b; Neff et al. 2019; Tóth-Király et al. 2017). Neff et al. (2019) proposed that the system-level interactions of the elements of self-compassion are best modeled via the bifactor exploratory structural equation modeling (bifactor-ESEM) framework (Morin et al. 2016; Morin et al. 2020). Despite the word "exploratory" in the name of this approach, bifactor-ESEM can be used in both an exploratory and confirmatory manner (Morin et al. 2013). This framework is designed to explicitly identify two sources of construct-relevant psychometric multidimensionality that is present in measures assessing multidimensional constructs such as self-compassion. The first source pertains to the assessment of coexisting global and specific constructs with bifactor modeling being able to model the associations of the global and specific factors on the questionnaire items (see also Reise 2012). This is appropriate for self-compassion given that a compassionate mindstate represents the system-level balance of the six self-compassion components (Phillips 2019). The second source refers to the fact that questionnaire items are likely to manifest some degree of true score association with distinct, yet conceptually similar constructs. This calls for the application of ESEM (Marsh et al. 2014), which allows the explicit expression of item cross-loadings as opposed to the overly strict Confirmatory Factor Analysis (CFA) which does not allow for any cross-loadings. Given that the components of self-compassion mutually engender one another (Dreisoerner et al. 2020), some cross-loadings between factors should be expected. It has been argued that ignoring these sources of construct-relevant psychometric multidimensionality could lead to biased results and unsatisfactory representations of the construct at hand (Asparouhov et al. 2015; Morin et al. 2016; Murray and Johnson 2013).

Therefore, we used the bifactor-ESEM framework and contrasted alternative factor solutions as proposed by Morin et al. (2016) as well as Tóth-Király et al. (2018): (i) one-factor CFA; (ii) two-factor CFA and ESEM specifying two correlated factors (representing compassionate and reduced uncompassionate self-responding); (iii) six-factor CFA and ESEM (representing the six components of self-compassion); (iv) bifactor CFA and ESEM (representing a global self-compassion factor and its six components); and (v) two-bifactor CFA and ESEM (representing two correlated global factors of

compassionate and reduced uncompassionate self-responding, each with three specific components). The two-factor and two-bifactor models were included because some have argued that items representing compassionate versus uncompassionate self-responding are best measured as two separate factors (Brenner et al. 2017; López et al. 2015; Muris et al. 2016).

In CFA, items were only allowed to load on their target factor, cross-loadings were constrained to zero, but correlations between the factors were freely estimated. In ESEM, target loadings, cross-loadings, and factor correlations were all estimated while cross-loadings were constrained to be as close to zero as possible (Browne 2001). In bifactor CFA, all items were allowed to simultaneously load on one general factor (G-factor) and on one a priori specific factor (S-factor), while all factors were orthogonal to one another and not allowed to correlate. The bifactor-ESEM model was specified similarly to its bifactor CFA counterpart, but item cross-loadings were estimated on other specific factors and "targeted" to be as close to zero as possible. In bifactor models including two global factors, these factors were allowed to correlate. All analyses were performed in Mplus 8 (Muthén and Muthén 2019) with the weighted least squares mean- and variance-adjusted estimator (WLSMV) which has been shown to be superior for ordinal indicators (such as Likert ratings) compared with maximum-likelihood-based estimators particularly in the case of five or fewer response options (e.g., Bandalos 2014; Finney and DiStefano 2013). To evaluate the SSCS-S, we used a single-factor CFA (there is no difference between ESEM and CFA when specifying a single factor).

Model Evaluation Following common practices (Marsh et al. 2005), we relied on goodness-of-fit indices in interpreting our models as having good or excellent fit: the Comparative Fit Index (CFI; ≥ 0.95 for good, ≥ 0.90 for acceptable), the Tucker-Lewis index (TLI; ≥ 0.95 for good, ≥ 0.90 for acceptable), the Root Mean Square Error of Approximation (RMSEA; ≤ 0.06 for good, ≤ 0.08 for acceptable) with its 90% confidence interval, and the standardized root mean square residual (SRMR; ≤ 0.05 for good, ≤ 0.10 for acceptable). It is important to keep in mind that model evaluation should not be based solely on fit indices, but it should also include a close inspection of the parameter estimates (e.g., factor loadings, cross-loadings, and factor correlations) as well as the theoretical conformity of each model (Marsh et al. 2004; Morin et al. 2016). In the first-order CFA and ESEM comparison, the ESEM solution should be preferred if it has similar or improved fit as long as the factors remain well-defined, the size of the cross-loadings reasonable, and the size of the correlations are decreased. In the comparison of selected first-order models and corresponding bifactor solutions, the bifactor model should be preferred as long as it has (i) similar or improved fit; (ii) a well-defined global factor; and (iii) at least some reasonably well-defined specific factors. In addition, the size of the correlation between the two global factors in the two-bifactor models should be examined to evaluate the degree of overlap between the factors. For model comparison, we considered the changes (Δ) in model fit and relied on the proposed guidelines of Chen (2007) as well as Cheung and Rensvold (2002): improvements in CFI, TLI, and SRMR of at least 0.010 or decreases in RMSEA of at least 0.015 indicate a better fitting model.

Reliability We relied on multiple indicators to assess the reliability of the optimal solution. First, we calculated Cronbach's alpha (α) for observed scores, using the commonly reported cutoff values of 0.70 and 0.80 to indicate adequate reliability (Nunnally 1978). We also used McDonald's (1970) model-based composite reliability (CR), which is calculated from the standardized factor loadings and the corresponding measurement errors and provides a more realistic estimate of reliability, especially for bifactor models. Given that most of the reliability is accounted for by the G-factor in a bifactor model, it is not as critical for *all* S-factors to be well-defined (Morin et al. 2016). In fact, this is often the case for bifactor models when the global factor explains most of the reliable variance in item responding. While the presence of *some* well-defined S-factors provides support for the bifactor-ESEM solution, there will be some S-factors which only serve to control for the residual specificities shared among a subset of indicators. Following Perreira et al. (2018), we considered CRs above 0.50 to be satisfactory. We also calculated omega (ω) and omega hierarchical (omegaH, ω_H) indices, which are particularly informative for bifactor models (Brunner et al. 2012; Rodriguez et al. 2016). In this framework, ω represents the percentage of variance in total scores accounted for by the general and the specific factors, while ω_H describes the percentage of variance in total scores that is attributed to the G-factor only. To determine the amount of reliable variance in the G-factor that is not due to error, ω_H is divided by ω. Reise et al. (2013) suggested 75% or higher as the ideal amount of variance to justify use of a total score. To estimate the remaining reliable variance attributed to S-factors, ω_H is subtracted from ω (Rodriguez et al. 2016).

Associations with Predictive Validity Measures We assessed the degree of association of the SSCS-L and SSCS-S with positive and negative affect via Pearson product-moment correlations. Effect sizes were evaluated according to established thresholds (Cohen 1988): correlations of $r = 0.10$–0.30 were considered small, 0.30–0.50 were considered medium, and over 0.50 were considered large.

Results

To select items for the SSCS-L, we followed the procedure used by Pommier et al. (2020) and Neff et al. (2020) in creating other adaptations of the Self-Compassion Scale. First, we analyzed the 26 modified items using a six-factor correlated ESEM model (results pertaining to this preliminary model are reported in Table S1 of the online resource), and selected three items per factor (Kline 2015) that had (i) strong target loadings (ideally higher than 0.500, but not lower than 0.300; see Morin et al. 2020), (ii) relatively low cross-loadings (ideally lower than 0.300; see Morin et al. 2020), (iii) adequate content validity, and (iv) performed well in subsequently re-estimated measurement models. The aim of item reduction was to create a shorter scale that retained the psychometric properties of the original version. The 18 items that we retained were used in all subsequent analyses (see Table 1 and Appendix A).

Model fit indices for all potential models are reported in Table 2. The 1- and 2-factor solutions did not demonstrate a good fit (especially when considering RMSEA), suggesting that these are not optimal representations. The fit of the six-factor CFA solution was good, although the fit of the six-factor ESEM solution was substantially improved (ΔCFI = + 0.015, ΔTLI = + 0.016, ΔRMSEA = − 0.027; ΔSRMR = − 0.017). Examination of the parameter estimates (see Table 3) reveals that the factors were well-defined in both the CFA and ESEM solutions (CFA: λ = 0.592 to 0.910, M = 0.830; ESEM: λ = 0.328 to 0.998, M = 0.622), but the inter-factor correlations were much higher in CFA (r = 0.520 to 0.880, M = 0.750) than that in ESEM (r = 0.298 to 0.662, M = 0.488). Multiple cross-loadings were statistically significant in the ESEM solution, as expected. Still, these were lower than the target loadings, suggesting that they do not undermine the definition of the factors. The presence of multiple statistically significant cross-loadings reinforces the need to explicitly take into account this source of psychometric multidimensionality, and thus, the ESEM solution was preferred.

In the following step, we examined the bifactor solutions. The bifactor-ESEM solution had better fit than the bifactor CFA solution, suggesting that ESEM is better able to capture the system-level interaction of self-compassion items than CFA. We then examined whether the inclusion of one global factor (representing self-compassion) or two global factors (representing compassionate and uncompassionate self-responding) was supported. The two-bifactor CFA solution had worse fit than the bifactor-ESEM solution (ΔCFI = − 0.026, ΔTLI = − 0.030, ΔRMSEA = + 0.051; ΔSRMR = + 0.027). Moreover, the correlation between the two global factors in the CFA solution was so high (r = 0.887, p < 0.001) that it suggests conceptual redundancy. Although the fit of the two-bifactor ESEM solution was comparable with that of the bifactor-ESEM solution (see Table 2), the inspection of

Table 1 Items, item subscales and item number in the SSCS-L and SSCS-S

	L#	S#	Items
SK	1	1	I'm giving myself the caring and tenderness I need.
SK	7		I'm being kind to myself.
SK	13		I'm being supportive toward myself.
CH	3		I see my difficulties as part of life that everyone goes through.
CH	9	3	I'm remembering that there are lots of others in the world feeling like I am.
CH	15		I'm remembering that difficult feelings are shared by most people.
M	5		I'm keeping my emotions in balanced perspective.
M	11		I'm taking a balanced view of this painful situation.
M	17	6	I'm keeping things in perspective.
SJ	4		I'm being pretty tough on myself.
SJ	10		I'm being a bit cold-hearted towards myself.
SJ	16	5	I feel intolerant and impatient toward myself.
IS	6		I feel separate and cut off from the rest of the world.
IS	12	4	I feel like I'm struggling more than others right now.
IS	18		I'm feeling all alone right now.
OI	2	2	I'm obsessing and fixating on everything that's wrong.
OI	8		I'm getting carried away with my feelings.
OI	14		I'm blowing this painful incident out of proportion.

