A Confirmatory Factor Analysis and validation of the Forms of Self-Criticism/Reassurance Scale

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Abstract

Objective: Several studies have used the Forms of Self-Criticism/Reassurance Scale (FSCRS; Gilbert, Clarke, Hempel, Miles & Irons, 2004) when exploring the role of emotion regulation in psychopathology. However, psychometric evaluation of the FSCRS is limited. The present study sought to confirm the factor structure of the FSCRS based on theoretical and empirical grounds in a large sample of the general population.

Method: The FSCRS was completed by a large sample of men and women (N = 1570) as part of an online survey. The data were randomly split in order to perform both independent exploratory (EFA) and confirmatory factor analyses (CFA). One-, two- and three-factor solutions were examined.

Results: A three-factor model of reassured-self (RS) and the two types of self-criticism, inadequate-self (IS) and hated-self (HS), proved to be the best fitting measurement model in this sample (χ^2=800.3, df=148, p<.001; CFI = .966, TLI = .961, RMSEA = .074). Although very similar to the original questionnaire, there were some differences in terms of the items that were retained. Validity was confirmed with the shortened FSCRS showing the same associations with mood and sex as the original version of the FSCRS.

Conclusion: A three-factor model (reassured-self, inadequate-self and hated-self) provided the best fitting structure and confirmed the separation of different types of self-criticism. Future research should explore the degree to which these separable aspects of self-criticism are theoretically and clinically meaningful and to identify the role of self-reassurance in ameliorating their effects.

Practioner Points

Positive clinical implications:

- The current paper has established that the FSCRS consists of self-reassurance and 2
  separable factors of self-criticism (inadequate-self and hated-self)

- The current paper refined a measure to test the role of different kinds of self-
  criticism in the aetiology of psychopathology as well as evaluate outcomes following
  intervention

Cautions and limitations:

- The current study did not recruit a clinical sample and responses from a clinical
  group may have revealed a different factor solution

- A high percentage of the sample were classed as "white" and female so the results
  of this study may not be representative of the general population

Introduction

Self-critical thoughts have proved to be an important factor in adaptation and have been explored from a range of perspectives including coping (e.g. Coyne et al., 1981; Folkman & Lazarus, 1985; Tobin et al., 1989; Vitaliano et al., 1985), strategies of thought control (e.g. self-punishment: Wells & Davies, 1994; Reynolds & Wells, 1998), restoring assumptions about a just world (Janoff-Bulman, 1992), emotion regulating self-talk (Brinthaupt, Hein, Kramer, 2009) and personality risks for depression (e.g. Blatt & Homann, 1992). According to Blatt & Homann (1992), self-criticism in the face of failure to achieve goals concerns the "constant and harsh self-scrutiny and evaluation and a chronic fear of being disapproved of or criticized, and of losing the approval and acceptance of significant others" (p.528). Self-criticism predicts psychopathology (e.g. Dunkley, Sanislow, Grilo & McGlashan, 2009) and interferes with progress towards important goals (Powers, Koestner, Lacaille, Kwan & Zuroff, 2009).

Gilbert, Clarke, Hempel, Miles and Irons (2004) elaborated on earlier single-factor measures of self-criticism by developing their Forms of Self-Criticism/Reassurance Scale (FSCRS). Arguing from an evolutionary perspective, Gilbert proposes that competencies for co-ordinating roles with others are used in self-evaluations. In the case of self-criticism, "competencies and behaviours for the hostile dominating of others ... and those for acting as a threatened subordinate ... can interact at the subjective (self-to-self) level" (Gilbert et al., 2004, p.33). In contrast, the ability to reassure oneself

at times of difficulty may reflect a learned ability to be compassionate directed

internally (Gilbert, 2005).

Gilbert et al. (2004) developed the FSCRS to measure self-criticism and self-

reassurance in a sample of 246 female students. The construct of self-criticism was

divided into two types of self-criticism, inadequate-self (e.g. "I can't accept failures and

setbacks without feeling inadequate") and hated-self (e.g. "I call myself names"), while

self-reassurance (e.g. "I can still feel lovable and acceptable") emerged as a distinct

factor.

