"Probing the structural validity of the Self-Beliefs in Social Anxiety Scale (SBSA): Adaptation and validation in a French-speaking community sample"

Heeren, Alexandre ; Wong, Quincy J.J. ; Ceschi, Grazia ; Moulds, Michelle L. ; Philippot, Pierre

Abstract

Clark and Wells' (1995) model of social phobia proposes that there are 3 types of maladaptive self-beliefs responsible for social anxiety (high standard, conditional, and unconditional beliefs). Wong and Moulds (2009) recently developed the 15-item Self-Beliefs Social Anxiety (SBSA) scale that measures the strength of the self-belief types proposed by this model. They tested the structural validity of the SBSA and found that a correlated 3-factor model best fitted the data. However, they conducted their analyses on an undergraduate sample restricted in terms of age range and educational levels. Additionally, no previous study has tested whether this 3-factor solution is replicable. Moreover, no cross-cultural adaptation of the scale has been conducted. The present study was designed to address these issues. We tested whether the SBSA best fit with a 3-factor solution among a French-speaking community sample (N = 611). Confirmatory factor analyses replicated the model implied by Won...

Document type : *Article de périodique (Journal article)*

Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement
2014, Vol. 46, No. 4, 506–513

0008-400X/14/$12.00 DOI: 10.1037/a0035295

Probing the Structural Validity of the Self-Beliefs in Social Anxiety Scale (SBSA): Adaptation and Validation in a French-Speaking Community Sample

Alexandre Heeren
Université catholique de Louvain and National Fund for Scientific Research, Brussels, Belgium

Quincy J. J. Wong
Macquarie University

Grazia Ceschi
University of Geneva

Michelle L. Moulds
University of New South Wales

Pierre Philippot
Université catholique de Louvain

Clark and Wells' (1995) model of social phobia proposes that there are 3 types of maladaptive self-beliefs responsible for social anxiety (high standard, conditional, and unconditional beliefs). Wong and Moulds (2009) recently developed the 15-item Self-Beliefs Social Anxiety (SBSA) scale that measures the strength of the self-belief types proposed by this model. They tested the structural validity of the SBSA and found that a correlated 3-factor model best fitted the data. However, they conducted their analyses on an undergraduate sample restricted in terms of age range and educational levels. Additionally, no previous study has tested whether this 3-factor solution is replicable. Moreover, no cross-cultural adaptation of the scale has been conducted. The present study was designed to address these issues. We tested whether the SBSA best fit with a 3-factor solution among a French-speaking community sample (N = 611). Confirmatory factor analyses replicated the model implied by Wong and Moulds (2011a), and, more generally, the theoretical model of Clark and Wells (1995). Moreover, good scale reliability and concurrent validity were observed.

Keywords: social anxiety, maladaptive self-beliefs, measurement, psychometric, rumination

The most prominent cognitive models of social anxiety (SA) posit that biased cognitions contribute to the development and maintenance of the disorder (e.g., Clark & Wells, 1995; Rapee & Heimberg, 1997). According to Clark and Wells' (1995) model, on the basis of early experience, individuals with social phobia develop a series of problematic assumptions about themselves and their social world (e.g., "I have to convey a favourable impression;" "People think I'm inferior;" "If people know I'm anxious, they will think I'm weak"). Such self-beliefs lead individuals to appraise social situations as dangerous, which in turn generates anxiety. Further, according to this model, some maintaining processes function to prevent the disconfirmation of these self-beliefs, and the ongoing presence of these beliefs results in an anxiety response whenever social-evaluative situations are encountered.

According to Clark and Wells (1995), there are four processes that maintain the maladaptive self-beliefs in their model. One of the main maintenance factors of SA is ruminative processing that occurs either before (i.e., anticipatory processing) or after (i.e., postevent processing) a social-evaluative event. According to this model, an individual with SA who engages in anticipatory processing before a social-evaluative situation is likely to dwell on past social failures, generate negative images of himself/herself in the upcoming situation, and make predictions about poor performance and rejection (Turk, Heimberg, & Magee, 2008). In a similar vein, the content of postevent processing following a social evaluative situation focuses more on individuals' anxiety and experience of the negative self-perception that occurred during the

This article was published Online First December 30, 2013.

Alexandre Heeren, Institute of Psychological Science, Université catholique de Louvain, Louvain-la-Neuve, Belgium, and National Fund for Scientific Research, Brussels, Belgium; Quincy J. J. Wong, Department of Psychology, Macquarie University, Sydney, Australia; Grazia Ceschi, Department of Psychology, University of Geneva, Geneva, Switzerland; Michelle L. Moulds, School of Psychology, University of New South Wales, Sydney, Australia; Pierre Philippot, Institute of Psychological Science, Université catholique de Louvain.

This work was supported in part by a postdoctoral research fellow grant from the Belgian Foundation for Scientific Research (F.R.S.-FNRS, Belgium), awarded to Alexandre Heeren. The writing of this article also received the support of "Vocatio," the Belgian Foundation for Vocation (awarded to Alexandre Heeren). We thank Nathalie Lefèvre for helpful discussion and suggestions on the use of structural equation modelling.

