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Moroccan version of the Social Connectedness and Social Assurance Scales

Hatim Ben Ayad[1], Meftaha Senhaji[1]

[1]*Abdelmalek Essaâdi University, Morocco*

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This study aims to evaluate the psychometric properties of the Moroccan version of the Social Connectedness and Social Assurance Scales (SCSAS) that assess belongingness. A sample of college students (N = 1150; age 20.00 (SD = 2.6); 61.1% females) were asked to fill out a set of questionnaires to evaluate the factorial structure, internal consistency, temporal stability, and construct validity of the two scales. Confirmatory factor analysis revealed a good fit of the two-factor model suggested for the SCSAS. In addition, multi-group confirmatory factor analysis supported the factorial structure of the scales. Moreover, the scales' reliability, internal consistency, and temporal stability were sufficient. Last, the construct validity of the scales was supported after they showed a negative association with mental distress (depression and anxiety). In conclusion, the SCSAS showed strong psychometric properties and can be used to evaluate belongingness among Moroccan college students, which is highly valuable for mental health-related research in Morocco and the Arabic world. hospitals.

Keywords: Social Connectedness and Social Assurance Scales, SCSAS, Morocco, college students, psychometric properties

Address of correspondence: Hatim Ben Ayad, Abdelmalek Essaâdi University, Av. Khenifra, 93000, Tetouan, Morocco. Email: hatim.benayad@etu.uae.ac.ma

ORCIDs: Hatim Ben Ayad - 0000-0003-0881-6488; Meftaha Senhaji - 0000-0002-1604-4038

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In the literature, it was suggested that positive social relationships that provide a satisfied need to belong are highly associated with the enhancement of individuals' well-being (Anant, 1967; Cockshaw et al., 2013; Diener, 1984; Diener, 2002; Ryff,1989; Ryff & Heidrich, 1997). Belongingness was associated with mental health (Cockshaw et al., 2013; Vaz et al., 2014). Several studies reported that belongingness was associated with general psychological distress, anxiety, and depression (Anant, 1967; Baumeister & Leary, 1995; Choenarom, 2005; Lee et al., 2001; Loukas et al., 2009; Moeller et al., 2020; Shochet et al., 2006).

Belongingness is defined as integrating a person into society to a level where he/she considers him/herself an indispensable and integral part of the social system (Anant, 1966; Anant, 1967). The initial study on the Social connectedness and Social Assurance Scales (SCSAS) suggested a three-dimensional structure for belongingness (Lee & Robbins, 1995). First, companionship is the sense of security and likeness that develops in childhood through relatives and helps to build self-esteem. Second, affiliation is to feel linked with the other(s); it develops during the transition phase from childhood to adolescence and helps to support self-esteem. Last, connectedness is the capacity to form a satisfying extensive social network beyond family and friends (Lee & Robbins, 1995).

In the study of scale development, belongingness was evaluated using SCSAS (Lee & Robbins, 1995). The first part of the overall scale corresponds to social connectedness, which is the personal feeling of having a close interpersonal relationship with the social world, and it is based on the sum of recent and past relationships-related experiences in life (Lee & Robbins, 1998; Lee & Robbins, 2000). In addition, the second part of the overall scale corresponds to social assurance, which is defined as the amount of depending on others to maintain a sense of belonging (Lee & Robbins, 1995; Lee-Won et al., 2015).

Among the self-reported instruments that evaluate belongingness, there is the sense of belonging instrument - psychological subscale (SOBI-P) (Hagerty & Patusky, 1995), The General Belongingness Scale (GBS) (Malone et al., 2012), Psychological Sense of School Membership scale (PSSM) (Goodenow, 1993), and the SCSAS (Lee & Robbins, 1995).

Study aims

In order to provide reliable tools to evaluate social relationships for mental health-related research in Morocco, this study aims to evaluate the psychometric properties of Moroccan versions of the SCSAS on a Moroccan sample of college students.

Method

Translation procedure

Following Beaton et al.'s (2000) recommendations, the adaptation procedure was divided into four stages. First, the original version of the scales was translated into two Arabic versions by expert translators. Second, the two versions elaborated in Step 1 were merged. Third, the new Arabic version was back-translated by two native English speakers. Fourth, all the reports and the approaches used to provide the pre-final versions of the scales were reviewed by an expert committee. Last, a pilot test of the questionnaires was conducted to evaluate item comprehension.