Studies using the FSCRS show that reacting with self-criticism predicts outcomes

such as depression and anxiety (e.g. Gilbert, Clarke, Hempel, Miles, & Irons, 2004;

Gilbert, Baldwin, Irons, Baccus, & Palmer, 2006), self-harm (Gilbert, McEwan, Irons,

Bhundia, Christie, Broomhead & Rockliff, 2010) and disordered eating (Kupeli, Chilcot,

Platts & Troop, 2012). In contrast, greater self-reassurance is related to better

psychological health (Gilbert et al., 2004, 2006). Self-reassurance is proposed to develop

as a consequence of internalising parental soothing (Gilbert, 2006) and empirical

evidence suggests this is the case with self-reassurance being related to security of

attachments (Irons, Gilbert, Baldwin, Baccus & Palmer, 2006) and early memories of

warmth and safeness (Richter, Gilbert & McEwan, 2009).

Although the FSCRS is being increasingly used to measure self-criticism and self-

reassurance, its factor structure has been evaluated only once (Gilbert et al., 2004)

when describing the measure's original development. The use of this scale in a range of

clinical and non-clinical male and female participants belies the fact that its factor

structure was developed in a sample of 246 female students. Clearly further psychometric evaluation is warranted and the present paper explores the factor structure further.

In determining the potential number of factors of the FSCRS there are several lines of evidence to suggest one, two and three factor solutions. Firstly, of course, is that the principal components analysis performed by Gilbert et al. (2004) found a three-factor solution, two self-criticism factors (inadequate-self [IS] and hated-self [RS]) and one self-reassurance (reassured-self [RS]) factor. Evidence that IS and HS are genuinely separable types of self-criticism includes the fact they show different patterns of associations – e.g. hated-self is uniquely predictive of self-harm, depression and anxiety (Gilbert et al., 2004, 2010) while inadequate-self is uniquely predictive of disordered eating (Kupeli, Chilcot, Platts & Troop, 2012) and is associated with motives for self-correction (Gilbert et al., 2004). Furthermore, one study found that, while responses to the inadequate-self subscale covered the full distribution range, those for the hated-self subscale showed a floor effect (Longe, Maratos, Gilbert, Evans, Volker, Rockliff & Rippon, 2010). If the scales were simply part of the same factor they would be expected to have the same distribution of responses. In spite of this, studies using the FSCRS have generally found inter-correlations between the two self-criticism factors of between .68 and .72 (e.g. Gilbert et al., 2004; Irons et al., 2006; Richter et al., 2009) with one study even reporting a correlation of .80 (Gilbert et al., 2010). Such high inter-correlations indicate a risk of multi-collinearity in regression analysis (Howell, 2002). Accordingly, many studies have combined IS and HS subscales into a single factor (e.g. Gilbert et al.,

2006; Rockliff et al., 2011). This could be taken as tacit acknowledgement that the FSCRS contains only two factors, *self-criticism* (IS + HS) and *self-reassurance* (RS).

Yet other evidence suggests that self-criticism/reassurance may even represent opposite ends of a single factor. In developing the Self-Compassion Scale (Neff, 2003a), Neff (2003b) proposes there are three components of self-compassion: 1) kindness towards the self rather than critical self-judgement (similar to the constructs of self-reassurance and self-criticism, respectively), 2) common humanity in which it is accepted that failure and pain are part of the human experience (rather than a perceived isolation from this human experience), and 3) mindful awareness of negative emotional states in which these are faced and accepted rather than denied or exaggerated (as in over-identification of emotional states). Higher levels of self-compassion (incorporating high levels of self-kindness and low levels of critical self-judgment) predict better psychological health (e.g. Neely, Schallert, Mohammed, Roberts & Chen, 2009; Neff, 2003a, 2004; Neff, Kirkpatrick & Rude, 2007a; Neff, Rude & Kirkpatrick, 2007a; Neff & Vonk, 2009).

Although self-compassion is clearly a broader construct than just self-criticism and self-reassurance, there is some similarity between items for the FSCRS self-reassurance and SCS self-kindness scales as well as between FSCRS self-criticism and SCS critical self-judgment scales. For example, for self-reassurance/self-kindness there are the items "I am gentle and supportive with myself" versus "I try to be loving towards myself" and for self-criticism/critical self-judgment there are the items "I call myself

names" versus "I can be a bit cold-hearted towards myself", for the FSCRS and SCS respectively.

