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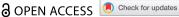Klia Glezakis, Amy L. Burton, Maree J. Abbott & Alice R. Norton

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Self-concept clarity in social anxiety: psychometric properties and factor structure of the Self-Concept Clarity Scale in a social anxiety disorder sample

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ABSTRACT

Background: The Self-Concept Clarity Scale (SCCS) is a 12-item self-report measure that assesses self-concept clarity (SCC). Previous research has identified a relationship between lower SCC and higher levels of social anxiety. As a measure of positive psychological well-being, the SCCS can be used as a tool to examine and monitor SCC in populations with social anxiety disorder (SAD) who appear to be susceptible to inconsistent or unstable self-concept. However, the scale has yet to be validated with a SAD sample.
Methods: A confirmatory factor analysis (CFA) was conducted on the SCCS data of sample of 87 individuals who met criteria for a diagnosis of SAD ($M = 20.15$, SD = 3.55; 83% female) and the reliability, convergent validity and norm scores of the SCCS with a SAD were also investigated.
Results: Results of the CFA supported a unidimensional factor structure. The SCCS was found to have good internal consistency (Cronbach's α = .80) and SCCS scores were found to correlate with measures of psychological distress and social fears, however, no correlation was found with measures of social anxiety behaviours. Also, overall results found that the SAD sample scored lower on SCC than other clinical samples in previous literature.
Conclusions: These findings suggest that the SCCS is a psychometrically sound measure with unidimensional factor structure and demonstrated reliability and validity with a SAD sample, although additional research is warranted to replicate and extend the results of the current research.

KEY POINTS

What is already known about this topic:

(1) The SCCS is a valid and reliable measure of self-concept clarity (SCC) with unidimensional factor structure, developed by Campbell et al. (1996).

(2) The SCCS has been used to identify that individuals with social anxiety symptomology demonstrate lower SCC.

(3) To the authors' knowledge, previous literature has not yet used the SCCS to measure SCC in a SAD clinical sample.

What the current research adds:

(1) The findings of the original development paper and recent validations of the SCCS were supported by the current study – i.e., unidimensional factor structure and sound psychometric properties were demonstrated.

(2) Lower SCC was associated with social worry and cognitive distress. No association was found with behavioural symptoms of SAD.

(3) The SCCS demonstrated clinical utility as a measure that can be used to assist with treatment planning and formulation, and to address a client's beliefs about the self and their identity.

Introduction

Self-concept and self-concept clarity

Self-concept is a complex, learned, multidimensional system of feelings, beliefs, traits, and values that each person holds about themselves (Campbell et al., 1996; Owens & Samblanet, 2013). Shavelson et al. (1976) proposed a hierarchical model of self-concept; comprising of both content and structural components. While substantive research has since explored the contents of the self-concept, i.e., goals, values, self-esteem, and beliefs about specific attributes of the self (Wu

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et al., 2010), insufficient attention has been directed towards the structural aspect of the self. Structural characteristics refer to the organisation of knowledge components and specific self-beliefs (Lewandowski et al., 2010), and include *Self-Concept Clarity* (SCC; Campbell, 1990; Campbell et al., 1996).

SCC is defined as "the extent to which the contents of an individual's self-concept (e.g., perceived personal attributes) are clearly and confidently defined, internally consistent, and temporally stable" (Campbell et al., 1996, p. 141). Research to date has distinguished SCC from other constructs, including self-concept complexity (Linville, 1987), self-concept differentiation (Diehl et al., 2001), and self-concept compartmentalisation (Zeigler-Hill & Showers, 2007) by identifying a range of positive characteristics and behaviours associated with greater SCC. These include psychological well-being (Nezlek & Plesko, 2001), coping with stress (Lee-Flynn et al., 2011), self-esteem (Campbell, 1990), relationship quality (Lewandowski et al., 2010), and decreased consumer behaviours (Mittal, 2015). Thus, high SCC may be a protective factor against the development and maintenance of psychopathology (Stopa, 2009), and it is therefore of great importance that research continues to develop understanding of this aspect of self-concept.