Participants and procedure

Of 1230 graduate and undergraduate students asked to

participate in the study, only 1150 students— who responded in time and finished most of the questionnaires—were included. The sample comprised students from four cities in a northern province of Morocco, including eight institutions. Each institution received a permission request that was approved before collecting the data.

Most of the participants were women (703, 61.1%). The mean age of the participants was 20.00 (SD = 2.6) years (range: 17 to 49 years). Most of the participants were single (n = 1021, 88.8%), 94 (8.2%) were in relationships, 13 (1.1%) were no longer in a relationship, and 22 (1.9%) participants did not answer the question about their marital status.

An additional sample of 26 graduate and undergraduate students was randomly selected from an institution to complete the study twice over two weeks. This additional sample comprised ten men and sixteen women (mean age = 21.02 years, SD = 1.44 years).

Instruments

The Social Connectedness and Social Assurance Scales (SCSAS) aim to assess belongingness. Each part of the scale is formed from eight items rated on a 6-point Likert scale ranging from 1 (Strongly agree) to 6 (Strongly disagree). The Social Connectedness Scale (SCS) is constructed from three aspects of belongingness; *connectedness* with four items (1, 3, 5, and 6), *affiliation* with three items (4, 7, and 8), and *companionship* with one item (2). The Social Assurance Scale (SAS) is constructed from two aspects of belongingness; *companionship* with four items (1, 4, 6, and 8) and *affiliation* with four items (2, 3, 5, and 7). An overall summed score represents the reported sense of belongingness (Lee & Robbins, 1995). However, only one study used SCSAS (Gaudier-Diaz et al., 2019). In addition, only the social Connectedness scale of the SCSAS was adapted in Turkey and showed excellent internal consistency (Duru, 2007; Satici et al., 2016).

Besides the SCSAS, a Moroccan version of the Brief Symptom Inventory (BSI) was administered.

The brief Symptom Inventory is a self-reported instrument that assesses psychological symptoms. It comprises 53 items, 49 of which are included in nine symptom dimensions: somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. The scoring is based on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). One of the important scores calculated for BSI is the global severity index (GSI), which indicates the current distress level; its score is calculated by summing all the items and dividing the result by the number of items answered. (Derogatis, 1975; Derogatis & Melisaratos, 1983). The Cronbach's alpha coefficient result of the nine dimensions of the BSI ranged from .70 to .89 showing strong internal consistency (Derogatis & Melisaratos, 1983; Broday & Mason, 1991; Pereda et al., 2007). The Arabic version of the BSI showed strong internal consistency, ranging from .70 to .83 for the nine dimensions (Abdallah, 1998; Abdallah, 1992). In addition, in Zouini et al.'s (2019) study on a sample of Moroccan high school students, the internal consistency of the nine dimensions of the BSI ranged from 0.71 to 0.85. In our study, Cronbach's alpha coefficients ranged from .69 to .81.

Ethical Considerations

The present study was conducted in agreement with the Declaration of Helsinki (World Medical Association, 2013). Participants were invited to participate voluntarily; they received an oral presentation of the study and its aims and had the right to withdraw at any time without giving a reason. Those who agreed to participate in the study signed a written informed consent form.

Statistical Analysis

A confirmatory factor analysis (CFA) was conducted on SCSAS to test model fitting in the data. The analysis was concluded based on fit indices: comparative fit index (CFI), tucker-lewis index (TLI), and root mean square error of approximation (RMSEA) (Hoyle, 1995; Hu & Bentler, 1999). According to Hu & Bentler (1999), CFI values greater than .90 refer to an adequate fit, and greater than .95 refer to a good fit; TLI values greater than .90 refer to an adequate fit; and values of RMSEA less than .06 refer to a good fit, and less than .08 refer to a mediocre fit.

Multi-group confirmatory factor analysis (MGCFA) was performed on SCSAS to evaluate measurement invariance concerning gender following the method suggested by Xu & Tracey (2017). In the first step, a baseline model was established separately for male and female participants. In the second step, configural invariance was established to verify if factor loadings—freely estimated (least constrained model)—are approximately equivalent. In the last step, variables loading on each factor were constrained to equality in both groups (most constrained model). Passing from one step to another was based on fit indices results: CFI and RMSEA (Hoyle, 1995; Hu & Bentler, 1999). To decide if the measurement is invariant, a minimum fit function chi-square $\chi 2$ difference was calculated between the least constrained model and most constrained model; a non-significant result (P > .05) means that a measurement is invariant across gender (Muthén & Muthén, 2012).