Since in the SCS critical self-judgment and self-kindness scales form a single higher-order factor, the similarity with FSCRS scales of self-criticism and self-reassurance suggests these two may also form a single factor. However, a recent fMRI study showed that inducing self-critical and self-reassuring responses led to activation in different areas of the brain (Longe et al., 2010). Clearly, though related, and in spite of Neff's (2003a) measure of self-compassion combining similar constructs into a single higher-order factor, self-criticism and self-reassurance would appear to be distinct processes. Nevertheless, whether a 2- or a 3-factor solution is a better representation of these constructs is uncertain and, however unlikely, a single-factor model of the FSCRS is at least still feasible. Therefore, for the sake of parsimony, the present study will also consider a single, as well as a 2- and 3-factor solution.

In addition to confirming the factor structure of the FSCRS, the current paper will also provide evidence for convergent validity of the scale by exploring the relationship between the FSCRS and mood and by examining sex differences for each of the sub-scales of the FSCRS. The association between the FSCRS, specifically self-criticism, and mood has been established by many studies (Gilbert et al., 2004, 2006, 2010) and this relationship has also been found when studies have used other measures of self-criticism (Blatt, Quinlan, Chevron, McDonald & Zuroff, 1982; Dunkley, Saislow, Grilo & McGlashan, 2009). Secondly, previous research has demonstrated that women have lower levels of self-compassion (Neff, 2003a) and are more self-critical (Leadbeater,

Kuperminc, Blatt & Hertzog, 1999; Nolen-Hoeksema, Larson & Grayson, 1999) than men. Therefore, it is hypothesized that females will show more feelings of inadequacy and hated self and less reassurance in comparison to males.

In summary, it is plausible that the FSCRS contains 1, 2 or 3 factors. The aim of the present study is to confirm the factor structure of the FSCRS, explore the relationship between the individual scales and mood and examine sex differences using data gathered from a large predominantly community-based sample.

Method

Participants and procedure

Participants were recruited from two sources, 346 students from the University of Hertfordshire and 1224 participants recruited online through social networking sites and health and well-being forums. Participants from sample 1 were awarded with participation credit for taking part in a cross-sectional online study examining disordered eating (Troop, Choudhury, Wiseman, Hore, & Ratcliff, 2012) whilst community-based participants from sample 2 were recruited as part of a longitudinal study investigating stress, mood, bodyweight and disordered eating. Participants from both samples completed the respective surveys online which were created using the Bristol Online Survey (BOS) facility. For the overall sample, mean age was 28.5 (s.d 10.6), and most participants were female, white, either employed or were students and either single or married/cohabiting (see Table 1).

Measures

The FSCRS (Gilbert et al., 2004) is a 22-item measure, which requires participants to rate a selection of positive and negative statements on a 5-point Likert scale ranging from 0 = *not at all like me* to 4 = *extremely like me*. Gilbert et al. (2004) report that the scale measures self-reassurance (reassured-self, RS) and two types of self-criticism, inadequate-self (IS) and hated-self (HS). Positive items reflect the ability to self-reassure and negative items indicate self-critical thoughts and feelings. Although in the original version higher scores on the three subscales indicated a stronger perception of that construct (i.e., greater sense of inadequacy, self-hate, self-reassurance), in order to carry out the analyses described below, positive (RS) items were reversed in order to be positively related to IS and HS items. For example, a response of '0' on the original scoring would indicate "Not at all like me" but when recoded, as a '4', it would indicate "Extremely like me". Thus, for the purpose of the present study, higher scores on positive (RS) items indicate *less* self-reassurance, thus higher scores across all three constructs represent a negative self-perception.

Mood was assessed using the Short Depression-Happiness Scale (SDHS; Joseph, Linley, Harwood, Lewis and McCollam, 2004). The SDHS consists of 6 statements which require participants to rate how they have felt over the last 7 days on a 4-point Likert scale (from "Never" to "Often"). The SDHS is a bi-directional scale with lower scores indicating more depressed mood and higher scores indicating greater happiness.

Cronbach's alpha for the SDHS in the current study was α = .88. The SDHS was

administered only to sample 2.

Statistical analysis

The data from both sources were combined before being randomly split.