Note: SSCS-L, State Self-Compassion Scale-Long form; *SSCS-S,* State Self-Compassion Scale-Short form; *L#,* Long form item number; *S#,* Short form item number; *SK,* Self-Kindness; *CH,* Common Humanity; *M,* Mindfulness; *SJ,* Self-Judgment; *IS,* Isolation; *OI,* Overidentification. See Appendix A for a copy of the SSCS-L and Appendix B for a copy of the SSCS-S

Table 2 Goodness-of-fit indices for the estimated solutions for the SSCS-L

Models	χ^2	df	CFI	TLI	RMSEA (90% CI)	SRMR
Study 1 (N = 588)						
One-factor CFA	2211.079*	135	0.892	0.878	0.162 (0.156, 0.168)	0.069
Two-factor CFA	1555.755*	134	0.926	0.916	0.134 (0.128, 0.140)	0.054
Two-factor ESEM	1241.273*	118	0.942	0.924	0.127 (0.121, 0.134)	0.039
Six-factor CFA	490.653*	120	0.981	0.975	0.072 (0.066, 0.079)	0.027
Six-factor ESEM	130.553*	60	0.996	0.991	0.045 (0.034, 0.055)	0.010
Bifactor CFA	850.823*	117	0.962	0.950	0.103 (0.097, 0.110)	0.044
Bifactor-ESEM	86.510*	48	0.998	0.994	0.037 (0.024, 0.049)	0.008
Two-bifactor CFA	647.245*	116	0.972	0.964	0.088 (0.082, 0.095)	0.035
Two-bifactor ESEM	57.018*	41	0.999	0.997	0.026 (0.001, 0.041)	0.007
Study 2 (N = 411) pre-test						
One-factor CFA	1072.482*	135	0.819	0.795	0.130 (0.123, 0.137)	0.077
Two-factor CFA	790.814*	134	0.873	0.855	0.109 (0.102, 0.117)	0.066
Two-factor ESEM	497.946*	118	0.927	0.905	0.089 (0.081, 0.097)	0.044
Six-factor CFA	253.699*	120	0.974	0.967	0.052 (0.043, 0.061)	0.036
Six-factor ESEM	98.900*	60	0.992	0.981	0.040 (0.025, 0.053)	0.016
Bifactor CFA	460.371*	117	0.934	0.913	0.085 (0.076, 0.093)	0.053
Bifactor-ESEM	71.773*	48	0.995	0.985	0.035 (0.016, 0.051)	0.013
Two-bifactor CFA	382.362*	116	0.949	0.932	0.075 (0.067, 0.083)	0.047
Two-bifactor ESEM	43.394*	41	1	0.998	0.012 (0.000, 0.036)	0.010
Study 2 (N = 411) post-test						
One-factor CFA	1899.398*	135	0.820	0.796	0.178 (0.171, 0.185)	0.090
Two-factor CFA	1269.731*	134	0.884	0.868	0.144 (0.136, 0.151)	0.071
Two-factor ESEM	862.638*	118	0.924	0.901	0.124 (0.116, 0.132)	0.045
Six-factor CFA	276.420*	120	0.984	0.980	0.056 (0.048, 0.065)	0.028
Six-factor ESEM	123.798*	60	0.993	0.983	0.051 (0.038, 0.064)	0.013
Bifactor CFA	696.669*	117	0.941	0.923	0.110 (0.102, 0.118)	0.055
Bifactor-ESEM	89.268*	48	0.996	0.987	0.046 (0.031, 0.060)	0.011
Two-bifactor CFA	464.131*	116	0.964	0.953	0.085 (0.077, 0.094)	0.043
Two-bifactor ESEM	63.399	41	0.998	0.991	0.036 (0.017, 0.053)	0.009

SSCS-L, State Self-Compassion Scale-Long form; *CFA*, confirmatory factor analysis; *ESEM*, exploratory structural equation modeling; χ^2, weighted least square 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; *SRMR*, standardized root mean square residual

*$p < 0.01$

parameter estimates (Table 4) revealed that the two global factors were poorly defined by their loadings with the majority of them not being statistically significant (compassionate self-responding: $\lambda = 0.042$ to 0.410, $M = 0.192$; uncompassionate self-responding: $\lambda = 0.005$ to 0.405, $M = 0.191$), arguing against the need to incorporate a second G-factor.

Overall, the bifactor-ESEM solution appeared to be optimal, a conclusion that is supported by the examination of parameter estimates and a well-defined self-compassion G-factor ($\lambda = 0.497$ to 0.827, $M = 0.721$). Even though items presented weaker associations with the S-factors over and above this G-factor, the S-factors still retained some specificity not explained by the G-factor as apparent by their average factor loadings: self-kindness ($\lambda = 0.335$ to 0.424, $M = 0.382$), self-judgment ($\lambda = 0.279$ to 0.389, $M = 0.352$), common humanity ($\lambda = 0.464$ to 0.665, $M = 0.555$), isolation ($\lambda = 0.176$ to 0.680, $M = 0.422$), mindfulness ($\lambda = 0.203$ to 0.376, $M = 0.288$), and overidentification ($\lambda = 0.142$ to 0.483, $M = 0.348$).

Reliability indicators (reported in Table 5) show that Cronbach's alpha and McDonald's CR were excellent for the total score, while the six components also had adequate reliability using Cronbach's alpha and CR. CR scores assess the bifactor model, meaning that CR for the subscale scores represents the variance remaining in specific factors after the global factor is accounted for (Morin et al. 2020). As for the omega indicators, 95.2% of the reliable variance could be

Table 3 Standardized factor loadings for the correlated six-factor and bifactor CFA and ESEM models for the SSCS-L in study 1 ($N = 588$)

	CFA	ESEM						Bifactor CFA		Bifactor-ESEM						
	SF	SK	SJ	CH	IS	MI	OI	SC	SF	SC	SK	SJ	CH	IS	MI	OI
SK1	0.874**	*0.689***	0.174**	0.048	0.004	− 0.002	0.088*	0.801**	0.334**	*0.824***	*0.335***	0.003	0.015	− 0.089**	− 0.111**	− 0.057
SK2	0.901**	*0.748***	0.130**	− 0.066	0.141**	0.204**	− 0.127**	0.821**	0.378**	*0.796***	*0.424***	0.075**	0.025	0.068**	0.112**	−0.092**
SK3	0.910**	*0.695***	0.137**	0.064*	0.025	0.189**	− 0.057*	0.829**	0.384**	*0.807***	*0.386***	0.039	0.098**	− 0.019	0.092**	− 0.053*
SJ1	0.773**	0.111**	*0.684***	0.024	− 0.018	− 0.066	0.144**	0.685**	0.441**	*0.697***	0.019	*0.389***	− 0.147**	0.001	− 0.035	0.097**
SJ2	0.885**	0.105**	*0.568***	0.150**	0.106**	− 0.081*	0.175**	0.802**	0.312**	*0.807***	0.011	*0.279***	− 0.049*	0.052**	− 0.081**	0.082**
SJ3	0.880**	0.186**	*0.675***	0.045	0.090*	− 0.031	0.029	0.794**	0.383**	*0.779***	0.097**	*0.387***	− 0.098**	0.089**	− 0.005	0.056*
CH1	0.790**	− 0.018	− 0.043	*0.726***	0.106**	− 0.013	0.084*	0.607**	0.473**	*0.619***	− 0.044	− 0.149**	*0.464***	− 0.002	− 0.007	− 0.072
CH2	0.856**	− 0.034	0.056	*0.804***	0.058	0.058	− 0.043	0.650**	0.556**	*0.634***	− 0.009	− 0.055	*0.537***	0.008	0.096**	− 0.091**
CH3	0.851**	− 0.019	0.123**	*0.857***	− 0.044	0.158**	− 0.181**	0.643**	0.585**	*0.587***	0.119**	−0.015	*0.665***	0.001	0.139**	− 0.004
IS1	0.848**	− 0.007	0.086	0.120**	*0.715***	− 0.095**	0.088	0.708**	0.545**	*0.730***	− 0.081**	0.039	0.004	*0.410***	− 0.093**	− 0.053
IS2	0.819**	0.171**	− 0.033	0.132**	*0.472***	− 0.107*	0.278**	0.713**	0.243**	*0.758***	− 0.094**	− 0.060	− 0.026	*0.176***	− 0.088*	− 0.107**
IS3	0.860**	− 0.028	0.040	− 0.070**	*0.998***	0.155**	− 0.148**	0.719**	0.498**	*0.697***	0.061**	0.065**	0.011	*0.680***	0.024	0.065**
MI1	0.793**	0.176**	− 0.014	0.090*	0.089*	*0.406***	0.317**	0.755**	0.167**	*0.735***	0.052*	− 0.061	0.075**	− 0.018	*0.203***	0.228**
MI2	0.823**	0.286**	− 0.107*	0.285**	0.035	*0.445***	0.131**	0.778**	0.301**	*0.732***	0.087**	− 0.051*	0.242**	− 0.047*	*0.376***	0.006
MI3	0.883**	0.274**	− 0.013	0.236**	0.076*	*0.328***	0.239**	0.832**	0.331**	*0.827***	0.009	− 0.024	0.121**	− 0.057**	*0.286***	− 0.011
OI1	0.791**	0.165**	0.132**	− 0.079*	0.185**	− 0.006	*0.520***	0.697**	0.210**	*0.739***	− 0.085*	0.014	− 0.194**	− 0.010	− 0.105**	*0.142***
OI2	0.819**	− 0.135**	0.252**	0.012	0.147**	0.309**	*0.440***	0.710**	0.460**	*0.707***	− 0.085**	0.082**	− 0.049	0.054*	0.063*	*0.418***
OI3	0.592**	− 0.182**	0.276**	− 0.052	− 0.031	0.339**	*0.420***	0.493**	0.493**	*0.497***	− 0.064*	0.096**	− 0.075*	− 0.036	0.070*	*0.483***