Internal consistency was measured using Cronbach's alpha coefficient, and the interpretation of the coefficient results was based on George & Mallery's (2003) rule of thumb: "≥ .9 – Excellent, ≥ .8 – Good, ≥ .7 – Acceptable, ≥ .6 – Questionable, ≥ .5 – Poor, and ≤ .5 – Unacceptable" (p. 231).

The intraclass correlation coefficient (ICC) was chosen to evaluate temporal stability because of its good reputation in measuring reliability (Koo & Li, 2016). The results of the ICC (confidence interval of 95%) were calculated with a 2-way mixed-effects model, mean measurement, and absolute agreement. Interpreting the results of ICC was based on the following rule of thumb: ICC < .5 indicates poor reliability, .5 ≤ ICC ≤ .75 indicates moderate reliability, .75 ≤ ICC ≤ .9 indicates good reliability, and ICC > .90 indicates excellent reliability (Portney & Watkins, 2000).

Construct validity was tested using the Spearman correlation coefficient, rho (r). Results were interpreted based on the following rule of thumb: $r > .6$ or $r < -.6$ means strong correlation, $.6 > r > .4$ or $-.4 < r < -.6$ means moderate correlation, $.3 > r > .1$ or $-.1 < r < -.3$ means weak correlation, and $r = 0$ means no correlation (Dancey & Reidey, 2007).

All the statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) 21.0 (IBM) and SPSS AMOS v26 software for Windows.

Table 1. Confirmatory factor analysis of the SCSAS

Indices	Values
$\chi 2$	432.104
df	85
P	000
CFI	.959
TLI	.934
RMSEA	.060

Note. $\chi 2$: the minimum fit function chi-square, df: degrees of freedom, CFI: comparative fit index, TLI: Tucker-Lewis index, RMSEA: root mean square error of approximation.

Results

Confirmatory factor analysis of the SCSAS

Confirmatory factor analysis of the SCSAS was performed based on the factorial structure suggested by the scale

development study (Lee & Robbins, 1995). Items of the SCS were configured to load on the first factor, and items of the SAS were configured to load on the second factor. The test result was $\chi2 = 432.104$, df = 85, $P < .000$, CFI = .959, TLI = .934, and RMSEA = .060 (Table 1).

Measurement invariance of the SCSAS

Measurement invariance of the SCSAS with regard to gender was evaluated with Multi-group confirmatory factor analysis (MGCFA). The baseline model results for male and female participants revealed an acceptable fit of the model [($\chi2 = 241.150$, df = 85, $P < .000$, RMSEA = .064, CFI = .952), ($\chi2 = 304.119$, df = 85, $P < .000$, RMSEA = .061, CFI = .957), respectively]. The least constrained model result revealed a good fit ($\chi2 = 545.294$, df = 170, $P < .000$, RMSEA = .044, CFI = .955). Also, the most constrained model result revealed a good fit ($\chi2 = 555.567$, df = 184, $P < .000$, RMSEA = .042, CFI = .955). The minimum fit function chi-square $\chi2$ difference between the least constrained model and the most constrained model revealed insignificant results ($\Delta\chi2 = 10.273$, Δdf = 14, $P > .05$) (Table 2).

Internal consistency and temporal stability of the SCSAS

The Cronbach's alpha coefficient was calculated for the SCSAS, the SCS, and the SAS, and the following results were obtained: $\alpha = .77$, $\alpha = .92$, and $\alpha = .79$, respectively (Table 3).

In terms of temporal stability, ICC (confidence interval of 95%) results for the SCSAS, the SCS, and the SAS, were ICC = .90 (CI = .78, .95), ICC = .93 (CI = .85, .97), and ICC = .90 (CI = .78, .95), respectively (Table 3).