Exploratory Factor Analysis (EFA) was conducted using the first half of the randomly split

dataset (*n* = 764) in Mplus version 6 (Muthén & Muthén, 2010). Oblique Geomin

rotation was employed since the extracted factors were expected to correlate. The

number of factors extracted was based on the Kaiser criterion (eigenvalues >1) and the

examination of a Scree plot. In addition, EFA using Mplus allows model fit indices to be

evaluated across several factor solutions. Items were removed from the EFA if their

factor loadings were non-significant or if they loaded significantly but weakly (i.e., <.45)

onto more than one factor.

The best fitting models identified from the EFA (after the removal of non-

significant and double loadings) were subsequently selected for CFA using the second

data file (*n* = 806) from which post-hoc modifications could be sought and evaluated.

CFA is a measurement model which specifies the relationship of the observed

measures to their hypothesised underlying constructs. CFA was conducted using Mplus

version 6 (Muthén & Muthén, 2010) with analyses computed using the Weighted Least-

Squares with mean and variance adjustment (WLSMV). Mplus (Muthén & Muthén,

2010) generates several fit indices to assess how well the proposed model fits the

sample data. Firstly, the Chi^2 statistic may be used as a measure of fit between the

sample covariance and fitted covariance matrices (Byrne, 1998). A non-significant Chi^2 is desired suggesting that the observed and reproduced covariance matrix do not differ significantly and thus demonstrate a good model fit. In addition to the Chi^2 statistic several fit indices were evaluated including the Comparative Fit Index (CFI) and the Tucker Lewis Index (TLI). Values > .95 for these indices indicate a reasonable fit. The Root Mean Square Error of the Approximation (RMSEA) is another fit index which takes into account the error of approximation in the population (Byrne, 1998). RMSEA values < .05 indicate a good model fit.

Similar to the original paper by Gilbert et al., (2004), further analyses were conducted to examine associations between the individual scales of the FSCRS and mood. Additional analyses were also conducted to examine sex differences for each of the subscales.

Results

Sample characteristics

The data set of 1570 participants was randomly split into two data files from which EFA (*n* = 764) and CFA (*n* = 806) were conducted. Comparisons between the EFA and CFA samples with regards to demographic variables are shown in Table 1. The two groups did not differ with respect to age, gender, ethnicity, marital and employment status. Furthermore individual items scores on the FSCRS did not differ between the

groups (data not shown). These results suggest that the random split was successful,

allowing two independent samples to be analysed.

Table 1 here

Exploratory Factor Analysis of FSCRS

Before an EFA was conducted using Mplus, an EFA was conducted in SPSS to

ensure the Kaiser criterion was met. EFAs comparing alternative factor models were

then evaluated in Mplus. Three different factor solutions for FSCRS items were

evaluated using EFA which showed that a one-factor (χ^2=2307.9, df=209, *p*<.001;

CFI=.786, TLI=.763, RMSEA=.115) and two-factor solution (χ^2=1268.1, df=188, *p*<.001;

CFI=.890, TLI=.864, RMSEA=.087) had poor fit to the data as evidenced by significant

Chi^2 tests and fit indices above threshold. A three-factor (χ^2=634.6, df=168, *p*<.001;

CFI=.952, TLI=.934, RMSEA=.06) solution had acceptable fit to the data. Item-factor

loadings for the three-factor solution were examined which led to the removal of Item 4

("I find it difficult to control my anger and frustration at myself ") due to a factor loading

<.40. Items 18 ("I think I deserve my self-criticism") and 20 ("There is a part of me that

wants to get rid of the bits I don't like") were also removed since their factor loadings

were weak (<.45) and were double loaded thus limiting their interpretation. Removal of

these items did not influence the overall value of the measures of sampling adequacy

(MSA=.948). The three-factor solution was re-tested after excluding items 4, 18 and 20

and it was found that this model had superior fit to the data (χ^2=481.6, df=117, p<.001; CFI=.958, TLI=.938, RMSEA=.06). Items loading on the three factors were essentially the same as those in the original solution described by Gilbert et al. (2004). Factor 1 contained 6 items and was labelled *Inadequate-self* (Eigen Value = 9.03, variance explained = 47.52%). Factor 2 contained 5 items and was labelled *Hated-self* (Eigen Value = 1.67, variance explained = 8.8%). The final factor was labelled *Reassured-self* (Eigen Value = 1.28, variance explained = 6.74%). The rotated Geomin factor solution can be seen in table 2.