Correspondence concerning this article should be addressed to Alexandre Heeren at the Laboratory for Experimental Psychopathology, Institute of Psychological Science, Université catholique de Louvain, Place du Cardinal Mercier, 10, B-1348 Louvain-la-Neuve, Belgium. E-mail: heeren.alexandre@gmail.com

event, as well as the recall of past instances of social failure. There are also three maintaining processes in the model that are proposed to occur during a social-evaluative situation. First, individuals with SA shift their attention away from the situation and become self-focused (e.g., focus on anxious feelings, distorted images of themselves). They then use internal information to form a negative impression of themselves. Second, they use a variety of safety behaviours (e.g., avoiding eye contact when speaking to others) to prevent feared catastrophes from occurring. The nonoccurrence of the catastrophe is attributed to the performance of the safety behaviour, and is not used to disconfirm maladaptive beliefs about the self or the situation. Finally, the experience of anxiety can affect the performance of an individual with SA in social-evaluative situations (e.g., sweating, hands trembling), leading to perceived negative evaluation. Hence, according to this model, all four maintaining processes have the effect of reinforcing the maladaptive self-beliefs at the core of the model.

Clark and Wells (1995) proposed three types of persistent maladaptive self-beliefs that lead socially anxious individuals to perceive threat in social and public performance situations, and subsequently experience anxiety: (a) excessively high standards for social performance (e.g., "I must be able to convey a favourable impression to everyone"); (b) conditional beliefs concerning social evaluation (e.g., "If people see I'm anxious, they'll think that I'm weak"); and (c) unconditional beliefs about the self (e.g., "People think badly of me"). Despite their theoretical importance, there are currently only limited methods available for assessing these self-beliefs in the published literature. Indeed, although several questionnaires have been developed to examine cognitions related to appraisals of performance and interpretations of social-evaluative situations (for a review, see Hirsch & Clark, 2006), only one measure (see below) has been explicitly developed to assess all three of the maladaptive self-beliefs proposed by Clark and Wells (1995). Furthermore, although the self-beliefs in Clark and Wells' (1995) model are stable, trait-like beliefs, the majority of previous questionnaire measures in the social anxiety literature have measured situational, state-like beliefs (for exceptions, see Rodebaugh, 2009; Turner, Johnson, Beidel, Heiser, & Lydiard, 2003).

Wong and Moulds (2009) recently developed the 15-item Self-Beliefs Related to Social Anxiety (SBSA) scale—a self-report instrument that measures the strength of the self-belief types proposed by Clark and Wells (1995) in a social context. Specifically, participants are asked to rate the extent to which they currently agree with each belief on an 11-point Likert scale (from 0 = *do not agree at all* to 10 = *strongly agree*). The SBSA includes: (a) four items that measure excessively high standard beliefs for social performance (Items 1, 7, 8, 11); (b) seven items that measure conditional beliefs concerning social evaluation (Items 2, 5, 6, 9, 12, 13, 15); and (c) four items that measure unconditional beliefs about the self (Items, 3, 4, 10, 14). As described in Wong and Moulds (2009), an initial pool of 49 items was developed. From this pool, 15 items were selected according to the strength of their associations with fear of negative evaluation after controlling for depression.

Wong and Moulds (2009) reported preliminary psychometric properties of the SBSA. The scale and its subscales had excellent scale score reliability (with Cronbach's alpha = .94 for the total scale; Cronbach's alpha = .85 for the high-standard beliefs subscale; Cronbach's alpha = .91 for the conditional beliefs subscale; Cronbach's alpha = .82 for the unconditional beliefs subscale) and satisfactory item-total correlations (.72 to .88 for the high-standard beliefs subscale; .73 to .89 for the conditional beliefs subscale; .79 to .85 for the unconditional beliefs subscale). They also reported that the high standard and conditional beliefs had stronger positive associations with fear of negative evaluation than did unconditional beliefs. In addition, conditional and unconditional beliefs had stronger positive correlations with depression than high standard beliefs.

More recently, Wong and Moulds (2011a) tested the structural validity of the SBSA. In a first sample, unconstrained exploratory factor analyses (EFA) supported a correlated two-factor model (items of the conditional and unconditional beliefs subscales were made to load on one factor (i.e., Items 3, 4, 10, 14, 2, 5, 6, 9, 12, 13, 15), and items of the high standard beliefs subscale (Items 1, 7, 8, 11) were made to load on a separate factor), against the predicted three-factor model. However, in a second sample, confirmatory factor analysis (CFA) indicated that a correlated three-factor model was the best factor fitting relative to the two-factor model (derived from the initial EFA) and a single-factor model. The SBSA and its subscales also demonstrated good scale score reliability (with Cronbach's alphas ranging from .80 to .92) and test–retest reliability (with Pearson correlation coefficients ranging from .72 to .82). Additionally, the SBSA had a unique positive association with social anxiety, and the magnitude of this association was significantly stronger than the association between the SBSA and depression, as well as the association between the SBSA and general anxiety—suggesting that the SBSA has good validity. Regarding the SBSA subscales, social anxiety emerged as the strongest predictor of the high standard and conditional beliefs (over depression and general anxiety). However, the strength of social anxiety as a predictor of unconditional beliefs was similar to that of depression (and both social anxiety and depression were better predictors than general anxiety).

Wong and Moulds (2011a) conducted their EFA and CFA on an undergraduate sample and hence their sample was restricted in terms of age range and educational level of participants. To our knowledge, no previous study using CFA has tested whether this three-factor solution is replicable. Ensuring structural validity is a critical point to assess whether a scale gauges the theorized psychological construct that it purports to measure. In other words, testing (using CFA) whether the SBSA best fits with a three-factor solution would ensure that one can generalise from this measure to the concept that it is intended to index. Alongside this limitation, no cross-cultural adaptation of the scale has been conducted. However, this is an important issue because it ensures the generalisation of the measured construct across samples. Thus, the systematic validation of a French version of the SBSA represents an important contribution in its own right, especially given that French is the official language in 32 countries and territories worldwide (International Organisation of La Francophonie, 2012). The present study was designed to address two main questions. First, does the SBSA fit a three-factor solution among a community sample? Second, would the psychometric properties of the English version of the SBSA be replicated in a French-speaking sample?