Target loadings in italics

SSCS-L, State Self-Compassion Scale-Long form; *CFA*, confirmatory factor analysis; *ESEM*, exploratory structural equation modeling; *SF*, loading on respective specific factor when cross-loadings constrained to zero; *SK*, self-kindness; *SJ*, self-judgment (reverse-coded); *CH*, common humanity; *IS*, isolation (reverse-coded); *MI*, mindfulness; *OI*, overidentification (reverse-coded); *SC*, self-compassion general factor

*$p < 0.05$

**$p < 0.01$

Table 4 Standardized factor loadings for the correlated two-bifactor CFA and ESEM solutions for the SSCS-L in study 1 ($N = 588$)

	Correlated two-bifactor CFA			Correlated two-bifactor ESEM							
	CS	RUS	SF	CS	RUS	SK	SJ	CH	IS	MI	OI
SK1	0.823**		0.274**	− 0.158		*0.762***	0.268**	0.274**	0.207**	0.056	0.286**
SK2	0.844**		0.322**	− 0.149		*0.709***	0.265**	0.133	0.335**	0.409**	0.075
SK3	0.851**		0.332**	− 0.136		*0.655***	0.304**	0.291**	0.235**	0.316**	0.153**
SJ1		0.841**	0.409**		0.263	0.383**	*0.387*	0.072	0.325**	0.192**	0.270**
SJ2		0.719**	0.201**		0.405**	0.425**	*0.426***	0.240**	0.380**	0.114	0.333**
SJ3		0.832**	0.277**		0.297*	0.448**	*0.475***	0.135**	0.391**	0.209**	0.233**
CH1	0.620**		0.455**	− 0.226*		0.247**	0.044	*0.630***	0.248**	0.170	0.149**
CH2	0.663**		0.540**	− 0.255		0.248**	0.094	*0.649***	0.242**	0.286**	0.084*
CH3	0.656**		0.570**	− 0.410*		0.217**	0.154**	*0.644***	0.159**	0.381**	0.043
IS1		0.734**	0.521**		− 0.005	0.270**	0.250*	0.255**	*0.691***	0.075	0.222**
IS2		0.742**	0.177**		0.090	0.383**	0.072	0.287**	*0.552***	0.113	0.263**
IS3		0.747**	0.446**		− 0.169	0.206**	0.400**	0.152**	*0.766***	0.205**	0.180**
MI1	0.776**		− 0.083	− 0.042		0.339**	0.200**	0.293**	0.213**	*0.413***	0.432**
MI2	0.795**		− 0.252**	− 0.079		0.387**	0.137**	0.447**	0.189**	*0.511***	0.210**
MI3	0.851**		− 0.281**	0.275		0.469**	0.213**	0.566**	0.202**	*0.418***	0.255**
OI1		0.721**	0.154**		0.256**	0.399**	0.036	0.092	0.402**	0.151	*0.522***
OI2		0.736**	0.395**		0.124	0.188**	0.325**	0.164**	0.286**	0.306**	*0.577***
OI3		0.512**	0.505**		0.114	0.081*	0.330**	0.076	0.086	0.243**	*0.561***

Target loadings in italics

CFA, confirmatory factor analysis; *ESEM*, exploratory structural equation modeling; *SF*, loading on respective specific factor when cross-loadings constrained to zero; *SK*, self-kindness; *SJ*, self-judgment (reverse-coded); *CH*, common humanity; *IS*, isolation (reverse-coded); *MI*, mindfulness; *OI*, overidentification (reverse-coded); *SC*, self-compassion general factor

*$p < 0.05$

**$p < 0.01$

attributed to the G-factor, whereas 4.7% could be attributed to the S-factors over and above the G-factor.

To construct a face-valid short-form of the state measure, we selected one item (with the highest factor loading on the G-factor) from each of the six specific factors in the bifactor-ESEM solution (see Table 1 and Appendix B). We also verified that these items had adequate content validity (Marsh et al. 2010). A single-factor CFA demonstrated good model fit for our chosen six items (χ^2 = 99.012, df = 9, CFI = 0.978, TLI = 0.963, RMSEA = 0.130 (0.108, 0.154), SRMR = 0.029) save for RMSEA, which tends to be overinflated under conditions of low degrees of freedom (Kenny et al. 2015). The six-item scale also demonstrated high levels of internal consistency (α = 0.864).

Zero-order correlations between all variables are presented in Table 6. The SSCS-L and SSCS-S were very strongly correlated. Global self-compassion as measured by the SSCS-L and SSCS-S had a large positive association with positive affect and a large negative association with negative affect using both. In terms of the SSCS-L subscales, significant positive correlations with positive affect were found: a large effect size for self-kindness and mindfulness and medium effect sizes for the other four subscales. Significant negative correlations with negative affect were also found: a medium effect size for self-kindness and common humanity and large effect sizes for the other four subscales.

Discussion

Results suggested that the 18 items selected for SSCS-L had psychometrically robust properties and could appropriately measure Neff's (2003b, 2016) conceptualization of self-compassion. Bifactor-ESEM analyses found good fit for a model of self-compassion as a single global factor with six specific factors. There were some small yet significant cross-loadings of items between factors in ESEM analyses, which is consistent with the view that the components of self-compassion operate as a system and mutually engender one another (Dreisoerner et al. 2020).

Although fit for the correlated two-bifactor ESEM model was also good, two global factors were not well-

Table 5 Cronbach's alpha based on observed scores, composite reliability, and omega reliability indices for the SSCS-L based on the final bifactor-ESEM models

	α	CR	ω	ωH	GF	SF
Study 1 ($N = 588$)						
Total SSCS-L	0.944	0.972	0.973	0.926	0.952	0.047
Self-kindness	0.898	0.717	—	—	—	—
Self-judgment	0.852	0.583	—	—	—	—
Common humanity	0.839	0.767	—	—	—	—
Isolation	0.830	0.702	—	—	—	—
Mindfulness	0.841	0.477	—	—	—	—
Overidentification	0.733	0.481	—	—	—	—
Study 2 ($N = 411$) pre-test						
Total SSCS-L	0.883	0.932	0.938	0.855	0.912	0.083
Self-kindness	0.820	0.695	—	—	—	—
Self-judgment	0.713	0.587	—	—	—	—
Common humanity	0.694	0.694	—	—	—	—
Isolation	0.682	0.545	—	—	—	—
Mindfulness	0.724	0.195	—	—	—	—
Overidentification	0.672	0.431	—	—	—	—
Study 2 ($N = 411$) post-test						
Total SSCS-L	0.925	0.966	0.968	0.903	0.933	0.065
Self-kindness	0.861	0.558	—	—	—	—
Self-judgment	0.803	0.546	—	—	—	—
Common humanity	0.849	0.850	—	—	—	—
Isolation	0.798	0.694	—	—	—	—
Mindfulness	0.836	0.558	—	—	—	—
Overidentification	0.729	0.530	—	—	—	—

SSCS-L, State Self-Compassion Scale-Long form; *ESEM*, exploratory structural equation modeling; α, Cronbach's alpha; *CR*, McDonald's model-based composite reliability; ω, omega; ωH, omega hierarchical; *GF*, reliable variance explained by the general factor; *SF*, reliable variance explained by the specific factors

*$p < 0.05$

**$p < 0.01$

differentiated by factor loadings. The large majority of the reliable variance in item responding could be attributed to a single G-factor, whereas a much smaller amount was attributed to the S-factors over and above the G-factor. However, the fact that less reliable variance was attributed to the S-factors does not mean that these items (i.e., the six components) do not tap into key aspects of self-compassion. Indeed, our results show that it is important to account for their specificity.

Global self-compassion had a strong positive link to positive affect and a strong negative link to negative affect. These results are similar to what has been found with the trait SCS, where large correlations were also observed (Neff et al. 2018a). The six subscales of the SSCS-L were significantly associated with mood in the expected direction. There was a general trend for components representing compassionate self-responding to be more strongly linked with positive affect, and those representing reduced uncompassionate self-responding to be more strongly linked to negative affect. This general pattern has also been found with the trait SCS (Neff et al. 2018a). Thus, findings support the predictive validity of the SSCS-L.

The six-item SSCS-S was found to have a unitary factor structure and adequate reliability. It also had a very strong correlation with the SSCS-L. The strength of associations between the SSCS-S and positive and negative affect was similar to those found with the SSCS-L total score. This suggests that the SSCS-S is a good proxy measure of global state self-compassion.