Table 2 here

Confirmatory Factor Analysis of the FSCRS

The three-factor model derived from the EFA was then evaluated in the second sample's data file using CFA. This model (model A) demonstrated a reasonable fit to the data as evidenced by the fit indices (see table 3). However, there were issues regarding item 22 ("I do not like being me"). In the original solution item 22 loaded onto the HS factor but examination of the modification indices suggested this item should also be predicted by the latent factor *Reassured-self*. When item 22 item is permitted to load onto both HS and RS scales (see model B, table 3), the fit is significantly better than when it is constrained to load only on the HS scale as shown by a Chi^2 Difference test (DIFFTEST; $\Delta\chi^2$=79.5, df=1, p<.01). The modified model (model B) is shown in figure 1 accompanied by standardized model coefficients. The three factors all showed logical

interrelationships. Inadequate-self correlated highly with hated-self (r = .82, p<.001) and

reassured-self (r = .66, p<.001). Hated-self and reassured-self also correlated highly (r =

.62, p<.001). Given the double loading of item 22, and to achieve simple structure, a

further CFA was carried out removing item 22 completely from both the RS and HS

subscales. When item 22 is removed completely (see model C, table 3), there is a slight

improvement in the fit compared to model B in which it is allowed to double-load.

Figure 1 here

While a three-factor solution has been supported here, it has been suggested

(see Introduction) that a two-factor solution (combining the *Inadequate-self* and *Hated-*

self factors to form a single *self-criticism* factor) and a one-factor solution (combining

self-reassurance [reversed] and *self-criticism*) might also be sufficient. These alternative

models were tested and revealed poor fit to the data since all fit indices were outside

their recommended cut-off ranges (see models D and E respectively, table 3).

Table 3 here

Internal reliabilities for the reassured-self, inadequate-self and hated-self subscales in

the modified FSCRS were .88, .90 and .83 respectively. These compared well with those

of the full 22-item version reported here (.88, .91 and .86) as well as those reported in

the original study (.86, .90 and .86 respectively).

FSCRS: Intercorrelations with mood and gender differences

Table 4 shows that the intercorrelations between the FSCRS subscales were similarly high in both the new 18-item and the original 22-item version of the FSCRS although there is a slight reduction in the correlation between IS and HS from the full version to the 18-item version.

Table 4 here

Correlations between the SDHS and the HS and RS subscales of the FSCRS were identical for both the original 22-item and the new 18-item versions. However, the correlation between the SDHS and the IS subscale was slightly reduced in the 18-item version compared with the original (see table 4). Gilbert et al. (2004) reported lower correlations between the FSCRS and depression (Pearson *r*'s ranging from -.51 to .57) although this may be due to differences in the measure of used, with Gilbert et al. (2004) using the CES-D (Radloff, 1977).

Women were significantly higher on the IS scale than men (means [s.d's] were 18.3 [6.4] and 16.3 [6.5] respectively, $t(1219) = -4.469$, $p < .001$). Women were also significantly higher on the RS scale than men (means [s.d's] were 22.2 [6.8] and 20.6 [7.0] respectively, $t(1219) = 3.372$, $p = .001$) where, in the present study, higher scores indicate less self-reassurance. Women were higher on the HS scale than men (means [s.d's] were 9.0 [4.9] and 8.5 [4.4] respectively) although this difference was not

significant, (t(409.62) = -1.649, p = .10). These differences are identical to those found

when using the full 22-item FSCRS, with no sex differences found for the HS scale (p =

.10) and women scoring significantly higher on both the IS and RS scales than men ($p <$

.001 and p = .001, respectively).

Discussion

A CFA was conducted to determine the factor structure of the FSCRS. To our

knowledge the only study that has examined the factor structure of the FSCRS to date is

the original paper in which the measure was developed (Gilbert et al., 2004).