Method

Overview

The scale was first translated into French. Next, the structural validity of the French version of the scale was tested with confirmatory factor analysis (due to our a priori prediction of a three-factor solution as obtained by Wong & Moulds, 2011a). Subsequently, we examined reliability estimates as well as discriminant validity of the scale.

French Adaptation of the Scale

We followed the steps for the transcultural validation of psychometric instruments detailed by Hambleton, Merenda, and Spielberger (2004). Items were first translated into French and then back-translated into English. Two fully bilingual experts translated the original English scale into French using a committee approach. The French version was then translated back into English and reevaluated by two other bilingual experts. The first author supervised the whole translation/back-translation process. Experts were instructed to verify the conformity of the retranslated English version with the original version as well as the precision of the French items. Items with problematic back-translation were thoroughly discussed and appropriately amended. All the discrepancies were minor, involving the choice between two synonyms (for example, "I need to be liked by everyone:" "J'ai besoin d'être apprécié(e) par tous le monde" versus "J'ai besoin d'être aimé(e) de tous le monde"). Regarding the use of an appropriate format for the items, five independent raters were then instructed to comment on the overall presentation of the instrument and the precision of the items. No remarks were made.

Participants

Six-hundred and 11 French-speaking volunteers (410 women, 67.1%) were administered the French version of the SBSA. Their age ranged from 18 to 74 years ($M = 31.16$, $SD = 12.18$). They were recruited among the Université Catholique de Louvain community (Belgium) and the University of Geneva (Switzerland). The first, third, and last authors sent e-mails to potential participants (acquaintances and French-speaking international colleagues) requesting participation in a study on a voluntary basis and circulation of this invitational e-mail to others. Regarding nationality, 57.4% ($n = 351$) of the participants were from Switzerland, 17.5% ($n = 107$) from France, 13.3% ($n = 81$) from Belgium, 11.1% ($n = 68$) from French-speaking African countries, and .7% ($n = 4$) from Canada (i.e., Quebec). Participants were predominantly university graduates (83.5%, $n = 510$). Of the full sample, 7.5% ($n = 46$) of the participants had a college degree, 6.7% ($n = 41$) a high school degree, 2% ($n = 12$) a middle school degree, and .3% ($n = 2$) an elementary school degree. Only native French speakers were invited to take part in the study.

Measures and Procedure

Participants completed the French version of the SBSA, and the French versions of the Liebowitz Social Anxiety Scale (LSAS, Liebowitz, 1987), Fear of Negative Evaluation scale (FNE; Watson & Friend, 1969), Trait version of the Spielberger State–Trait Anxiety Inventory (STAI-Trait; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), and Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996).

The STAI-Trait is a 20-item self-report questionnaire that assesses anxiety proneness (e.g., "I am a steady person," "I worry too much over something that really doesn't matter"). Items are rated using a 4-point Likert scale. Scale scores range from 20 (low score) to 80 (high score). Bruchon-Schweitzer and Paulhan (1993) have reported good psychometric and structural properties of the French adaptation of the scale.

The BDI-II is a 21-item multiple-choice self-report inventory measuring the symptoms of depression (e.g., "I'm so sad or unhappy that I can't stand it"). Scale scores range from 0 (low score) to 63 (high score). Beck, Steer, and Brown (1998) reported good psychometric and structural properties of the French adaptation of the scale.

The LSAS is a 24-item scale that measures anxiety and avoidance of social interaction and performance situations (e.g., returning goods to a store, urinating in a public bathroom). Items are rated using a 4-point Likert scale. Scale scores range from 0 (low score) to 144 (high score). This scale possesses good psychometric properties, and the French adaptation of the scale has demonstrated good structural validity (Heeren et al., 2012a; Yao et al., 1999).

The FNE is a 30-item self-report questionnaire, with a true-false response format, that measures the extent to which the respondent fears negative evaluation (e.g., "I rarely worry about seeming foolish to others," "I worry about what people will think of me even when I know it doesn't make any difference"). Scale scores range from 0 (low score) to 30 (high score). The FNE possesses good psychometric properties, and the French adaptation of the scale has demonstrated good structural validity (Douilliez, Baeyens, & Philippot, 2008; Musa, Kostogianni, & Lépine, 2004).

Data Analysis

Confirmatory factor analysis (AMOS 16; Arbuckle, 2007) was used to test the factorial validity of the SBSA. Before performing the analysis, we examined the skewness and kurtosis of the data of the measurement model. All parameters were between −1 and 1, indicating that the data were univariately normally distributed. Furthermore, we conducted the Kolmogorov–Smirnov test on each item of the SBSA. These analyses revealed that normality was achieved for all items ($p > .05$).

The standard method of estimation in structural equation modelling is maximum likelihood, which is based on an assumption of multivariate normality of the manifest variables. However, as noted by Byrne (1994), an error that is frequently made when performing confirmatory factor analysis is that the normality of the data is not taken into account multivariately. In our case, multivariate kurtosis was high, with a Mardia's (1974) coefficient of 77.70, clearly indicating a lack of multivariate normality. The items of the SBSA refer to a sample of emotional behaviours that can be present or absent with varying frequency. This makes non-normality and categorisation problems likely (e.g., Heeren, Douilliez, Peschard, Debrauwere, & Philippot, 2011; McDonald & Ho, 2002). Therefore, using standard normal theory estimators with these data could produce estimation problems.