SCC and social anxiety

Previous research has found a clear connection between SCC and a broad range of psychopathologies, including anxiety disorders and depression (for a review of this literature, see: Cicero, 2017). Specifically, SCC has demonstrated a consistent negative association with social anxiety (Gregory & Peters, 2017a; Orr & Moscovitch, 2015; Stopa et al., 2010; Wilson & Rapee, 2006). Initial research investigating the relationship between SCC and social anxiety found social anxiety to be associated with lower confidence and longer response times in ratings of both positive and negative self-related attributes (Wilson & Rapee, 2006). Further, Stopa et al. (2010) found self-organisation and SCC to be significant predictors of SAD when controlling for depression and self-esteem in an undergraduate sample. In a second study, participants with high social anxiety displayed lower SCC and lower confidence when self-assessing, in comparison to low social anxiety participants (Stopa et al., 2010). Findings also indicate that compared to healthy controls, individuals with SAD are less certain about positive self-judgements (Moscovitch et al., 2009). Finally, Orr and Moscovitch (2015) found inauthentic

self-disclosure to be a causal mechanism that partially accounts for this relationship between social anxiety and low clarity of self-concept.

These findings support Stopa's (2009) contention that the *structure* of the self (including SCC) is a key maintaining factor in SAD that has been largely overlooked by cognitive models of SAD (e.g., Clark & Wells, 1995; Rapee & Heimberg, 1997) that have focused on the *content* of the self (see Gregory et al., 2016 for review of how constructs of the self are integrated into cognitive models of SAD). Indeed, clarity about one's sense of self may contribute to the perception that the social world is controllable and social goals are achievable, thereby reducing social anxiety (Stopa, 2009). Moreover, an uncertain or unclear sense of self is likely to increase vulnerability to external stimuli (Campbell, 1990) such that an individual is likely to look externally to collect information and beliefs about the self. This susceptibility to external self-referent stimuli may enable confirmation of negative self-perceptions, impact self-worth, and amplify anxiety in social situations (Gregory & Peters, 2017b).

Self-Concept Clarity Scale

The Self-Concept Clarity Scale (SCCS) was developed by Campbell et al. (1996) as a self-report measure of the construct of SCC. The SCCS was formed from a collection of 40 items that broadly sampled the domain of SCC as a construct. Following this, an initial 20 item scale was created based on internal consistency and a lack of item redundancy. This scale was subsequently modified with the aim of focusing on a univocal aspect of SCC. The final and current version of the SCCS comprises a 12-item scale intended to measure the perceived internal consistency and temporal stability of self-beliefs. Notably, the scale has displayed this unidimensional factor structure since originally published (Campbell et al., 1996) and this factor structure has been validated across a range of populations, including adolescents (Wu et al., 2010), college students (Mittal, 2015), and adults (Steffgen et al., 2007). Recent research by Suszek et al. (2018) further supported these findings, reporting the presence of a one-factor solution in a sample of Polish graduate and undergraduate students.

The SCCS has been extensively used to measure SCC across a range of psychopathology, including anxiety disorders, mood disorders, psychotic disorders and autism spectrum disorder (Cicero, 2017; Stopa et al., 2010). The majority of recent research has reported on adolescent and university student populations who are experiencing subclinical symptoms of social anxiety, whereby scores on the SCCS

were negatively correlated with symptomology (e.g., Kong et al., 2021; Liu et al., 2017; Orr & Moscovitch, 2015). It is however unclear whether these findings can be generalised to clinical SAD samples, due to limited research exploring the clinical utility of the SCCS across a range of diverse samples. Indeed, to date, the authors are not aware of any studies that investigate the psychometric properties of the SCCS in a clinical SAD sample. Given the research imperative to further understand the role of SCC in SAD, and how it might be targeted in treatment of the disorder (Gregory & Peters, 2017b), it is important that the SCCS is validated in a clinical SAD sample so that it can be confidently used in this population. This is particularly pertinent because evidence-based interventions for SAD are increasingly targeting beliefs about the self in keeping with models that implicate conditional and unconditional beliefs and assumptions about the self as central in SAD (McEvoy et al., 2018; Rapee et al., 2009; Stopa, 2009). The increasing focus on self-related beliefs in formulations of SAD necessitates measuring the impact of interventions on such beliefs using psychometrically valid measures with psychometric properties demonstrated in the clinical sample of interest.