Study 2

Study 2 had three important goals. The first was to cross-validate the factor structure of the SSCS-L (using the 18 items selected for the scale in study 1) and 6-item SSCS-S. We chose a student sample for cross-validation given that research on self-compassion is often conducted with undergraduates (Tóth-Király and Neff 2020). The second goal was to determine if the SSCS-L and SSCS-S could be effectively used to

Table 6 Zero-order correlations in Study 1 ($N = 588$)

	M (SD)	1	2	3	4	5	6	7	8	9
1. Total SSCS-L	3.09 (0.90)	–								
2. Total SSCS-S	2.98 (0.99)	.957**	–							
3. Self-kindness	2.89 (1.13)	.873**	.846**	–						
4. Self-judgment	3.03 (1.16)	.856**	.822**	.728**	–					
5. Common Humanity	3.07 (1.08)	.739**	.706**	.607**	.455**	–				
6. Isolation	3.09 (1.19)	.833**	.799**	.658**	.689**	.527**	–			
7. Mindfulness	3.17 (1.00)	.873**	.828**	.748**	.656**	.690**	.623**	–		
8. Overidentification	3.32 (1.00)	.781**	.741**	.575**	.694**	.398**	.598**	.643**	–	
9. Positive affect	2.62 (0.88)	.547**	.540**	.574**	.422**	.425**	.416**	.538**	.336**	–
10. Negative affect	1.86 (0.82)	−.598**	−.557**	−.459**	−.523**	−.344**	−.514**	−.514**	−.527**	−.267**

Note. SSCS –*L*, State Self-Compassion Scale-Long Form; *SSCS-S*, State Self-Compassion Scale-Short Form. Note that Self-Judgment, Isolation, and Overidentification Items Are Reverse Coded to Indicate their Relative Absence; *M*, Mean; *SD*, Standard Deviation. **$p < .01$

measure changes in state self-compassion after an SCMI, and if the psychometric properties of the measures would be robust after change. The third was to examine whether the six subscales of the SSCS-L would change approximately to the same degree, indicating whether or not the six components change in tandem as a system.

Method

Participants

Participants were recruited from an Educational Psychology subject pool at a large Southwestern university. A total of 519 signed up for the study, but we excluded participants who did not complete the writing task ($N = 4$) or who failed a compliance check ($N = 22$ in the self-compassion condition; $N = 82$ in the control condition). Thus, we retained 411 participants in this study ($N = 232$ in the self-compassion condition; $N = 179$ in the control condition). The mean age was 20.60 (SD = 1.96, range 18–30). In terms of self-reported gender, 31.1% identified as male, 67.2% as female, and the remaining identified as other or did not wish to indicate. In terms of self-reported race/ethnicity, 43.6% were White, 26% Asian, 19.5% Hispanic, 6.1% Black, and 4.6% other.

Procedure

At the beginning of the study, participants were instructed to "think about a particular situation you are experiencing right now that is painful or difficult. It could be some struggle in your life, or perhaps you are feeling inadequate in some way. Please don't think of a situation in which you are upset with someone else, but instead think of a situation where you are feeling badly about yourself or else you are going through a hard time. Decide on a single situation that you will focus on throughout this study." Participants were then asked to rate the difficulty of their situation. They were next asked to fill out pre-test measures (SSCS-L and PANAS) with reference to the situation.

Subsequently, participants were told "We would now like you to take part in a brief exercise, to see if it is helpful in dealing with this painful or difficult situation." They were then randomly assigned to the SCMI condition or the neutral control condition, and completed the writing tasks with reference to the same situation. A minimum of 200 characters was required after each writing prompt. Participants were told that their responses would be anonymous and confidential.

Participants completed a compliance check to determine whether they followed the writing instructions they were given. This was especially important for participants in the control condition, who would be assigned their writing task just after completing the SSCS-L, and could assume they should be writing to themselves self-compassionately if they were not paying attention. We only examined the responses of participants who passed the compliance check.

Next, participants filled out post-test measures (SSCS-L and PANAS) with reference to the situation. Finally, participants were asked to provide basic demographic information.

SCMI We based our SCMI loosely on the writing task developed by Leary et al. (2007). This task asks participants to recall a past event that made them feel badly about themselves then guides them through a series of writing prompts designed to evoke the various components of self-compassion. The first prompt is designed to increase feelings of common humanity by asking participants to list ways in which other people have also experienced similar events. The second prompt focuses on self-kindness, and asks participants to write a paragraph expressing understanding and concern to themselves in the same way that they might express concern to a friend who had experienced a similar event. The third prompt is designed to induce mindfulness by instructing participants to "describe their feelings about the event in an objective and unemotional fashion" (Leary et al. 2007, p. 899).

While this induction has been found to successfully increase state self-compassion (e.g., Blackie and Kocovski 2018; Odou and Brinker 2014), it has features that are inconsistent with Neff's model. For instance, mindfulness in the context of self-compassion does not entail being unemotional. Rather, it entails accepting and validating one's difficult emotions (Neff and Dahm 2014). Moreover, while common humanity involves knowing that others experience similar difficulties, it is not simply a matter of social comparison but also involves a sense of connectedness and the understanding that imperfection is a part of being human. We therefore wanted to create an SCMI that was more consistent with Neff's (2003b) model.

Our SCMI was based on a practice known as the Self-Compassion Break found in the MSC program (Germer and Neff 2019). In this practice, individuals are first instructed to bring mindful awareness to a difficult situation, so they can accept and validate their painful feelings. Examples of self-compassionate language are given such as "this is really hard right now." They are next instructed to remember common humanity, recognizing that they are not alone in their struggle. Examples are given such as "everyone is imperfect, I'm not alone." They are then instructed to be kind to themselves, giving themselves the type of care, understanding, and support they would normally show to a good friend. Examples are given such as "I'm here for you." Finally, participants are invited to reflect on their experience so that the message of self-compassion can be absorbed and integrated.

The SCMI writing task followed a similar pattern. It first invited participants to write mindfully about the feelings evoked by the difficulty, second to consider the common humanity of the difficulty, and third to write to themselves with

kindness, with examples given for each writing prompt. Finally, participants were invited to reflect on what they had written (see Appendix C in the online resource for the full instructions). The neutral control condition was designed to be parallel to the SCMI. The control condition asked participants to first write about the difficult situation in a descriptive manner (parallel to mindfulness), second to indicate who was involved in the situation (parallel to common humanity), and third to describe any words spoken in the situation (parallel to self-kindness), with examples provided after each writing prompt. Finally, they were asked to reflect on what they had written. The parallel nature of the control condition ensured that participants in both conditions were focused on the difficult situation, with only participants in the self-compassion condition actively changing their responses to it (see Appendix D in the supplementary materials).

Measures

Situation Difficulty Participants were asked to indicate how difficult their situation was on a scale of 1 (a little difficult), 2 (somewhat difficult), 3 (moderately difficult), 4 (very difficult), to 5 (extremely difficult). Most participants chose a fairly difficult situation to think about: $M = 3.31$ (SD = 0.891), range 1–5.

Compliance Check Participants indicated what they had just been asked to do: (A) Write about your feelings in an accepting and validating way, consider how going through difficult situations is part of being human, write to yourself like a supportive friend; (B) Write about the situation and try to figure out how to solve the problem; or (C) Write the details of the situation, who is involved and what was said with as much detail as possible. Those in the SCMI condition passed the compliance check if they responded A and the neutral controls if they responded C.

SSCS-L The 18 items selected for the SSCS-L in study 1 were re-ordered to better distribute items representing various self-compassion components (see Table 1). A complete copy of the measure, including instructions, can be found in Appendix A of the online resource.

SSCS-S The 6 items that formed the SSCS-S were included as part of the 18 SSCS-L (see Table 1). A complete copy of the measure, including instructions, can be found in Appendix B of the online resource.

PANAS The PANAS was given to assess positive and negative affect (see study 1), but this time, participants were instructed to rate their mood with reference to the situation being considered in the study. The PANAS subscales were found to be reliable at pre-test: positive affect ($\alpha = 0.905$), negative affect ($\alpha = 0.868$); and at post-test: positive affect ($\alpha = 0.923$), negative affect ($\alpha = 0.913$).

Data Analyses

For the purpose of psychometric cross-validation of the SSCS-L and SSCS-S at pre-test and post-test, we followed the same analytic steps as in study 1. To examine whether there was significant change in outcomes within the SCMI and the control conditions separately, we performed a one-way repeated-measures analyses of variance (ANOVA). Skewness (varying between − 0.559 and 0.740, $M = 0.030$) and kurtosis (varying between − 0.717 and − 0.090, M = − 0.445) values were within the established guidelines (between − 1 and + 1) of Muthén and Kaplan (1985), justifying the use of parametric tests. To test across conditions, we performed 2 × 2 repeated-measures ANOVA with CONDITION (self-compassion vs. control) as a between-subjects factor, and TIME (pre-experiment and post-experiment) as a within-subjects factor. We reported partial eta squared as a measure of effect size. We used Cohen's (1988) interpretations of partial eta squared: 0.01 as small, 0.06 as medium, and 0.14 and above as large.

Results

Psychometric Analyses

We conducted psychometric analyses on the SSCS-L pre-test and post-test scores in order to cross-validate its factor structure. Model fit results for pre-test and post-test are presented in Table 2. As found in study 1, the bifactor-ESEM solution was superior to all other solutions. When examining pre-test scores, we found that the bifactor-ESEM model had better fit than the bifactor CFA model (ΔCFI = + 0.061, ΔTLI = + 0.072, ΔRMSEA = − 0.050; ΔSRMR = − 0.040). An examination of the parameter estimates for the bifactor-ESEM solution (see Table S2) resulted in a well-defined self-compassion G-factor ($\lambda = 0.299$ to 0.724, $M = 0.565$) where all factor loadings were significant. The self-kindness ($\lambda = 0.325$ to 0.678, $M = 0.455$), self-judgment ($\lambda = 0.253$ to 0.656, $M = 0.435$), common humanity ($\lambda = 0.514$ to 0.650, $M = 0.599$), isolation ($\lambda = 0.325$ to 0.512, $M = 0.435$), and overidentification ($\lambda = 0.224$ to 0.534, $M = 0.343$) S-factors retained a moderate amount of specificity beyond the G-factor, while the mindfulness S-factors ($\lambda = -0.021$ to 0.401, $M = 0.185$) retained a lower amount of specificity. We then compared the bifactor-ESEM solution to the correlated two-bifactor solutions. The correlated two-bifactor CFA solution had worse fit (ΔCFI = − 0.046, ΔTLI = − 0.053, ΔRMSEA = + 0.040; ΔSRMR = + 0.034), and once again the correlation between the two global factors was so high ($r = 0.833$, $p < 0.001$) that it calls into question the distinction of these two global factors. Although model fit for the correlated two-bifactor ESEM solution was similar to the bifactor-ESEM solution, when examining parameter estimates (see

Table S3), factor loadings again indicated that the two global factors were not well-defined and had mostly non-significant factor loadings (compassionate self-responding: $\lambda = 0.016$ to 0.519, $M = 0.280$; uncompassionate self-responding: $\lambda = 0.049$ to 0.675, $M = 0.346$).