Various formulas can be applied to correct for the lack of multivariate normality when performing confirmatory factor analysis. For the present case, the most appropriate approach is to use an estimation method that makes no distributional assumptions, such as the unweighted least squares (ULS) estimation method. ULS is analogous to the ordinary least squares in traditional regression. Indeed, ordinary least squares method minimizes the sum of squared errors and ULS minimizes the sum of squared values in the residual matrix (Browne, 1982).

As suggested by Browne (1982), the ULS method leads to covariance matrix that are not as asymptotically distributed as the chi-squared distribution, the chi-squared test and other fit indices based on such statistics were not able to be computed and, thus, are not reported. Instead the following fit indices were used to verify the tested models: (a) Goodness of Fit Index (GFI); (b) Adjusted Goodness of Fit (AGFI); (c) Parsimony Goodness of Fit Index (PGFI); and (d) Parsimony Ratio (PRATIO). Incremental and residual fit indices cannot be used with the ULS method.

GFI is an absolute fit index developed by Jöreskog and Sörbom (1984) with a corresponding adjusted version, the AGFI, developed to incorporate a penalty function for the addition of free parameters in the model. The GFI is analogous to R-square and performs better than any other absolute fit index regarding the absolute fit of the data (Hoyle & Panter, 1995; Marsh, Balla, & McDonald, 1988). Both GFI and AGFI have values between 0 and 1, with 1 indicating a perfect fit. A value of .90 is usually considered the minimum for model acceptance (Blunch, 2008).

PGFI (James, Mulaik, & Brett, 1982) and PRATIO are parsimony-based fit measures. Absolute fit measures judge the fit of a model per se without reference to other models that could be relevant in the situation. Parsimony adjusted measures introduce a penalty for complicating the model by increasing the number of parameters in order to increase the fit. Usually parsimony fit indices are much lower than other normed fit measures. Values larger than .60 are generally considered satisfactory (Blunch, 2008).

The present context also requires comparing fit across different models that are not necessarily nested (i.e., meaning that one model is not simply a constrained version of the other). Therefore, we also reported the Akaike Information Criterion (AIC, Akaike, 1987), the Browne-Cudeck Criterion (BCC; Browne & Cudeck, 1989), and the Expected Cross-Validation Index (ECVI; Browne & Cudeck, 1989) that are most suited for comparison of nonnested models (Blunch, 2008). AIC, BCC, and ECVI are fit measures based on information theory. These indices are not used for judging the fit of a single model, but are used in situations in which one needs to choose from several realistic but different models. These indices are a function of both model complexity and goodness of fit. For these indices, low scores refer to simple well-fitting models, whereas high scores refer to complex poor-fitting models. Therefore, in a comparison-model approach, the model with the lower score is to be preferred.

Results

Structural Validity

The three models investigated by Wong and Moulds (2011a) were tested in a confirmatory factor analysis: (a) a correlated three-factor model (Model A); (b) a correlated two-factor model with the items of the conditional and unconditional beliefs subscales made to load on one factor and items of the high standard beliefs subscale made to load on a separate factor (Model B); and (c) a model with one sole principal factor (Model C).

Table 1 displays the fit indices of the three models. The three models have very good fit indices. However, Model A exhibited better fit than both Models B and C. Moreover, the AIC, BCC, and ECVI were favourable to Model A (see Table 1).

As shown in the Appendix, the standardized factor loadings of Model A were statistically significant ($p < .001$). Four items, however, showed loadings below .40 (i.e., Items 1, 4, 7, and 9). Therefore, we also reran all analyses without these items. Results did not show any substantial change in fit index values. We also reran all the analyses without Item 1 (as it exhibits the lowest loading). However, again, results did not show any substantial change in fit index values. In order to be consistent with the initial scale, we did not exclude these items.

Descriptive Statistics and Scale Score Reliability

Table 2 displays the descriptive statistics and scale score reliability indices of the French version of the SBSA and its subscales. In addition, we also reported the 95% confidence intervals of Cronbach's alpha coefficients. These confidence intervals were computed using the procedure of Koning and Franses (2003). As all Cronbach's alpha coefficients were higher than .75 (Nunnally, 1978), it suggested good scale and subscale score reliabilities. Within each of the subscales, Cronbach's alpha coefficients decreased if any of the items were deleted (with the exception of Items 1 and 7, for which the removal did not lead to any change as it maintained the Cronbach's alpha coefficient of the total scale to .90).

Correlations Between the SBSA and Other Constructs

Table 3 displays the bivariate correlations between the SBSA and other scales included in the present study (each time controlling for all the other questionnaires we administrated). Fisher's *r*-to-*z* transformation, with the formula for comparing correlations measured on the same subjects taken from Steiger (1980), was used to assess the difference of Pearson *r*-values. The total SBSA score correlated significantly more strongly with the FNE than with the LSAS ($Z = 8.17$, $p < .001$), STAI-Trait ($Z = 9.16$, $p <$

Table 1
Fit Index Values for the Different Tested Models

Model	*df*	GFI	AGFI	PGFI	PRATIO	AIC	BCC	ECVI
Model A	87	**.99**	**.98**	**.72**	**.83**	**505.02**	**507.85**	**1.30**
Model B	89	.98	.97	.73	.85	644.88	647.55	1.66
Model C	90	.97	.97	.73	.86	822.41	824.99	2.13

Note. Model A = a correlated three-factor solution; Model B = a correlated two-factor solution; Model C = a single-factor solution; *df* = degree of freedom; GFI = Goodness of Fit Index; AGFI = Adjusted Goodness of Fit; PGFI = Parsimony Goodness of Fit Index; PRATIO = Parsimony Ratio; AIC = Akaike Information Criterion; BCC = Browne-Cudeck Criterion; ECVI = Expected Cross-Validation Index. Model A (being emphasized by a bold font) can be considered as the best fitting model.