Aims and objectives

In light of these limitations within the literature, the current study has two key aims. Firstly, we aimed to evaluate the fit of the one factor solution and assess the psychometric properties of the SCCS within a clinical SAD sample. We expected that our results would replicate the findings of the original development paper (Campbell et al., 1996) and recent validations of the SCCS (see: Cicero, 2020; Matto & Realo, 2001; Stucke & Sporer, 2002; Suszek et al., 2018; Tokunaga & Horiuchi, 2012). More specifically, we hypothesised that the one-factor solution would be supported and that the SCCS would demonstrate good evidence of validity and reliability when used with a clinical SAD sample. Secondly, given the established connection between SCC and social anxiety, we aimed to investigate the performance of a clinical SAD sample on the SCCS. It was expected that social anxiety symptomatology would negatively correlate with scores on the SCCS. The current research will make a unique contribution to our knowledge on the assessment of SCC and further, will aid clinicians

and researchers in understanding SCC as it presents in SAD.

Method

Participants

The present study is a secondary data analysis utilising data obtained from the previously published research of Norton and Abbott (2016, 2017). The dataset used in the present study combines two samples of individuals who met diagnostic criteria for social anxiety disorder (SAD); $n = 60$ from Norton and Abbott (2016) and $n = 27$ from Norton and Abbott (2017). The sample recruited as part of Norton and Abbott (2016; $n = 60$) is composed of participants who were first-year psychology students who were invited to participate in the study in exchange for course credit (57%), as well as members of the community who were recruited with the placement of flyers around the university campus (43%; see: Norton & Abbott, 2016 for additional information). The second participant group ($n = 27$) comprised entirely of first-year psychology students who were invited to participate in the study in exchange for course credit (see: Norton & Abbott, 2017 for addition information). First-year psychology students in both samples completed the Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998), and those who scored above 36 (Peters, 2000) were deemed eligible for diagnostic screening. A registered psychologist and postgraduate clinical psychology student administered the Anxiety Disorders Interview Schedule (ADIS) for DSM-IV (ADIS-IV; Brown et al., 1994) or DSM-5 (ADIS-5; Brown & Barlow, 2014) dependent on the time of data collection (to distinguish the minor changes in diagnostic criteria, see: Crome et al., 2015). In total, data from 87 participants were included in this study, of which 73 were women (83.3%) and 14 were men (16.1%). The mean age was $M = 20.15$ ($SD = 3.55$). All participants met DSM-IV-TR or DSM-5 diagnostic criteria for SAD (American Psychiatric Association [APA], 2000, 2013). Participants who were non-English speaking, below 18 years of age, or with a principal diagnosis other than SAD were excluded. Of the participants in the sample, significant rates of comorbidity were identified. These comorbidities included unipolar depression (23%), generalised anxiety disorder (19.5%), specific phobia (20.7%), avoidant personality disorder (14.9%), post-traumatic stress disorder (9.2%), obsessive compulsive disorder (5.7%), eating disorders (8%) and agoraphobia (1.1%). Detailed

Table 1. Demographic characteristics of sample.

Demographics	n	Percent of Sample %
Ethnicity		
Anglo Australian	26	30
Asian	45	51
European	4	5
Middle Eastern	4	5
Other	8	9
Relationship Status		
Single	63	72
Dating	14	16
Committed Relationship	10	12
Year of Tertiary Education		
First	61	70
Second	12	14
Third	10	12
Fourth or above	4	5

demographic information for the combined sample is displayed in Table 1 (characteristics of the subsamples are reported in Supplement 1).