Model fit for post-test scores on the SSCS-L (see Table 2) was almost identical to pre-test scores. Similarly, parameter estimates for bifactor CFA and ESEM solutions at post-test (see Table S4) as well as the correlated two-bifactor solutions (see Table S5) were highly similar to those found at pre-test.

Reliability indicators for the SSCS-L total score and subscale scores at both pre-test and post-test are reported in Table 5. Both Cronbach's alpha and composite reliability levels were adequate for the total score and acceptable-to-adequate for the subscales. However, composite reliability for pre-test mindfulness was poor. Omega and omega hierarchical indicators suggested that at both pre-test and post-test, the large majority of the reliable variance in item responding was attributable to the G-factor (91.2% and 93.3%, respectively), while a significant portion could also be attributed to the S-factors.

When examining the psychometric properties of the SSCS-S at pre-test, model fit for a single factor was good ($\chi^2 = 30.204$, df = 9, CFI = 0.972, TLI = 0.954, RMSEA = 0.076 (0.047, 0.106), SRMR = 0.028). At post-test, model fit was adequate based on the CFI and SRMR ($\chi^2 = 119.886$, df = 9, CFI = 0.932, TLI = 0.887, RMSEA = 0.173 (0.146, 0.201), SRMR = 0.045), although TLI was marginal and RMSEA was inflated. Adequate internal consistency both at pre-test ($\alpha = 0.716$) and post-test ($\alpha = 0.814$) was observed.

Zero-order correlations for the pre- and post-scores of all variables at pre-test and post-test are reported in Table 7. The SSCS-S had a very strong correlation with SSCS-L both at pre- and post-test. Patterns of association with positive and negative affect were in the expected directions. Total self-compassion had a medium correlation with positive and negative affect at pre-test, and a medium correlation with positive affect and a large correlation with negative affect at post-test. In terms of the association of the six subscales with mood, significant positive correlations were found with positive affect at pre-test: a medium effect size for self-kindness and small effect sizes for the other five components. For positive affect at post-test, significant positive correlations were found: a small effect size for self-judgment and over-identification and medium effect sizes for the other four components. For negative affect at pre-test, significant negative correlations were found: a small effect size for common humanity and medium effect sizes for the other five components. For negative affect at post-test, significant negative correlations were found: a large effect size for self-judgment and isolation and medium effect sizes for the other four components.

Change in State Self-Compassion After the SCMI

The exact means and standard deviations of measures at pre-test and post-test are reported in Table 8. We examined whether there were statistically significant differences between the SCMI and control groups in any of the study measures at pre-test, and none was found (all ps > 0.404). When examining pre-to-post changes for the SCMI condition, there were substantial increases in total self-compassion and the six components. There were also substantial increases in positive affect and decreases in negative affect. Analyses (see Table 9) found all these changes were significant with large effect sizes. In the control condition, the degree of change in study measures was markedly smaller. Analyses found no significant changes in self-compassion or any of its components using the SSCS-L. There was a slight but significant increase in self-compassion using the SCSS-S, an increase in positive affect and decrease in negative affect, but with very small effect sizes. When comparing across conditions, the experimental group had significantly larger changes than the control group. As can be

Table 7 Zero-order correlations between the pre- (below the diagonal) and post-scores (above the diagonal) in Study 2 ($N = 411$)

	1	2	3	4	5	6	7	8	9	10
1. Total SSCS-L	–	.948**	.851**	.789**	.653**	.803**	.847**	.745**	.400**	−.589**
2. Total SSCS-S	.922**	–	.795**	.730**	.648**	.770**	.797**	.702**	.397**	−.577**
3. Self-kindness	.792**	.735**	–	.623**	.554**	.584**	.768**	.483**	.440**	−.460**
4. Self-judgment	.725**	.654**	.527**	–	.281**	.540**	.563**	.676**	.237**	−.505**
5. Common Humanity	.549**	.551**	.395**	.115*	–	.454**	.548**	.234**	.359**	−.316**
6. Isolation	.749**	.686**	.506**	.436**	.273**	–	.593**	.553**	.312**	−.556**
7. Mindfulness	.809**	.743**	.615**	.472**	.470**	.503**	–	.535**	.343**	−.468**
8. Overidentification	.751**	.665**	.452**	.595**	.182**	.499**	.542**	–	.189**	−.443**
9. Positive affect	.339**	.307**	.391**	.144**	.260**	.284**	.275**	.138**	–	−.069
10. Negative affect	−.467**	−.441**	−.340**	−.371**	−.193**	−.433**	−.335**	−.356**	−.031	–

Note. *SSCS-L*, State Self-Compassion Scale-Long Form; *SSCS-S*, State Self-Compassion Scale-Short Form. Note that Self-judgment, Isolation, and Overidentification items are reverse coded to indicate their relative absence; *$p < .05$; **$p < .01$

Table 8 Pre- and post- means and standard deviations separated by condition for study 2 ($N = 411$) and study 3 ($N = 139$)

		Experimental condition			Control condition		
		Pre	Post	% change	Pre	Post	% change
Study 2	1. Total SSCS-L	3.07 (0.65)	3.58 (0.70)	+ 10.2%	3.04 (0.68)	3.09 (0.75)	+ 1.0%
	2. Total SSCS-S	3.00 (0.74)	3.57 (0.74)	+ 11.4%	2.95 (0.76)	3.05 (0.81)	+ 2.0%
	3. Self-kindness	2.94 (0.87)	3.46 (0.91)	+ 10.4%	2.96 (0.87)	2.99 (0.93)	+ 0.6%
	4. Self-judgment	2.86 (0.95)	3.38 (0.95)	+ 10.4%	2.81 (0.95)	2.92 (1.04)	+ 2.2%
	5. Common humanity	3.36 (0.89)	3.94 (0.84)	+ 11.6%	3.29 (0.93)	3.24 (1.00)	− 1.0%
	6. Isolation	3.19 (0.99)	3.76 (0.95)	+ 11.4%	3.18 (1.03)	3.29 (1.12)	+ 2.2%
	7. Mindfulness	3.06 (0.76)	3.52 (0.80)	+ 9.2%	3.05 (0.83)	3.09 (0.93)	+ 0.8%
	8. Overidentification	3.00 (0.92)	3.42 (0.91)	+ 8.4%	2.96 (0.93)	3.02 (0.99)	+ 1.2%
	9. Positive affect	2.42 (0.87)	2.79 (0.95)	+ 7.4%	2.37 (0.88)	2.22 (0.90)	− 3.0%
	10. Negative affect	2.60 (0.86)	1.98 (0.80)	− 12.4%	2.61 (0.88)	2.41 (0.94)	− 4.0%
Study 3	1. Total SSCS-S	2.98 (0.80)	3.75 (0.66)	+ 15.4%	2.91 (0.79)	3.01 (0.80)	+ 2.0%
	2. Positive affect	2.54 (0.84)	2.89 (0.91)	+ 7.0%	2.42 (0.80)	2.34 (0.92)	− 1.6%
	3. Negative affect	2.67 (1.00)	1.96 (0.77)	− 14.2%	2.60 (0.79)	2.57 (0.93)	− 0.6%

Note that self-judgment, isolation, and overidentification items are reverse-coded to indicate their relative absence

SSCS-L, State Self-Compassion Scale-Long form; *SSCS-S*, State Self-Compassion Scale-Short form

seen in Table 9, TIME × CONDITION interactions were statistically significant for all measures. Eta squared indicated that a large effect size was obtained for total SSCS-L score and positive affect; medium effect sizes for total SSCS-S score, self-kindness, common humanity, isolation, mindfulness, and negative affect; and small effect sizes for self-judgment and overidentification.

Discussion

These results provide further evidence for the validity of the SSCS-L and SSCS-S as measures of state self-compassion. First, the factor structure of the SSCS-L was cross-validated in a student sample, and a bifactor-ESEM representation of state self-compassion had good fit. Once again, although a two-bifactor ESEM representation also had good fit, parameter estimates indicated that two global positive and negative factors were not well-differentiated as evidenced by factor loadings. Notably, the psychometric properties of the SSCS-L remained unchanged even after experimental manipulation, suggesting that it is a robust measure of state self-compassion.

The total SSCS-L and the six subscales generally had adequate internal consistency prior to and after the mindset manipulation. Both Cronbach's alpha and composite reliability levels were adequate for the total score and acceptable-to-adequate for the subscales, with the exception of composite reliability for the pre-test mindfulness subscale. However, this finding was not particularly concerning for multiple reasons. First, composite reliability assesses the reliability of specific factors only after taking the global factor into account. Second, composite reliability for the mindfulness subscale greatly increased at post-test, suggesting that the low values were time-specific. Third, Cronbach's alpha, which assessed the reliability of mindfulness items without parceling out variance due to the global factor, was adequate. Omega indicators suggested that at pre-test and post-test, the large majority of the reliable variance in item responding was attributable to a global self-compassion factor, while a significant portion could also be attributed to the specific factors.

All SSCS-L subscales were significantly linked to mood in the expected direction at pre-test and post-test. There was a tendency for components representing compassionate self-responding to be more strongly linked with positive affect, and reduced uncompassionate self-responding to be more strongly linked to negative affect, providing predictive validity for the SSCS-L.