Table 2. MGCFA of the SCSAS in regard to gender

	$\chi2$	*P*	RMSEA	CFI	df	$\Delta\chi2$	*P*
Baseline model for male participants	241.150	< .000	.064	.952	85	-	-
Baseline model for female participants	304.119	< .000	.061	.957	85	-	-
The Least constrained model (configural invariance)	545.294	< .000	.044	.955	170	-	-
The most constrained model (metric invariance)	555.567	< .000	.042	.955	184	-	-
Comparison the least and the most constrained models	-	-	-	-	Δdf = 14	10.273	> .05

Note. $\chi2$: the minimum fit function chi-square, df: degrees of freedom, CFI: comparative fit index, RMSEA: root mean square error of approximation.

Table 3. Cronbach's alpha coefficient values and Spearman rho values of test-retest correlations

Scales and domains	Cronbach's alpha	Test-retest		
Scales and domains	Cronbach's alpha	Intraclass correlations	95% confidence interval	
			Lower bound	Upper bound
SCS	.92	.93	.85	.97
SAS	. 79	.90	.78	.95
SCSAS	.77	.90	.78	.95

Note. All correlations are significant at p < .01. SCS: Social Connectedness Scale, SAS: Social Assurance Scale, SCSAS: Social Connectedness and Social Assurance Scales.

Construct validity of the SCSAS

The SCSAS showed a moderate negative association with depression and GSI ($r = -.35$, $P < .001$ and $r = -.33$, $P < .001$; respectively), and a weak negative association with anxiety ($r = -.25$, $P < .001$) (Table 4).

Table 4. SCSAS and 5-item SPS correlations with BSI dimensions and GSI

	SCSAS	Depression	Anxiety	GSI
SCSAS	1			
Depression	-.35**	1		
Anxiety	-.25**	.67**	1	
GSI	-.33**	.86**	.87**	1

Note. **: correlation is significant at ps < .01. SCSAS: Social Connectedness and Social Assurance Scales, GSI: General Severity Index.

Discussion

The CFA, which was conducted to test the model fitting in the study sample, revealed an acceptable fit of the two-factor model suggested by Lee & Robbins' (1995) study for the SCSAS. Furthermore, the measurement invariance test with regard to gender revealed insignificant results which means that the Moroccan version of the SCSAS was interpreted similarly by male and female participants, and the differences in scales interpretation are likely due to chance rather than flaws in the scale (Vandenberg & Charles, 2000). Hence, the Moroccan versions of the scale appear to be invariant with regard to gender, supporting the factorial structure of the translated versions of the scales.

In terms of internal consistency, Cronbach's alpha coefficient results for the SCSAS and the two scales forming it revealed that the SCSAS and SAS exhibit an acceptable internal consistency, and the SCS revealed an excellent internal consistency. These results are consistent with the scale development study (Lee & Robbins, 1995). Also, for the SCS, our study result is consistent with Duru's (2007) and Satici et al.'s (2016) studies.

For the temporal stability of the scale, intraclass correlation coefficient (ICC) revealed that the SCSAS exhibits good temporal stability. For the SAS, the ICC revealed that the scale also exhibits good temporal stability which is in line with the study of scales development (Lee & Robbins, 1995). Also, the ICC result for the SCS revealed that the scale exhibits excellent temporal stability which is line with Lee & Robbins (1995) and Duru's (2007).

Last, regarding construct validity, the Moroccan version of the SCSAS was expected to show a negative association with the depression and anxiety dimensions of the BSI and the GSI score. In the literature, belongingness was found to be associated with mental distress (depression and anxiety) (Baumeister & Leary, 1995; Choenarom et al., 2005; Lee et al., 2001; Loukas et al., 2009). Indeed, in this study, the expected results were supported; the SCSAS showed a moderate and weak significant association with depression, anxiety, and GSI. These results support the construct validity of the scales and support the aforementioned results.

Strengths and Limitations

This study is an original paper that provides strong evidence of the reliability of two tools highly related to social relationship evaluation and mental health-related research.

This study has some limitations. First, the small size of the sample used in the test-retest that was not fully representative of the entire sample. The second limitation resides in the specific nature of the study population, which affects the generalizability of the finding. The third limitation is the absence of more pieces of evidence on construct validity.

Conclusion

The Moroccan versions of the Social Connectedness and Social Assurance Scales evaluated in this study reproduced the same factorial structure suggested for the scale; a two-dimensional structure for the SCSAS. Also, the SCSAS showed acceptable internal consistency and good temporal stability. Nevertheless, the construct validity of the scale was supported. All in all, the Moroccan version of the SCSAS appears to be reliable for its use in Moroccan college populations.

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