Procedure

The secondary data analysis was completed in accordance with the ethical standards of The University of Technology Sydney Human Research Ethics Committee (HREC; Approval number: ETH22–7140). Original data collection was completed in accordance with the ethical procedures of the University of Sydney Human Ethics Research Committee (HREC; reference numbers 2013/216 and 2014/647).

After providing informed consent, participants completed a test-battery of self-report questionnaires including the SIAS (Mattick & Clarke, 1998), SCCS (Campbell et al., 1996), Brief Fear of Negative Evaluation Scale (BFNE; Leary, 1983), Depression Anxiety Stress Scales – Short Form (DASS-21; Lovibond & Lovibond, 1995), and the Social Phobia Scale (SPS; Mattick & Clarke, 1998). These measures were administered to provide a thorough assessment of SAD symptomatology in the clinical sample. The authors anticipated that as SAD symptom severity increased, SCCS scores would decrease; consistent with previous research (e.g., Stopa et al., 2010).

Measures

Self-Concept Clarity Scale (SCCS; Campbell et al., 1996)

The SCCS is a self-report measure composed of 12-items. The SCCS aims to measure participants' SCC, with higher scores indicating stronger SCC. Participants are prompted to report the degree to which they feel each statement is characteristic of them (e.g., "I spend a lot of time wondering about what kind of person I really am", "My beliefs about

myself seem to change very frequently"), on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree), with two reverse-scored items. Example items include "*In general, I have a clear sense of who I am and what I am*" and "*It is often hard for me to make up my mind about things because I don't really know what I want.*" Currently, the most widely used measure of SCC (Suszek et al., 2018), the SCCS has been translated into numerous languages and adapted for various cultures to date, including German (Stucke, 2002), Polish (Suszek et al., 2018), Slovak (Fickova, 1999), Korean (Kim, 1998), Japanese (Tokunaga & Horiuchi, 2012), Persian (Razian et al., 2019) and Estonian (Matto & Realo, 2001). The SCCS has demonstrated high internal consistency with an average item-total correlation of 0.54, and the average Cronbach alpha of $a = 0.86$, in addition to excellent temporal stability with test–retest correlations of 0.79 and 0.70 after four- and five-month intervals (Campbell et al., 1996). These psychometric properties, including evidence of reliability and validity have been replicated across a range of samples in the general population (Diehl & Hay, 2011; Lodi-Smith & Roberts, 2010), undergraduate students (Cicero, 2020; Cicero et al., 2013; Usborne & Taylor, 2010) and clinical samples (Bigler et al., 2001; Evans et al., 2015).

Anxiety and Related Disorders Interview Schedule for DSM-5 (ADIS-5, Brown & Barlow, 2014) and the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; Brown et al., 1994)

The ADIS-IV and ADIS-5 are semi-structured clinical interviews developed from the DSM-IV (American Psychiatric Association [APA], 2000) and DSM-5 (APA, 2013) criteria for the assessment of anxiety disorders. These interviews were used to assess the prevalence and severity of anxiety and other disorders among participants. All interviews were videotaped, 15% of which were later randomly selected for review by a second rater. The second rater was qualified in administering the ADIS-IV and ADIS-5 and was blind to the diagnostic status of participants. 100% agreement between the raters for the primary diagnosis of SAD was found. Clinical severity ratings on the ADIS-IV and ADIS-5 are distinguished on a scale ranging from 0 to eight, with higher scores indicating higher levels of distress and interference with daily functioning, and four being the threshold for diagnosis (Brown & Barlow, 2014; Brown et al., 1994).

Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998)

The SIAS and SPS are among the most frequently used self-report measures for SAD and are designed for combined use in order to assess different aspects of SAD (Mattick & Clarke, 1998). The SIAS is a 20-item self-report measure, used to assess participants' fears of social interactions across a range of symptoms (Mattick & Clarke, 1998). Participants report the degree to which they feel each statement resonates with them on a five-point scale ranging from 0 (not at all) to four (extremely), including three reversed-scored items. The SIAS has demonstrated high test–retest reliability and good discriminant and divergent validity as a measure of SAD (Carleton et al., 2009; Thompson et al., 2019). Consistent with these results, the current study indicated acceptable internal consistency (Cronbach's α = 0.75).