The six-item SSCS-S was found to have a unitary factor structure and adequate internal consistency at pre-test and post-test. As was found in study 1, the SSCS-S had a very strong correlation with the SSCS-L both at pre- and post-test. The strength of associations of the SSCS-S with positive and negative affect was also highly similar to those found with the SSCS-L.

When examining pre-to-post changes for the SCMI condition, there were substantial increases in total self-compassion and the six components. The degree of change in the six components was almost identical, especially when comparing compassionate and reduced uncompassionate responding within emotional, cognitive, and attentional domains. There were also substantial increases in positive affect and decreases in negative affect, and all changes were significant with large effect sizes. This suggests that the SCMI was effective in inducing self-compassion and that the SSCS-L was able to

Table 9 Statistics for the repeated-measures analyses of variance

	Within SCMI condition				Within control condition				Between SCMI and control			
	F	dfs	*p*	Partial eta^2	*F*	dfs	*p*	Partial eta^2	*F*	dfs	*p*	Partial eta^2
Study 2 ($N = 411$)												
Total SSCS-L	172.92	1, 231	< 0.001	0.428	1.73	1, 178	0.190	0.010	66.43	1, 409	< 0.001	0.140
Total SSCS-S	153.16	1, 231	< 0.001	0.399	4.07	1, 178	0.045	0.022	48.40	1, 409	< 0.001	0.106
Self-kindness	98.35	1, 231	< 0.001	0.299	0.37	1, 178	0.542	0.002	41.89	1, 409	< 0.001	0.093
Self-judgment	80.28	1, 231	< 0.001	0.258	3.58	1, 178	0.060	0.020	22.46	1, 409	< 0.001	0.052
Com. humanity	115.38	1, 231	< 0.001	0.333	0.72	1, 178	0.398	0.004	61.16	1, 409	< 0.001	0.130
Isolation	112.75	1, 231	< 0.001	0.328	3.07	1, 178	0.082	0.017	31.70	1, 409	< 0.001	0.072
Mindfulness	91.53	1, 231	< 0.001	0.284	0.61	1, 178	0.436	0.003	32.83	1, 409	< 0.001	0.074
Overidentification	57.60	1, 231	< 0.001	0.200	1.01	1, 178	0.315	0.006	17.83	1, 409	< 0.001	0.042
Positive affect	73.47	1, 231	< 0.001	0.241	10.65	1, 177	0.001	0.057	66.70	1, 408	< 0.001	0.141
Negative affect	189.53	1, 231	< 0.001	0.451	15.01	1, 178	< 0.001	0.078	37.44	1, 409	< 0.001	0.084
Study 3 ($N = 139$)												
Total SSCS-S	112.78	1, 78	< 0.001	0.591	1.47	1, 59	0.230	0.024	36.793	1, 137	< 0.001	0.212
Positive affect	36.47	1, 78	< 0.001	0.319	0.65	1, 59	0.422	0.011	15.834	1, 137	< 0.001	0.104
Negative affect	97.51	1, 78	< 0.001	0.556	0.09	1, 59	0.772	0.001	29.236	1, 137	< 0.001	0.176

SCMI, self-compassion mindstate induction; *F*, *F* value provided for ANOVA; *dfs*, degrees of freedom; *p*, exact statistical significance associated with *F* value; *SSCS-L*, State Self-Compassion Scale-Long form; *SSCS-S*, State Self-Compassion Scale-short form

effectively detect change in self-compassion and its components. Findings also provide further support for the idea that the components of self-compassion operate as a system and change in tandem.

In the control condition, the degree of change in study measures was markedly smaller. Analyses found no significant changes in self-compassion or any of its components using the SSCS-L. There was a slight but significant increase in self-compassion using the SCSS-S, an increase in positive affect and decrease in negative affect, but with very small effect sizes. It is likely that simply having a chance to write about the difficult situation in the control condition helped participants respond to their difficulty in a healthier manner (Pennebaker 1997). When comparing across conditions, however, the experimental group displayed significantly larger changes than the control group. A large effect size was obtained for total SSCS-L score and positive affect; medium effect sizes for total SSCS-S score, self-kindness, common humanity, isolation, mindfulness, and negative affect; and small effect sizes for self-judgment and overidentification. This confirms the ability of the SSCS-L to detect differential change in the six components of self-compassion.

Note that experimental findings did not substantially differ whether the SSCS-L or SSCS-S was used, suggesting the SSCS-S is an adequate measure of global state self-compassion. There were some small differences, however. While effect sizes for degree of change in self-compassion using both measures were approximately the same in the experimental condition, there was a very small but significant increase with the SSCS-S but not the SSCS-L for controls. When comparing across the SCMI and control conditions, moreover, the effect size for change in self-compassion was larger for the SSCS-L than the SSCS-S. While it is unclear exactly why this was the case, it may be because the SSCS-S has only six items and therefore more error.

Study 3

The purpose of study 3 was to examine the factor structure of the SSCS-S after an SCMI when the six items were given on their own and not embedded within a larger set of items (i.e., the 18-item SSCS-L). An important step in developing brief measures that are derived from longer measures involves examining how the items function independently (Smith et al. 2000). We wanted to determine if findings from study 2 would replicate so that the SSCS-S would have a unitary factor structure, be reliable at pre-test and post-test, and display similar associations with positive and negative affect.

Method

Participants

Participants were recruited from an Educational Psychology subject pool at a large Southwestern university. A total of 171 individuals participated in this study. Note that we excluded participants who did not complete the writing task ($N = 2$) or

who failed the compliance check: (N = 7 in the self-compassion condition; N = 23 in the control condition). Thus, we retained 139 participants in this study: (N = 79 in the self-compassion condition; N = 60 in the control condition). Their mean age was 20.49 (SD = 1.81, range 18–30). In terms of self-reported gender, 36.7% identified as male, 62.6% identified as female, and the remaining identified as other or did not wish to indicate. The sample was relatively diverse. In terms of self-reported race/ethnicity, 35.3% were White, 28.8% Asian, 22.3% Hispanic, 10.1% Black, and 3.6% other.

Procedure

The procedures were identical to those of study 2, with the only difference being that the SSCS-S was given instead of the SSCS-L.

Measures

Situation Difficulty The same question was used as in study 2. Most participants thought about a fairly difficult situation: M = 3.42 (SD = 0.939), range 1–5.

SSCS-S See description in study 2.

PANAS See study 1 for a description. Both subscales were found to be reliable at pre-test for positive affect (α = 0.882) and negative affect (α = 0.890), and also at post-test for positive affect (α = 0.918) and negative affect (α = 0.907).

Data Analyses

As in study 2, we used a single-factor CFA to determine the factor structure of the SSCS-S. Statistical evaluation of the SCMI effectiveness was also the same as in study 2.

Results

The factor structure for the 6-item measure was good at pre-test (χ^2 = 23.936, df = 9, CFI = 0.955, TLI = 0.925, RMSEA = 0.109 (0.057, 0.163), SRMR = 0.038). It was also acceptable at post-test (χ^2 = 46.256, df = 9, CFI = 0.927, TLI = 0.878, RMSEA = 0.173 (0.125, 0.223), SRMR = 0.051), although once again TLI was marginal and RMSEA was inflated. Reliability for the SSCS-S was adequate both at pre-test (α = 0.759) and post-test (α = 0.789). The SSCS-S had a significant medium correlation with positive affect (r = 0.337, p < 0.001) and negative affect (r = − 0.417, p < 0.001) at pre-test. It also had a significant medium correlation with positive affect (r = 0.373, p < 0.001) and negative affect (r = − 0.478, p < 0.001) at post-test. Table 8 presents mean scores on the SSCS-S and the PANAS at pre- and post-test. We examined whether there were statistically significant differences in study measures between the experimental and control groups at pre-test, and none was found (all ps > 0.399). Self-compassion and positive affect increased and negative affect decreased substantially in the SCMI condition, but not in the control condition. Looking at participants in the SCMI condition, all pre-to-post changes were significant with large effect sizes (see Table 9). In contrast, no significant changes were observed in the control condition. When comparing across conditions, all TIME × CONDITION interactions were statistically significant: There was a large effect size for self-compassion and negative affect, and a medium effect size for positive affect.

Discussion

Findings provide additional confidence in the use of the SSCS-S as a brief measure of state self-compassion. Results using the SSCS-S replicated those of study 2 (when the six items were embedded in the 18 SSCS-L items) confirming it can be used independently.

General Discussion

The three studies presented here suggest that the SSCS-L and the SSCS-S are psychometrically valid and reliable measures of state self-compassion. First, the SSCS-L appears to have good psychometric properties, and a bifactor-ESEM model of one general factor (representing self-compassion) and six specific factors (representing the six components of self-compassion) was found to be optimal in both a community and student sample. Moreover, the good psychometric properties of the SSCS-L were maintained even after the level of state self-compassion was changed through experimental manipulation, providing confidence in findings. Our results contribute to the accumulating empirical evidence (e.g., Neff et al. 2020; Neff et al. 2018b; Neff et al. 2019; Tóth-Király et al. 2017) that self-compassion and its components are best analyzed with a framework that takes construct-relevant psychometric multidimensionality into account, and that the bifactor-ESEM representation of one general and six specific factors best reflects the dimensionality of self-compassion. We encourage researchers to use this framework in the future in order to verify the necessity of incorporating ESEM bifactor models in the measurement of self-compassion and potentially improve understanding of the construct.

Apart from model fit, Cronbach's alpha and model-based composite reliability values indicated that the global self-compassion factor was highly reliable and that the reliability of the specific factors remained acceptable. The fact that the SSCS-L is able to reliably measure change in a global state self-compassion score as well as the six components of self-compassion suggests it will be useful in future research when

the goal is to understand the mechanisms of action of self-compassion in relation to well-being. As one example, researchers could use the SSCS-L to investigate which components of self-compassion tend to be responsible for changes in state anxiety when a mindstate induction is given after a failure or social stressor.