Table 2
Descriptive Statistics and Cronbach's α Coefficients

	Items	Minimum	Maximum	*M*	*SD*	α	α 95% CI
SBSA - Total	15	0	142	48.32	27.05	.90	.89–.91
SBSA - High Standard beliefs	4	0	40	21.18	8.82	.75	.74–.76
SBSA - Unconditional beliefs	4	0	37	7.79	7.03	.79	.78–.80
SBSA - Conditional beliefs	7	0	69	19.36	15.71	.89	.87–.91
FNE	30	0	29	12.16	7.57	.91	.90–.92
LSAS	48	0	118	35.81	24.22	.91	.89–.93
BDI-II	21	0	37	8.63	6.84	.86	.83–.87
STAI-Trait	20	26	68	45.03	7.98	.87	.85–.88

Note. SBSA = Self-Beliefs in Social Anxiety Scale; LSAS = Liebowitz Social Anxiety Scale; FNE = Fear of Negative Evaluation Scale; STAI-Trait = Trait-version of the Spielberger State-Trait Anxiety Inventory; BDI-II = Beck Depression Inventory (2nd edition).

.001), and BDI-II ($Z = 6.33, p < .001$). For the subscales, the high standard beliefs subscale correlated significantly more strongly with the FNE than with the LSAS ($Z = 8.56, p < .001$), STAI-Trait ($Z = 9.48, p < .001$), and BDI-II ($Z = 8.96, p < .001$). For the Unconditional Beliefs subscales, however, there was no significant difference between the strength of its associations with the FNE and the LSAS ($Z = 0.46, p = .65$). The same pattern of results was observed between the correlations this subscale had with the FNE and STAI-Trait ($Z = 1.33, p = .29$) as well as with the FNE and BDI-II ($Z = .37, p = .71$). Finally, the Conditional Beliefs subscale correlated significantly better with the FNE ($Z = 6.47, p < .001$) than with STAI-Trait ($Z = 7.25, p < .001$), LSAS ($Z = 7.25, p < .001$), and BDI-II ($Z = 4.56, p < .001$).

Discussion

Our goals in this study were to (a) test whether the SBSA fit with a three-factor solution in a community sample, and (b) investigate whether the psychometric properties of the English version of the SBSA would be replicated in a French-speaking sample.

Regarding the factor structure of the SBSA, we investigated whether the structure found by Wong and Moulds (2011a) could be replicated. Confirmatory factor analyses revealed that a three-factor solution, including excessively high standards for social performance, conditional beliefs concerning social evaluation, and unconditional beliefs about the self, was the best fitting model. These results replicate the structure reported by Wong and Moulds (2011a) and extend it to a French-speaking sample. Furthermore, Wong and Moulds (2011a) only conducted their exploratory and confirmatory factor analyses on an undergraduate sample. The present study ensures the generalisation of the three-factor solution they found in a more representative sample of individuals from different European countries, of different ages, and of different socioeconomic levels.

The psychometric properties of the French version were also assessed. First, although the Cronbach's alpha coefficients tended to be moderate rather than high, good scale and subscale score reliabilities were observed. With respect to convergent validity, consistent with Wong and Moulds (2011a), we found stronger correlations between the SBSA and measures of FNE than with the BDI-II or STAI-Trait. The same pattern of results was observed for the high standard beliefs as well as the conditional beliefs subscales. This suggests that the SBSA measures beliefs that are better associated with and more characteristic of social anxiety, as opposed to depression or general anxiety. We note that the low correlation between the SBSA and LSAS runs counter to this conclusion. These unexpected findings are also inconsistent with previous results that have been found in two independent undergraduate samples (Wong & Moulds, 2011a; Wong, Moulds, & Rapee, in press). However, these studies assessed social anxiety using the FNE and not the LSAS. As no study has previously examined the correlation between the LSAS and the SBSA, it remains particularly difficult to interpret this finding. One cannot exclude the possibility that the LSAS (e.g., returning goods to a store, urinating in a public bathroom, eating in public) assesses a dimension of

Table 3
Bivariate Correlations Among the SBSA and Other Psychological Constructs

	SBSA High standard beliefs	SBSA Unconditional beliefs	SBSA Conditional beliefs	FNE	LSAS	STAI-Trait	BDI-II
SBSA Total	.77**	.76**	.95**	.46**	.06	.06	.16**
SBS High Standard beliefs		.33**	.61**	.50**	.07*	.09*	.07*
SBSA Unconditional beliefs			.67**	.13**	.15**	.19**	.11**
SBSA Conditional beliefs				.39**	.07*	.07*	.17**
FNE					.15**	.34**	.19**
LSAS						.16**	.11*

Note. SBSA = Self-Beliefs in Social Anxiety Scale; LSAS = Liebowitz Social Anxiety Scale; FNE = Fear of Negative Evaluation scale; STAI-Trait = Trait-version of the Spielberger State-Trait Anxiety Inventory; BDI-II = Beck Depression Inventory (2nd edition).
* $p < .05$. ** $p < .01$.

social anxiety that may differ from the dimension targeted by the FNE (e.g., "I rarely worry about seeming foolish to others," "I worry about what people will think of me even when I know it doesn't make any difference"). The fact that we did not recruit a sample of participants suffering from clinical social anxiety disorder might, therefore, account for this relatively low correlation. Moreover, it should also be noted that the correlation between the LSAS and the FNE in the present study was particularly low (r = .15). Previous studies already reported such a low correlation between the French versions of the FNE and the LSAS (for example, Heeren et al., 2012a reported a correlation of $r(428) = 0.26$ between these two scales). Future studies should further examine potential cultural variations in the relations between the FNE and the LSAS among French-speaking samples.