Findings indicate that the FSCRS measures three factors; self-reassurance and

two types of self-criticism, inadequate-self and hated-self. This, therefore, replicates

Gilbert et al.'s (2004) findings. However, the analyses revealed that several

modifications were required to improve the factor structure. This included the removal

of items 4, 18 and 20 due to low factor loadings. Item 22 loaded onto both the

reassured-self and the hated-self components of the FSCRS. However, the fit was still

quite good. Nevertheless, item 22 can be removed (should researchers prefer) without

detriment to the psychometric quality of the FSCRS. The results showed that, although

the factors inadequate-self and hated-self were highly correlated, a two-factor solution

comprising self-reassurance and self-criticism (combining inadequate-self and hated-self

into a single subscale) as well as a single-factor solution (as implied by the Self-

Compassion Scale; Neff, 2003a) that combined self-criticism and self-reassurance

(inversely) were both poor fits to the data. The three-factor model of reassured-self, inadequate-self and hated-self proved to be the best fitting measurement model in this sample providing further support for Gilbert et al.'s (2004) original model, confirming that inadequate-self and hated-self are separate forms of self-criticism. While the three-factor model is more statistically appropriate in terms of model fit, the high inter-correlation between inadequate-self and hated-self indicates a risk for multi-collinearity issues when building predictive models of outcomes. Problems with multi-collinearity are not inevitable with high intercorrelations but researchers must nevertheless be vigilant to the possibility of these effects. However, the size of the correlation between IS and HS was lower in the modified 18-item version than the original 22-item version suggesting authors might usefully follow this modified scoring.

Inter-correlations between the individual subscales of the FSCRS and mood were very similar in the shorter 18-item version and the 22-item version. Finally, sex differences were found for the IS and RS scales with women reporting more feelings of inadequacy and less self-reassurance in comparison to men. Once again, these findings suggest that self-criticism can be separated into two forms as sex differences suggest that women exhibit more negative self-evaluation in the form of feelings of inadequacy but not self-hatred when compared to men. The same sex differences were found when using both the shortened 18-item version and the 22-item version of the FSCRS. Together these findings show that associations between the FSCRS with mood and sex are maintained when using a psychometrically improved version identified through confirmatory factor analysis.

Strengths and limitations

The current study recruited a non-clinical sample and responses from a clinical group may have revealed a different factor solution. Another possible limitation is that the data were collected online and it is arguable that the use of traditional paper-and-pencil methods of data collection may have led to a different set of results. However, previous research has demonstrated that online responses are generally as valid and reliable as those collected offline (Hiskey & Troop, 2002). The current study focused on the *forms* of self-criticism and self-reassurance but did not measure the *functions* which self-criticism serves, such as self-correction and self-persecution (Gilbert et al., 2004). To gain a better understanding of self-criticism and self-reassurance, future research should also examine the factor structure of these functions, which relate to the use of self-criticism for self-improvement versus for self-punishment. Lastly, the findings of this study should be considered in terms of the study limitations, particularly generalisability with regards to ethnicity as a high percentage of the sample was classed as "white" and female. In order to confirm the validity of this scale, it would be important for future studies to recruit a sample that is more representative of the general population.

The present study also has several noteworthy strengths, for example the recruitment of a large predominantly community-based sample, which not only provided the analyses with good power but also allows for the findings to be generalised to groups outside of the student population on which the FSCRS was originally developed.

Implications

In spite of the above limitations, our findings have a number of important implications. From a theoretical point of view, the present study supported the original findings of Gilbert et al. (2004), indicating that a three-factor model consisting of reassured-self, inadequate-self and hated-self was the best fit. The use of the three-factor model will allow future research to build on our current understanding of self-criticism in order to determine whether inadequate-self and hated-self impact differently on outcomes and/or respond differently to intervention. They are clearly separable aspects of self-criticism but the degree to which this distinction is clinically and/or theoretically meaningful requires further research. Other extant measures of self-criticism are not able to achieve this.

The confirmation of the three factors of the FSCRS also has implications for research on the aetiology of psychopathology in terms of vulnerability, responses to triggering events and risk of relapse. The demonstration of reliability and validity for the FSCRS supports its use by both clinicians and researchers to evaluate these issues and to track changes over the course of illness and treatment.

Women are significantly more likely than men to experience depression (Nolen-Hoeksema, 2001). The sex differences found in relation to feelings of inadequacy and self-reassurance may account, in part, for this. As such it may be understood in the context of other types of response to stress or failure that have been proposed to account for sex differences in rates of depression. For example, women are more likely

to ruminate than distract themselves following stress (Butler & Nolen-Hoeksema, 1994;

Nolen-Hoeksema, 1990) and to engage in emotion-focused coping (Matud, 2004;

Tamres, Janicki & Helgeson, 2002).