Social Phobia Scale (SPS; Mattick & Clarke, 1998)

The SPS is a self-report measure containing 20 items pertaining to situations or themes involving the observation and evaluation of others (Mattick & Clarke, 1998). Participants record their responses by providing a rating between 0 (not at all characteristic or true of me) and four (extremely characteristic or true of me). Higher scores indicate greater anxiety in these settings. The SPS has previously displayed high test–retest reliability and good discriminant and divergent validity (Mörtberg et al., 2017; Thompson et al., 2019). In the current study, the SPS demonstrated good internal consistency (Cronbach's α = .86).

Brief Fear of Negative Evaluation scale (BFNE; Leary, 1983)

The BFNE is a 12-item self-report measure for assessing fear of negative evaluation by others, a central feature of SAD (Leary, 1983; Weeks et al., 2005). The items of the BFNE prompt participants to rate how accurately fearful and worrying cognitions relate to them on a five-point scale ranging from 0 (not at all) to five (extremely), with four reverse-scored items. The BFNE has previously displayed strong psychometric properties including excellent internal consistency, convergent and discriminant validity (Weeks et al., 2005; Wei et al., 2015), consistent with the results of the current study (Cronbach's α = 0.83).

The Depression Anxiety Stress Scales—short form (Lovibond & Lovibond, 1995)

The DASS-21 is a self-report measure consisting of 21-items which assess the severity of symptoms in the last seven days across depression, anxiety, and stress subscales. Participants record the degree to which they feel each statement relates to them on a four-point scale, ranging from 0 (never) to three (almost always). The DASS-21 has previously displayed good to excellent psychometric properties, including excellent internal consistency and high concurrent validity (Antony et al., 1998; Bibi et al., 2020; Coker et al., 2018). This was supported by the findings of the current study for the total score, suggesting good internal consistency (Cronbach's α = 0.89). Good internal consistency was identified for the depression subscale (Cronbach's α = 0.85), and acceptable internal consistency was distinguished for the anxiety (Cronbach's α = 0.78), and stress subscales (Cronbach's α = 0.73).

Statistical analyses

Prior to pooling, data were cleaned and inspected for normality in distribution. Descriptive statistics and analyses were conducted using IBM Statistical Package for Social Sciences (SPSS) Statistics (version 26.0; IBM, New York, NY, USA). Cronbach's alpha was used to examine internal consistency, with values >0.70 considered to be acceptable (Terwee et al., 2007). Pearson correlations were used to test reliability and construct validity in the SCCS. Confirmatory factor analyses (CFA) were conducted in IBM SPSS Analysis of Moment Structures (AMOS; version 28; Arbuckle, 2021) to test the validity of the one-factor structure of the SCCS in the SAD clinical sample. A Maximum Likelihood (ML) method was used, the default method for estimating parameters in CFA. To evaluate the fit of the models, a variety of fit indices were calculated (as suggested by Hu & Bentler, 1999). These included 1) chi-square (χ^2) and the ratio of the chi-square statistic to the respective degrees of freedom (χ^2/df), where ⩽2.00 was considered good and ⩽3.00 acceptable; 2) the Tucker Lewis Index (TLI), where ⩾0.90 suggested good fit; 3) the Comparative Fit Index (CFI), where ⩾0.95 was considered good and ⩾0.90 acceptable; and 4) the standardised root-mean-square error of approximation (RMSEA) where ⩽0.05 considered good and ⩽0.08 acceptable.

Missing data

Complete data for the SCCS was required in order to run the CFA using AMOS in line with the aims of our study (Arbuckle, 2021). One missing item was identified in the SCCS dataset (i.e., 99.9% of items were completed). This missing item was replaced with the mean of the remaining 11 items completed by the participant (Enders, 2017).