For unconditional beliefs, there were no significant differences between the correlations with this subscale and the FNE, the STAI-Trait, the LSAS, and the BDI. This pattern is consistent with the results of Wong and Moulds (2011a), who reported that the strength of social anxiety as a predictor of unconditional beliefs was similar to that of depression. Although items of the unconditional beliefs subscale are of a social nature, the absolute and global nature of the negative evaluation of the self that are present in the content of these items may explain its comparable associations with self-reported fear of negative evaluation, depression, and anxiety. Indeed, as pointed out by previous researchers, negative evaluation of the self acts as a trait-like source of vulnerability for the development of emotional disorders such as generalised anxiety disorder (e.g., Clark, 2001; Wells, 1995) and depressive thinking (e.g., Dent & Teasdale, 1988; Kovacs & Beck, 1978), and it is, thus, not surprising that they are not uniquely associated with social anxiety.

At a fundamental level, the results of the structural modelling are congruent with the predictions of Clark and Wells (1995) regarding the existence of three maladaptive self-belief types in social phobia. In addition to these beliefs, these authors also proposed that individuals with social phobia engage in several maladaptive cognitive and behavioural processes (i.e., self-focused attention, safety behaviours, anxiety-induced performance deficits, anticipatory processing, postevent rumination) that prevent the disconfirmation of maladaptive self-beliefs. As a consequence of these maladaptive cognitive and behavioural processes, the beliefs persist, and individuals with social phobia continue to experience anxiety in social-evaluative situations. This functional perspective is clinically critical. Future research should examine how these different types of maladaptive self-beliefs interact with the other components of Clark and Wells' (1995) model. Wong and Moulds (2009, 2011b) have provided preliminary findings on this issue (see also Hirsch, Clark, & Matthews, 2006).

The present study suffers from several limitations. First, we did not specifically recruit a clinical sample. Future studies should assess the structural validity of the SBSA in a clinical sample of individuals suffering from clinical social phobia. Second, our sample was highly educated, thereby reducing the generalizability of the present data. Future studies should take this limitation into account. Third, four items showed loadings below .40 (i.e., Items 1, 4, 7, and 9). Even if our complementary analyses suggested that the removal of these items did not change the fit indices of the three-factor solution, future studies are needed to ensure these items do not weaken the psychometric properties of the scale. Fourth, we only assessed construct validity with self-report measures. Future studies could examine the associations between responses on the SBSA and non-self-report indices (for examples of multimodal assessment in studies of social anxiety, see Heeren, Reese, McNally, & Philippot, 2012b; Rossignol et al., 2012; Wong & Moulds, 2011b). Finally, given recent evidence that social maladaptive self-beliefs may be considered a transdiagnotic process (e.g., Maurage et al., 2013), future studies should examine whether the psychometric properties we found in the current research generalise to individuals with other psychopathological disorders.

In conclusion, the French version of the SBSA provides a valid measure of maladaptive self-beliefs. CFA replicated the model implied by Wong and Moulds (2011a), and more generally the theoretical model of Clark and Wells (1995). Good scale reliability and concurrent validity were also observed.

Résumé

Le modèle de la phobie sociale de Clark et Wells (1995) suggère que trois types de croyances personnelles dysfonctionnelles seraient responsables de l'anxiété sociale (haut standard, croyances conditionnelles, et croyances inconditionnelles). Wong et Moulds (2009) ont récemment développé une échelle à 15 items, la Self-Beliefs Social Anxiety scale (SBSA), qui mesure ces trois types de croyances personnelles proposées par le modèle. Ces auteurs ont testé la validité structurale de la SBSA et ont observé qu'un modèle à trois facteurs rendait le mieux compte des données. Cependant, ils ont réalisé leurs analyses sur un échantillon d'étudiants limité au niveau de l'étendue de l'âge et du niveau éducatif. En outre, aucune étude antérieure n'a, à ce jour, examiné la réplicabilité de cette structure tri-factorielle. Par ailleurs, aucune adaptation transculturelle de l'échelle n'a encore été réalisée. La présente étude a été conçue de sorte à répondre à ces faiblesses. Pour ce faire, nous avons examiné si la SBSA correspondait bien à une structure tri-factorielle au sein d'un échantillon francophone (N = 611). Les analyses factoriellles confirmatoires corroborent le modèle mis en avant par Wong et Moulds (2011a), et de manière plus générale par Clark et Wells (1995). Par ailleurs, la version francophone de l'échelle présente une bonne consistance interne et une bonne validité convergente.

Mots-clés : anxiété sociale, croyances personnelles dysfonctionnelles, mesure, psychométrie, rumination.

References

Akaike, H. (1987). Factor analysis and AIC. *Psychometrika, 52,* 317–332. doi:10.1007/BF02294359

Arbuckle, J. L. (2007). *Amos 16.0 users guide*. Spring House, PA, USA: Amos Development Corporation.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck Depression Inventory manual* (2nd ed.). San Antonio, TX: Psychological Corporation. French adaptation, 1998, Paris, France: Editions du Centre de Psychologie Appliquée.

Beck, A. T., Steer, R. A., & Brown, G. K. (1998). *Beck Depression Inventory manual* (2nd ed.): French adaptation. Paris, France: Editions du Centre de Psychologie Appliquée.