Finally, the current paper has built on the original development of the FSCRS by

expanding its generalisability from a student population to a predominantly community-

based sample. However, in order to develop the FSCRS further, emphasis must be

placed on using this potentially valuable tool in other settings in order to demonstrate

its generalisability to a range of diverse clinical and non-clinical groups and provide

further support for its three-factor structure.

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Table 1: Demographic variables across EFA and CFA split sample

Demographic Variables	Total (n = 1570)	EFA Sample (n = 764)	CFA Sample (n = 806)	Significance
Age (SD)	28.5 (10.6)	28.6 (10.6)	28.3 (10.6)	t(1568) = .54 p = .59
Male % (n)	17.5 (275)	18.1 (138)	17.0 (137)	Fisher's Exact test p = .60
Female % (n)	82.5 (1295)	81. 9 (626)	83.0 (669)	
Ethnicity-white % (n)	75.3 (1182)	49.2 (582)	50.8 (600)	Fisher's Exact test p = .45
Marital Status % (n)				
Single	39.6 (621)	37.7 (288)	41.3 (333)	
Married	20.8 (326)	22.5 (172)	19.1 (154)	
Divorced	3.3 (52)	3.0 (23)	3.6 (29)	χ^2 (df=5) = 6.44 p = .27
Living with partner	18.2 (286)	19.6 (150)	16.9 (136)	
In a relationship	17.8 (280)	16.9 (129)	18.7 (151)	
Widowed	.3 (5)	.3 (2)	.4 (3)	
Employment % (n)				
Employed	42.7 (671)	42.8 (327)	42.7 (344)	
Unemployed	9.2 (144)	10.2 (78)	8.2 (66)	χ^2 (df=2) = 2.12 p = .35
Student	48.1 (755)	47.0 (359)	49.1 (396)	

Table 2: EFA solution for the FSCRS

No.	Item	Factor 1	2	3
1	I am easily disappointed with myself.	*.83*	-.004	.01
2	There is a part of me that puts me down.	*.88*	.05	-.01
6	There is a part of me that feels I am not good enough.	*.64*	.24	.02
7	I feel beaten down by my own self-critical thoughts.	*.58*	.31	.01
14	I remember and dwell on my failings.	*.55*	.19	.01
17	I can't accept failures and setbacks without feeling inadequate.	*.47*	.23	-.08
9	I have become so angry with myself that I want to hurt or injure myself.	-.11	*.73*	.01
10	I have a sense of disgust with myself.	.07	*.81*	-.004
12	I stop caring about myself.	-.03	*.70*	.13
15	I call myself names.	.24	*.56*	-.09
22	I do not like being me.	.04	*.67*	.21
3	I am able to remind myself of positive things about myself.	.11	.01	*.61*
5	I find it easy to forgive myself.	.25	-.03	*.46*
8	I still like being me.	.03	.34	*.57*
11	I can still feel lovable and acceptable.	-.02	.27	*.65*
13	I find it easy to like myself.	.11	.15	*.67*
16	I am gentle and supportive with myself.	.35	-.01	*.55*
19	I am able to care and look after myself.	-.04	.23	*.41*
21	I encourage myself for the future.	-.02	.19	*.57*
Eigen value		9.03	1.67	1.28

Table 3: Summary of CFA results for the several FSCRS models and fit indices

Model		Chi-Square	No of free Parameters	df	*P*-value	CFI	TLI	RMSEA
A	FSCRS from EFA	959.1	98	149	<.001	.958	.952	.080
B	Modified FSCRS from EFA	800.3	99	148	<.001	.966	.961	.074
C	Item 22 removed	712.4	93	132	<.001	.967	.962	.074
D	Two-factor FSCRS	1445.4	96	151	<.001	.933	.924	.103
E	One-factor FSCRS	3064.0	110	209	<.001	.867	.853	.130

Table 4: Intercorrelations between the FSCRS subscales and SDHS (*N* = 1221)

18-item FSCRS

	SDHS	RS	HS
RS	-.66***		
HS	-.66***	.61***	
IS	-.60***	.60***	.69***

22-item FSCRS

	SDHS	RS	HS
RS	-.66***		
HS	-.66***	.61***	
IS	-.62***	.60***	.73***

Note. *** *p* < .001

Figure 1: CFA: Modified FSCRS model.