Results

Psychometric properties

The SCCS was not correlated with age, gender, employment, education, or the marital status of participants (all p's > .05). Across all 87 participants, scores on the SCCS ranged from a minimum score of 19 and the highest score of 58. The mean value of the SCCS was 42.1 ($SD = 7.5$).

Confirmatory factor analysis

An initial CFA was conducted to confirm the one-factor structure proposed by Campbell et al. (1996) and assess the degree to which the SAD clinical sample ($N = 87$) fit the proposed unitary model. Participants provided a homogenous sample with seven participants per item on the scale, which offers a sufficient sample size for factor analysis based on the N:q rule of thumb for factor analysis, however it must be noted that there is a lack of consensus in the literature regarding minimum sample size needed for factor analysis (Kyriazos, 2018; Lei & Shiverdecker, 2020; MacCallum et al., 2001). Initially, a one-factor solution (SCC) was fitted to the data. While the χ^2/df indicated a good fit, $\chi^2 = 89.52$, $\chi^2/df = 1.66$, the TLI, CFI and the RMSEA fit indices did not support a good model fit; TLI $= 0.83$, CFI $= .86$, and the RMSEA $= 0.09$ with its 90% confidence intervals (CI) 0.05 to 0.12. Examination of the standardised regression weight in the output from the initial model suggested that some items were not strongly loading onto the SCC factor. Inspection of the correlations and communalities of the SCCS items in the CFA output indicated that items 3 and 4 of the SCCS should be covaried, in addition to item 6 with item 11 due to their strong inter-item correlations. On observation of the wording of these items, it was identified that item 3 and item 4 differed from other items in that these both exclusively measured participants'

current sense of self as a "person", while item 6 and item 11 differed from other items in that these two items were both positively valanced. Based on these criteria, the authors decided to test an adjusted model by adding a covariance between the above closely related items (i.e., items 3 and 4 were co-varied due to their similarity in measuring the participants' current self of self as a "person" and items 6 and 11 were co-varied due to their similarity on being positively valanced). The adjusted model demonstrated excellent fit: $\chi^2 = 58.95$, $\chi^2/df = 1.13$, TLo $= 0.96$, CFI $= .97$, and RMSEA $= 0.04$ with 90% confidence intervals (CI) 0.00 to 0.08 and provides support for a one-factor solution for the SCCS. The factor structure of the final one-factor model of the SCCS is presented in Table 2.

Internal consistency

Cronbach's alphas were used to calculate internal consistency within the full clinical sample ($N = 87$). The SCCS was found to have good internal consistency (Cronbach's α $= .80$) in the current study. The corrected item-total correlations ranged from 0.08 to 0.69, with an average item total correlation of 42.12 ($SD = 7.50$). While most items were positively intercorrelated, Pearson's correlations identified that item 12 ("It is often hard for me to make up my mind about things because I don't really know what I want") was not correlated with other items in the measure.

Construct validity

Construct validity was assessed by examining the correlations between SCCS scores and the included measures of specific SAD symptoms, in addition to other related psychopathology measures (i.e., the ADIS severity rating, SIAS, BFNE, SPS, DASS-21 subscales). The SCCS was found to be moderately positively correlated with the BFNE ($r = 0.32$, $p < 0.01$),

Table 2. Results of a confirmatory factor analysis of the SCCS ($N = 87$) standardised regression weights and communalities.

SCCS Items	Factor Loading	Communality
1. My beliefs about myself often conflict with one another	.428	.183
2. On one day I might have one opinion of myself and on another day I might have a different opinion	.577	.333
3. I spend a lot of time wondering about what kind of person I really am	.540	.292
4. Sometimes I feel that I am not really the person that I appear to be	.646	.417
5. When I think about the kind of person I have been in the past, I'm not sure what I was really like	.364	.133
6. I seldom experience conflict between the different aspects of my personality*	.275	.076
7. Sometimes I think I know other people better than I know myself	.494	.244
8. My beliefs about myself seem to change very frequently	.816	.666
9. If I were asked to describe my personality, my description might end up being different from one day to another day	.622	.387
10. Even if I wanted to, I don't think I could tell someone what I'm really like	.613	.376
11. In general, I have a clear sense of who I am and what I am*	.592	.351
12. It is often hard for me to make up my mind about things because I don't really know what I want	.061	.004