Blunch, N. J. (2008). *Introduction to structural equation modelling using SPSS and AMOS*. London, UK: Sage.

Browne, M. W. (1982). Covariance structures. In D. M. Hawkins (Ed.), *Topics in multivariate analysis* (pp. 72–141). Cambridge, UK: Cambridge University Press. doi:10.1017/CBO9780511897375.003

Browne, M. W., & Cudeck, R. (1989). Single sample cross-validation indices for covariance structures. *Multivariate Behavioral Research, 24,* 445–455. doi:10.1207/s15327906mbr2404_4

Bruchon-Schweitzer, M., & Paulhan, I. (1993). *Adaptation francophone de l'Inventaire d'Anxiété Trait-Etat (Forme Y) de Spielberger* [French adaptation of the Spielberger State Trait Anxiety Inventory]. Paris, France: Editions du Centre Psychologie Appliquée.

Byrne, B. M. (1994). *Structural equation modelling with EQS and EQS/Windows*. Thousand Oaks, CA, USA: Sage.

Clark, D. A. (2001). The persistent problem of negative cognition in anxiety and depression: New perspectives and old controversies. *Behavior Therapy, 32,* 3–12. doi:10.1016/S0005-7894(01)80040-X

Clark, D. M. & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: Diagnosis, assessment, and treatment* (pp. 69–93). New York, NY, USA: Guilford Press.

Dent, J., & Teasdale, J. D. (1988). Negative cognition and the persistence of depression. *Journal of Abnormal Psychology, 97,* 29–34. doi:10.1037/0021-843X.97.1.29

Douilliez, C., Baeyens, C., & Philippot, P. (2008). French validation of the Fear of Negative Evaluation scale and the social avoidance and distress scale. *Revue francophone de Clinique Comportementale et Cognitive, 13,* 1–12.

Hambleton, R. K., Merenda, P., & Spielberger, C. (2004). *Adapting educational and psychological tests for cross-cultural assessment*. Hillsdale, NJ, USA: Erlbaum.

Heeren, A., Douilliez, C., Peschard, V., Debrauwere, L., & Philippot, P. (2011). Cross-cultural consistency of the Five Facets Mindfulness Questionnaire: Adaptation and validation in French sample. *European Review of Applied Psychology, 61,* 147–151. doi:10.1016/j.erap.2011.02.001

Heeren, A., Maurage, P., Rossignol, M., Vanhaelen, M., Peschard, V., Eeckhout, C., & Philippot, P. (2012a). The self-report version of the Liebowitz Social Anxiety Scale: Psychometric properties of the French version. *Canadian Journal of Behavioural Science, 44,* 99–107. doi:10.1037/a0026249

Heeren, A., Reese, H. E., McNally, R., & Philippot, P. (2012b). Attention training toward and away from threat in social phobia: Effects on subjective, behavioral, and physiological measures of anxiety. *Behaviour Research and Therapy, 50,* 30–39. doi:10.1016/j.brat.2011.10.005

Hirsch, C. R., & Clark, D. M. (2006). Information-processing bias in social phobia: Support for the combined cognitive biases hypothesis. *Behavior Therapy, 37,* 223–236. doi:10.1016/j.beth.2006.02.001

Hirsch, C. R., Clark, D. M., & Mathews, A. (2006). Imagery and interpretations in social phobia: Support for the combined cognitive biases hypothesis. *Behavior Therapy, 37,* 223–236. doi:10.1016/j.beth.2006.02.001

Hoyle, R. H., & Panter, A. T. (1995). Writing about structural equation models. In R. H. Hoyle (Ed.), *Structural equation modelling: Concepts, issues, and applications* (pp. 158–176). Thousand Oaks, CA, USA: Sage.

International Organisation of La Francophonie. (2012). *London 2012 Olympic and Paralympic Games*. Retrieved from http://www.francophonie.org/IMG/pdf/Press_Kit_French_language_in_Olympic_Games-2.pdf

James, L. R., Mulaik, S. A., & Brett, J. M. (1982). *Causal analysis: Assumptions, models and data*. Beverly Hills, CA, USA: Sage.

Jöreskog, K. C., & Sörbom, D. (1984). *LISREL 7: A guide to programs and applications* (3rd ed.). Chicago, IL, USA: SPSS Inc.

Koning, A. J., & Franses, P. H. (2003). *Confidence intervals for Cronbach's coefficient* α *values* (Tech. Rep. No). Rotterdam, the Netherlands: Erasmus Research Institute of Management.

Kovacs, M., & Beck, A. T. (1978). Maladaptive cognitive structures in depression. *The American Journal of Psychiatry, 135,* 525–533.

Liebowitz, M. R. (1987). Social phobia. *Modern Problems of Pharmacopsychiatry, 22,* 141–173.

McDonald, R. P., & Ho, M. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods, 7,* 64–82. doi:10.1037/1082-989X.7.1.64

Mardia, K. V. (1974). Applications of some measures of multivariate skewness and kurtosis in testing normality and robustness studies. *Sankhya Series B, 36,* 115–128.

Marsh, H. W., Balla, J. R., & McDonald, R. P. (1988). Goodness-of-fit indices in confirmatory factor analysis: The effects of sample size. *Psychological Bulletin, 103,* 391–410. doi:10.1037/0033-2909.103.3.391

Maurage, P., de Timary, P., Moulds, M. L., Wong, Q. J. J., Collignon, M., Philippot, P., & Heeren, A. (2013). Maladaptive social self-beliefs in alcohol-dependence: A specific bias towards excessive high standards. *PLoS ONE, 8,* e58928. doi:10.1371/journal.pone.0058928

Musa, C. N., Kostogianni, N., & Lépine, J. P. (2004). The Fear of Negative Evaluation scale (FNE): Psychometric properties of the French version. *Encephale-Revue De Psychiatrie Clinique Biologique Et Therapeutique, 30,* 517–524.