Our results with omega and omega hierarchical values show that the global self-compassion factor accounted for most of the reliable variance in item responding (from 91 to 95% across studies). The specific factors (non-redundant estimates of the unique aspects of the six components beyond the global levels) appear to account for only a small-to-moderate amount of item variance. This is not overly concerning. In studies where bifactor operationalizations are adopted, a well-defined G-factor only needs to be accompanied by some well-defined S-factors (Morin et al. 2020). Observing weakly defined S-factors in a bifactor solution simply suggests that, in the sample at hand, the items used to assess the specific component provide a clearer reflection of the global component. Still, future studies of the SSCS-L should investigate the relative contribution and predictive ability of the S-factors over and above that of the G-factor.

Findings suggest that the SSCS-S serves as an adequate measure of global state self-compassion when separate measurement of its components is not necessary. First, there was a very strong correlation between the long and short versions—from 0.922 to 0.957 across studies. Of course, too much should not be made of this finding because SSCS-S items were included in the SSCS, and therefore, a strong correlation should be expected. In addition, the associations of each with positive and negative affect were highly similar, including when the SSCS-S was examined independently in a separate sample (study 3). Cronbach's alpha for the short scale was also acceptable both before and after experimental manipulation, suggesting it can reliably measure change in state self-compassion.

The SSCS-S was found to have a unitary factor structure, and model fit was generally acceptable across studies for most indices. It should be noted that a single-factor CFA was not supported for the SSCS-L, similar to findings with the trait SCS (Neff et al. 2019). Given that self-compassion is a multidimensional rather than unidimensional construct, we did not necessarily expect a unidimensional factor structure to be confirmed for the SSCS-S. Because most of the variance in item responding to the SSCS-L is explained by a global factor, however, and the SSCS-S items were chosen based on their factor loadings on that global factor, these findings make sense and help confirm the validity of the SSCS-S as a measure of global state self-compassion. The brevity of the SSCS-S means that it should be especially useful in experimental settings, including as a manipulation check. Although the SSCS-S had slightly worse psychometric properties and was slightly less accurate in terms of assessing change in global self-compassion than the SSCS-L, it can be argued that this is a worthwhile tradeoff for the brevity of the measure when time constraints exist (Gosling et al. 2003).

Results indicate that the SCMI is an effective way to experimentally manipulate self-compassion, yielding increases in global self-compassion with a large effect size. It also yielded significant change in all six components of self-compassion, suggesting that the SCMI induces self-compassion in a manner consistent with Neff's theoretical model (Neff 2003b; Neff 2016). The SCMI increased positive affect and reduced negative affect as expected, with large effect sizes. Although there are several ways to induce a self-compassion mindstate and this research cannot determine which is more effective, it is hoped that the availability of a writing task that is consistent with Neff's model of self-compassion (Germer and Neff 2019; Neff 2003b) will be useful to the field.

Finally, there has been controversy over whether or not self-compassion should be measured as a global construct, or if the subscales representing compassionate versus uncompassionate self-responding should be measured as two separate constructs representing self-compassion and "self-coldness" (Brenner et al. 2017; López et al. 2015; Muris et al. 2016). Our psychometric analyses supported the view of self-compassion as a single construct composed of six elements rather than two separate factors composed of three elements each. The fit of the bifactor-ESEM model was superior to the two-bifactor CFA model, and although model fit was good for the two-bifactor ESEM model, two separate global factors could not be distinguished by factor loadings. It is also important to note that the correlation between compassionate and reduced uncompassionate self-responding was extremely high in the two-bifactor CFA models ($r = 0.887$ in study 1 and $r = 0.833$ in study 2), which is higher than has typically been found in research with the trait SCS (e.g., Coroiu et al. 2018; Costa et al. 2016; López et al. 2015). This finding is likely due to the fact that all items were aimed at the same instance of suffering, and therefore assessed the experience of self-compassion itself rather than reflecting variance in the type of situations being considered (e.g., personal inadequacy or general challenges). Psychometric findings with the state SCS are therefore even more relevant to understanding the construct of self-compassion than those obtained with the trait SCS. Results strongly suggest that increased compassionate and decreased uncompassionate self-responding co-occur in the mindstate of self-compassion.

Additional support for this proposition is found in findings that the SCMI created change in the six components of self-compassion to a strikingly similar degree, especially when comparing increased compassionate and reduced uncompassionate self-responding within emotional, cognitive, and attentional domains. This has direct implications for the controversy over the conceptualization of self-compassion. Compassionate and uncompassionate responding did not

change independently; they changed together as a system. This same pattern has also been observed after participation in an MSC course (Neff 2016) and other interventions (Ferrari et al. 2019). Thus, both increased compassionate and reduced uncompassionate self-responding appear to be integral features of a global self-compassionate mindstate. These findings contribute to the accumulating evidence that the components of self-compassion operate in tandem as a balanced system (Dreisoerner et al. 2020; Ferrari et al. 2019; Phillips 2019).

We recommend use of a total SSCS-L score or the SSCS-S when researchers want to examine the impact of a global self-compassionate mindstate on well-being. When examining mechanisms of action, in other words *how* a self-compassionate mindstate impacts well-being, use of the six SSCS-L subscales is recommended. We do not recommend using two scores representing compassionate and uncompassionate self-responding given that the two factors do not appear to be distinguishable psychometrically. Also, they collapse potentially important distinctions between emotional, cognitive, and attentional domains of self-responding. Given that interest in self-compassion is largely driven by the fact that self-compassion is a learnable skill (Ferrari et al. 2019), it is important that researchers examine how *change* in self-compassion and its components leads to well-being in order to fully understand the construct. Hopefully, availability of the long and short state self-compassion scales will facilitate this endeavor.

Limitations and Future Research Directions

Although the SSCS-L and SSCS-S were examined in both community and student samples, it will be important to establish whether the state self-compassion scales are effective in other groups such as clinical populations. Also, while the predictive validity of the state scales was confirmed by correlations with positive and negative affect, future studies should aim to establish discriminant, convergent, or criterion validity with additional measures. A limitation of the current study was that the strength of association between the SSCS-S and the SSCS-L was examined with the same set of items, inflating their correlation. Future studies could investigate the association of the SSCS-L and SSCS-S by administering both to the same participants separately with filler measures between them, allowing for a more accurate assessment of their overlap (Smith et al. 2000).

It should also be noted that these state self-compassion scales are intended to measure the construct of self-compassion as defined and measured by Neff (2003a, b), and cannot be used to assess other definitions of self-compassion. Future research may want to develop state measures consistent with other conceptualizations (e.g., Gilbert et al. 2017; Gu et al. 2019) to determine if there are substantive differences between these models in terms of the link between self-compassion and well-being. Future studies should also consider using Generalizability Theory to examine the trait-state variance components associated with the SSCS-L and the SSCS-S in order to better distinguish the state and trait of self-compassion (see Medvedev et al. 2017 and Truong et al. 2020 for a similar application with mindfulness).

Overall, the current set of studies suggests that the SSCS-L and SSCS-S are valid and reliable measures of state self-compassion. It is our hope that they will facilitate the experimental study of self-compassion.

Authors' Contributions KN conceptualized and designed the studies and wrote the majority of the manuscript. ITK conducted and wrote up all statistical analyses. MK created the SCMI used in the study and assisted in writing the manuscript. AK and OD were primarily responsible for collecting study data and also assisted in study design.

Funding The second author was supported by a Horizon Postdoctoral Fellowship from Concordia University and by funding from the Social Sciences and Humanities Research Council of Canada (435-2018-0368).

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval This research was approved by the University of Texas at Austin. Informed consent was obtained from all study participants. The procedures used in this study adhere to the tenets of the Declaration of Helsinki.

References

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.

Bandalos, D. L. (2014). Relative performance of categorical diagonally weighted least squares and robust maximum likelihood estimation. *Structural Equation Modeling: A Multidisciplinary Journal, 21*(1), 102–116.

Blackie, R. A., & Kocovski, N. L. (2018). Examining the relationships among self-compassion, social anxiety, and post-event processing. *Psychological Reports, 121*(4), 669–689.

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

Brenner, R. E., Heath, P. J., Vogel, D. L., & Credé, M. (2017). Two is more valid than one: Examining the factor structure of the Self-Compassion Scale (SCS). *Journal of Counseling Psychology, 64*(6), 696–707.

Browne, M. W. (2001). An overview of analytic rotation in exploratory factor analysis. *Multivariate Behavioral Research, 36*(1), 111–150.

Brunner, M., Nagy, G., & Wilhelm, O. (2012). A tutorial on hierarchically structured constructs. *Journal of Personality, 80*(4), 796–846.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's mechanical turk: A new source of inexpensive, yet high-quality data? *Perspectives on Psychological Science, 6*(1), 3–5.

Burisch, M. (1997). Test length and validity revisited. *European Journal of Personality, 11*(4), 303–315.

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 14*(3), 464–504.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*(2), 233–255.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd) Hillsdale, NJ: Erlbaum.

Coroiu, A., Kwakkenbos, L., Moran, C., Thombs, B., Albani, C., Bourkas, S., Zenger, M., Brahler, E., & Korner, A. (2018). Structural validation of the Self-Compassion Scale with a German general population sample. *PLoS One, 13*, e0190771.

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.

Crawford, J. R., & Henry, J. D. (2004). The positive and negative affect schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 43*(3), 245–265.

Danner, D., Treiber, L., & Bosnjak, M. (2019). Development and psychometric evaluation of a short version of the Time Perspective Inventory. *European Journal of Psychological Assessment, 35*, 172–181.

Delaney, M. C. (2018). Caring for the caregivers: Evaluation of the effect of an eight-week pilot Mindful Self-Compassion (MSC) training program on nurses' compassion fatigue and resilience. *PLoS One, 13*(11), e0207261.