*Reverse-keyed items.

the DASS-21 depression ($r = 0.31$, $p < 0.01$), and stress ($r = 0.28$, $p < 0.01$) subscale sand the ADIS severity rating ($r = 0.27$, $p < 0.05$). Contrastingly, the SCCS displayed no correlation with the SIAS ($r = 0.17$, $p > 0.05$), SPS ($r = 0.11$, $p > 0.05$), or the DASS-21 anxiety ($r = 0.20$, $p > 0.05$) subscale.

Discussion

This study aimed to evaluate the psychometric properties of the SCCS, including validity and reliability, and to examine the fit of the one-factor model of the SCCS by conducting a CFA with a SAD sample. The study also sought to investigate the performance of the SAD sample on the SCCS. Results from the CFA provided support for the SCCS as a unidimensional measure; as originally proposed by Campbell et al. (1996) and consistent with recent research (Cicero, 2020; Matto & Realo, 2001; Suszek et al., 2018; Tokunaga & Horiuchi, 2012).

The psychometric properties of the SCCS were assessed. Overall, the SCCS was found to be a valid and reliable measure of SCC. The SCCS demonstrated good internal consistency, consistent with previous research (Campbell et al., 1996; Cicero, 2020; Matto & Realo, 2001; Suszek et al., 2018; Tokunaga & Horiuchi, 2012). While most items were positively intercorrelated, item 12 ("*It is often hard for me to make up my mind about things because I don't really know what I want*") was not correlated with other items in the measure. This may be a result of the item measuring participants' decisiveness rather than SCC, this hypothesis is supported by the observation that this particular item cross-loaded over two-factors when the scale was originally developed (indecisiveness and goal-directedness; Campbell et al., 1996). However, removing item 12 did not improve fit, consistent with previous studies of this measure (Cicero, 2020; Matto & Realo, 2001; Suszek et al., 2018; Tokunaga & Horiuchi, 2012). In addition to internal consistency, future research should continue to provide evidence for the reliability of the SCCS by evaluating the test–retest reliability of the measure.

Construct validity, including convergent validity was evidenced by the significant positive correlation between the SCCS and the BFNE, in addition to a weak positive correlation between the SCCS and the ADIS severity rating. These findings not only demonstrate the convergent validity of the SCCS, but also provide evidence for the association between SCC and SAD symptomology. Consistent with the literature, lower SCC was linked to more severe symptoms of SAD as measured by the ADIS severity rating and BFNE (Gregory & Peters, 2017a;

Orr & Moscovitch, 2015; Stopa et al., 2010; Wilson & Rapee, 2006). Notably, correlations between the SCCS and DASS-21 depression and stress subscales were also significantly and positive, consistent with previous research that has found lower SCC to be associated with increased vulnerability to depressive symptoms and poorer stress coping (Lee-Flynn et al., 2011). Unexpectedly, the current study identified no correlation between the SCCS scores and social anxiety symptoms assessed by the SIAS or SPS, or general anxiety as measured on the DASS-21 anxiety subscale. These findings may be the result of these measures assessing behavioural symptomology ("*I get tense when I speak in front of other people*"), differentiating from the BFNE, a measure of the cognitive aspects of SAD ("*I am afraid that people will find fault with me*"). Another important consideration is that the sample used in the present study consisted only of individuals who met criteria for SAD, therefore it is possible that these unexpected findings could be explained by a reduced variance in the range of responses on the SIAS, SPS and DASS-21 anxiety subscale compared to a general or non-clinical sample. Additional research is needed to explore the hypothesis that that lower SCC may be associated with social worry, mood and cognitive distress more so than behavioural symptomatology.