Nunnally, J. (1978). *Psychometric theory* (2nd ed.). New York, NY, USA: McGraw-Hill Book Company.

Rapee, R. M., & Heimberg, R. G. (1997). A cognitive-behavioral model of anxiety in social phobia. *Behaviour Research and Therapy, 35,* 741–756. doi:10.1016/S0005-7967(97)00022-3

Rodebaugh, T. L. (2009). Hiding the self and social anxiety: The core extrusion schema measure. *Cognitive Therapy and Research, 33,* 90–109. doi:10.1007/s10608-007-9143-0

Rossignol, M., Campanella, S., Maurage, P., Heeren, A., Falbo, L., & Philippot, P. (2012). Enhanced perceptual responses during visual processing of facial stimuli in young socially anxious individuals. *Neuroscience Letters, 526,* 68–73. doi:10.1016/j.neulet.2012.07.045

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA, USA: Consulting Psychologists Press.

Steiger, J. H. (1980). Tests for comparing elements of a correlation matrix. *Psychological Bulletin, 87,* 245–251. doi:10.1037/0033-2909.87.2.245

Turk, C. L., Heimberg, R. G., & Magee, L. (2008). Social anxiety disorder. In D. Barlow (Ed.), *Clinical handbook of psychological disorders* (4th ed., pp. 123–163). New York, NY, USA: Guilford Press.

Turner, S. M., Johnson, M. R., Beidel, D. C., Heiser, N. A., & Lydiard, R. B. (2003). The Social Thoughts and Beliefs Scale: A new inventory for assessing cognitions in social phobia. *Psychological Assessment, 15,* 384–391. doi:10.1037/1040-3590.15.3.384

Watson, D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology, 33,* 448–457.

Wells, A. (1995). Meta-cognitions and worry: A cognitive model of Generalized Anxiety Disorder. *Behavioural and Cognitive Psychotherapy, 23,* 301–320. doi:10.1017/S1352465800015897

Wong, Q. J. J., & Moulds, M. L. (2009). Impact of rumination versus distraction on anxiety and maladaptive self-beliefs in socially anxious individuals. *Behaviour Research and Therapy, 47,* 861–867. doi:10.1016/j.brat.2009.06.014

Wong, Q. J. J., & Moulds, M. L. (2011a). A new measure of the maladaptive self-beliefs in social anxiety: Psychometric properties in a non-clinical sample. *Journal of Psychopathology and Behavioral Assessment, 33,* 285–297. doi:10.1007/s10862-011-9232-y

Wong, Q. J. J., & Moulds, M. L. (2011b). Impact of anticipatory processing versus distraction on multiple indices of anxiety in socially anxious

individuals. *Behaviour Research and Therapy, 49,* 700–706. doi: 10.1016/j.brat.2011.07.007

Wong, Q. J. J., Moulds, M. L., & Rapee, R. M. (in press). Validation of the Self-Beliefs Related to Social Anxiety Scale: A replication and extension. *Assessment*.

Yao, S. N., Note, I., Fanget, F., Albuisson, E., Bouvard, M., Jalenques, I., & Cottraux, J. (1999). Social anxiety in social phobics: Validation of Liebowitz's Social Anxiety Scale—French version. *Encephale-Revue de Psychiatrie Clinique Biologique et Therapeutique, 25,* 429–435.

Appendix

Standardized Factor Loadings of Model A and Items of the French Adaptation

SBSA items	Loadings
1. I have to appear intelligent and witty (HS) [Je dois paraître intelligent(e) et spirituel(le)]	.119**
2. If people don't accept me, I'm worthless (C) [Si les gens ne m'acceptent pas, je n'ai aucune valeur]	.525**
3. People think I'm boring (U) [Les gens pensent que je suis ennuyeux (-se)]	.433**
4. People don't respect me (U) [Les gens ne me respectent pas]	.383**
5. If I don't get everything right, I'll be rejected (C) [Si je ne fais pas tout correctement, je serai rejeté(e)]	.612**
6. If someone doesn't like me, it must be my fault (C) [Si quelqu'un ne m'aime pas, cela doit être de ma faute]	.535**
7. I have to convey a favourable impression (HS) [Je dois donner une bonne impression]	.371**
8. I need to be liked by everyone (HS) [J'ai besoin d'être apprécié(e) par tout le monde]	.591**
9. If people know I'm anxious, they will think I'm weak (C) [Si les gens savent que je suis anxieux (-se), ils penseront que je suis un(e) faible]	.378**
10. People think I'm inferior (U) [Les gens pensent que je suis inférieur(e)]	.611**
11. I must get everyone's approval (HS) [Je dois obtenir l'approbation de tout le monde]	.717**
12. If people see me anxious, they'll put me down (C) [Si les gens me voient anxieux (-se), ils me critiqueront]	.484**
13. If I don't say something interesting, people won't like me (C) [Si je ne dis pas quelque chose d'intéressant, les gens ne m'apprécieront pas]	.548**
14. People think badly of me (U) [Les gens ont une mauvaise opinion de moi]	.533**
15. If I make mistakes others will reject me (C) [Si je commets des erreurs, les autres me rejetteront]	.619**

Note. HS = high standard belief; C = conditional belief; U = unconditional belief.
** $p < .01$.

Received January 23, 2013
Revision received October 3, 2013
Accepted October 8, 2013 ■