Dreisoerner, A., Junker, N. M., & van Dick, R. (2020). The relationship among the components of self-compassion: A pilot study using a compassionate writing intervention to enhance self-kindness, common humanity, and mindfulness. *Journal of Happiness Studies*. Advance online publication. https://doi.org/10.1007/s10902-019-00217-4

Ferrari, M., Hunt, C., Harrysunker, A., Abbott, M. J., Beath, A. P., & Einstein, D. A. (2019). Self-compassion interventions and psychosocial outcomes: A meta-analysis of RCTs. *Mindfulness, 10*(8), 1455–1473.

Finlay-Jones, A., Xie, Q., Huang, X., Ma, X., & Guo, X. (2017). A pilot study of the 8-week Mindful Self-Compassion training program in a Chinese community sample. *Mindfulness, 9*(3), 993–1002.

Finney, S. J., & DiStefano, C. (2013). Non-normal and categorical data in structural equation modeling. In G.R. Hancock & R.O. Mueller (Eds.), *Structural equation modeling: A second course* (pp. 439–492). Charlotte, NC: 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*(11), 1963–1971.

Germer, C., & Neff, K. (2019). *Teaching the mindful self-compassion program: A guide for professionals*. New York: Guilford.

Gilbert, P., Catarino, F., Duarte, C., Matos, M., Kolts, R., Stubbs, J., Ceresatto, L., Duarte, J., Pinto-Gouveia, J., & Basran, J. (2017). The development of compassionate engagement and action scales for self and others. *Journal of Compassionate Health Care, 4*(4), 1–24.

Gosling, S. D., Rentfrow, P. J., & Swann Jr., W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality, 37*(6), 504–528.

Gu, J., Baer, R., Cavanagh, K., Kuyken, W., & Strauss, C. (2019). Development and psychometric properties of the Sussex-Oxford compassion scales (SOCS). *Assessment, 27*(1), 3–20.

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.

Kenny, D. A., Kaniskan, B., & McCoach, D. B. (2015). The performance of RMSEA in models with small degrees of freedom. *Sociological Methods & Research, 44*(3), 486–507.

Kirschner, H., Kuyken, W., Wright, K., Roberts, H., Brejcha, C., & Karl, A. (2019). Soothing your heart and feeling connected: A new experimental paradigm to study the benefits of self-compassion. *Clinical Psychological Science, 7*(3), 545–565.

Kline, R. B. (2015). *Principles and practice of structural equation modeling*. New York: Guilford.

Konrath, S., Meier, B. P., & Bushman, B. J. (2018). Development and validation of the single item Trait Empathy Scale (SITES). *Journal of Research in Personality, 73*, 111–122.

Körner, A., Coroiu, A., Copeland, L., Gomez-Garibello, C., Albani, C., Zenger, M., & Brähler, E. (2015). The role of self-compassion in buffering symptoms of depression in the general population. *PLoS One, 10*(10), e0136598.

Lavender, J. M., Tull, M. T., DiLillo, D., Messman-Moore, T., & Gratz, K. L. (2017). Development and validation of a state-based measure of emotion dysregulation: The State Difficulties in Emotion Regulation Scale (S-DERS). *Assessment, 24*(2), 197–209.

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.

López, A., Sanderman, R., Smink, A., Zhang, Y., van Sonderen, E., Ranchor, A., & Schroevers, M. J. (2015). A reconsideration of the Self-Compassion Scale's total score: self-compassion versus self-criticism. *PLoS One, 10*(7), e0132940.

MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review, 32*, 545–552.

Marchetti, I., Mor, N., Chiorri, C., & Koster, E. H. (2018). The brief state rumination inventory (BSRI): validation and psychometric evaluation. *Cognitive Therapy and Research, 42*(4), 447–460.

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*(3), 320–341.

Marsh, H. W., Hau, K. T., & Grayson, D. (2005). Goodness of fit evaluation. In A. Maydeu-Olivares & J. McArdle (Eds.), *Contemporary psychometrics* (pp. 275–340). London: Psychology Press.

Marsh, H. W., Martin, A. J., & Jackson, S. (2010). Introducing a short version of the physical self description questionnaire: new strategies, short-form evaluative criteria, and applications of factor analyses. *Journal of Sport and Exercise Psychology, 32*(4), 438–482.

Marsh, H. W., Morin, A. J., Parker, P. D., & 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.

McDonald, R. P. (1970). The theoretical foundations of principal factor analysis, canonical factor analysis, and alpha factor analysis. *British Journal of Mathematical and Statistical Psychology, 23*(1), 1–21.

Medvedev, O. N., Krägeloh, C. U., Narayanan, A., & Siegert, R. J. (2017). Measuring mindfulness: applying generalizability theory to distinguish between state and trait. *Mindfulness, 8*(4), 1036–1046.

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)*. Information Age.

Morin, A. J. S., Arens, A. K., & Marsh, H. W. (2016). 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., Myers, N. D., & Lee, S. (2020). Modern factor analytic techniques: Bifactor models, exploratory structural equation modeling (ESEM) and bifactor-ESEM. In G. Tenenbaum, & Eklund, R.C. (Eds.), *Handbook of sport psychology* (4th ed.; pp. 1044-1073). Hoboken, New Jersey: Wiley.

Muris, P., Otgaar, H., & Petrocchi, N. (2016). Protection as the mirror image of psychopathology: Further critical notes on the Self-Compassion Scale. *Mindfulness, 7*(3), 787–790.

Murray, A. L., & Johnson, W. (2013). The limitations of model fit in comparing the bi-factor versus higher-order models of human cognitive ability structure. *Intelligence, 41*(5), 407–422.

Muthén, B., & Kaplan, D. (1985). A comparison of some methodologies for the factor analysis of non-normal Likert variables. *British Journal of Mathematical and Statistical Psychology, 38*(2), 171–189.

Muthén, L. K., & Muthén, B. O. (2019). *Mplus User's Guide* (version 8.3). 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. (2003b). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity, 2*, 85–101.

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

Neff, K. D., & Dahm, K. A. (2014). Self-compassion: What it is, what it does, and how it relates to mindfulness. In M. D. Robinson, B. P. Meier & B. D. Ostafin (Eds.) *Handbook of mindfulness and self-regulation* (pp. 121-137). New York: Springer.

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., 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., Long, P., Knox, M. C., Davidson, O., Kuchar, A., Costigan, A., Williamson, Z., Rohleder, N., Tóth-Király, I., & Breines, J. (2018a). The forest and the trees: Examining the association of self-compassion and its positive and negative components with psychological functioning. *Self and Identity, 17*, 627–645.

Neff, K. D., Tóth-Király, I., & Colosimo, K. (2018b). 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). *European Journal of Personality, 32*(4), 371–392.

Neff, K. D., Tóth-Király, I., Yarnell, L., Arimitsu, K., Castilho, P., Ghorbani, N., Guo, H. X., Hirsch, J. K., Hupfeld, J., Hutz, C. S., Kotsou, I., Lee, W. K., Montero-Marin, J., Sirois, F. M., de Souza, L. K., Svendsen, J. L., Wilkinson, R. B., & Mantios, M. (2019). Examining the factor structure of the Self-Compassion Scale using exploratory SEM bifactor analysis in 20 diverse samples: Support for use of a total score and six subscale scores. *Psychological Assessment, 31*, 27–45.

Neff, K. D., Bluth, K., Tóth-Király, I., Davidson, O., Knox, M. C., Williamson, Z., & Costigan, A. (2020). Development and validation of the Self-Compassion Scale for Youth. *Journal of Personality Assessment*. Advance online publication. https://doi.org/10.1080/00223891.2020.1729774.

Nunnally, J. (1978). *Psychometric methods*. New York: McGraw-Hill.

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

Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science, 8*(3), 162–166.

Perreira, T. A., Morin, A. J., Hebert, M., Gillet, N., Houle, S. A., & Berta, W. (2018). The short form of the Workplace Affective Commitment Multidimensional Questionnaire (WACMQ-S): A bifactor-ESEM approach among healthcare professionals. *Journal of Vocational Behavior, 106*, 62–83.

Phillips, W. J. (2019). Self-compassion mindsets: The components of the Self-Compassion Scale operate as a balanced system within individuals. *Current Psychology*. Advance online publication. https://doi.org/10.1007/s12144-019-00452-1.

Pommier, E., Neff, K. D., & Tóth-Király, I. (2020). The development and validation of the Compassion Scale. *Assessment, 27*(1), 21–39.

Reise, S. P. (2012). The rediscovery of bifactor measurement models. *Multivariate Behavioral Research, 47*(5), 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.

Rodriguez, A., Reise, S. P., & Haviland, M. G. (2016). Applying bifactor statistical indices in the evaluation of psychological measures. *Journal of Personality Assessment, 98*(3), 223–237.

Smith, G. T., McCarthy, D. M., & Anderson, K. G. (2000). On the sins of short-form development. *Psychological Assessment, 12*(1), 102.

Tóth-Király, I. & Neff, K. D. (2020). Is self-compassion universal? Support for the measurement invariance of the Self-Compassion Scale across populations. *Assessment*. Advance online publication. https://doi.org/10.1177/1073191120926232.

Tóth-Király, I., Bőthe, B., & Orosz, G. (2017). Exploratory structural equation modeling analysis of the Self-Compassion Scale. *Mindfulness, 8*(4), 881–892.

Tóth-Király, I., Morin, A. J., 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.

Truong, Q. C., Krägeloh, C. U., Siegert, R. J., Landon, J., & Medvedev, O. N. (2020). Applying generalizability theory to differentiate between trait and state in the Five Facet Mindfulness Questionnaire (FFMQ). *Mindfulness*, *11*, 953-963.

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

Zessin, U., Dickhäuser, O., & Garbade, S. (2015). The relationship between self-compassion and well-being: A meta-analysis. *Applied Psychology. Health and Well-Being, 7*, 340–364.