The performance of the SAD clinical sample on the SCCS produced a mean value of 42.1 ($SD = 7.5$). These findings provide additional evidence for the association between SCC and SAD symptomology, whereby the clinical SAD sample reported having low SCC. However, interestingly the mean SCCS score observed in this study with an SAD sample was a higher SCC score than that which was observed with a clinical sample of participants with severe symptoms of generalised anxiety disorder (GAD; Kusec et al., 2016). The disparity between the SCCS results of the current study and the results of the GAD sample suggest that social worries may be more strongly linked to SCC than generalised worry. Overall, it is likely that being uncertain about one's self-concept may perpetuate the belief that one is not competent, thereby contributing to a continuous cycle of worry and anxiety.

One limitation of the current study is the relatively small sample size (i.e., $N = 87$) for the purposes of a factor analysis given that some sources recommend a minimum sample size of $N = 100$ for a CFA (Kyriazos, 2018; Lei & Shiverdecker, 2020; MacCallum et al., 2001). Additionally, given that all participants included in the study displayed clinical levels of SAD, another possible limitation is that correlations between SCC and SAD

may have been attenuated by a limited range of symptom severity. It is feasible that a restricted range of scores may have influenced the outcomes of the analysis. A further limitation was that the test battery did not include sufficiently diverse measures to provide a thorough assessment of the convergent, divergent and incremental validity of the SCCS with a SAD sample. Future research should consider these factors when examining the psychometric properties of the SCCS by utilising larger sample sizes and incorporating a range of non-clinical, sub-clinical and clinical symptom severity in the participants, and by including various theoretically related and unrelated measures in the test battery with the intent to provide a thorough assessment of convergent, divergent and incremental validity. This may assist researchers and clinicians to distinguish the utility of the SCCS in detecting or differentiating an anxiety diagnosis.

The sample in the current study was comprised predominantly of first year university students in early adulthood. Moreover, while a clinical sample, the participants were non-treatment seeking and predominantly female. Research has demonstrated that university students often display higher intelligence, better socioeconomic status, and better psychological health then the general population, which have been associated with higher SCC (Cicero, 2017). Thus, care should be taken in the generalisation of the current findings to less educated, less psychologically healthy, non-female identifying, active treatment-seeking, or older adult SAD clinical samples. In order to provide clinically useful data, future studies should examine the validity of the SCCS measure in a clinical SAD sample of participants from various age groups and demographics. Future studies may also benefit to consider the use of multigroup invarance analyses to further assess the factor structure of the SCCS in a range of clinical populations, experiencing a broad range of symptomology. This will enable researchers and clinicians to understand how these populations may differ to the SAD clinical sample in their performance on the SCCS.

Despite these limitations, the current study used an Australian, homogenous, clinical sample, offering a thorough assessment of the psychometric properties of the SCCS. Moreover, the quantity and variety of relevant measures included in the test battery administered to the sample allowed the authors to assess the construct validity of the SCCS. This was completed not only with behavioural symptom measures of SAD, but also with other measures of cognitions and beliefs relevant to the development and perpetuation of SAD (such as fear of negative evaluation).

Conclusions

Overall, findings of the present study build on the limited existing literature on the SCCS and provide preliminary evidence for the psychometric properties and unidimensional factor structure of the measure in a sample of young adults with SAD. The results of the current study provide initial evidence for the utility of the SCCS and suggest that the SCCS can be used to assess and measure change in social worry and cognitive distress, in addition to identifying a client's beliefs about the self and their identity. These findings suggest that the SCCS may be a useful measure for clinicians to consider administering with SAD clients and may indicate a valuable domain for cognitive therapy. Moreover, administration of the SCCS over time may allow for more effective monitoring of change across treatment and tailoring of interventions. Nevertheless, additional research is warranted to replicate and support the results of the current research. The extant research can be further extended by continuing to evaluate the construct validity of the SCCS, replicating the current findings of internal consistency, and measuring test–retest reliability in a clinical sample. The validation of the SCCS in a broader range of clinical or non-clinical samples could also be useful in understanding the relation between SCC and SAD, or other related characteristics and disorders.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

The data that support the findings of this study are available from the corresponding author, [AN], upon reasonable request.

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