

## Psychometric Properties of the Social Phobia and Anxiety Inventory for Children in a Spanish Sample

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The objectives of the present study were to adapt and analyze the factor structure, reliability, and validity of the Social Phobia and Anxiety Inventory for Children (SPAI-C; Beidel, Turner, & Morris, 1995) in a Spanish population. The SPAI-C was applied to a sample of 1588 children and adolescents with ages ranging from 10 to 17 years. The confirmatory factor analysis (CFA) showed a four-factor structure: Public performance, Assertiveness, Fear and avoidance/escape in social encounters, and Cognitive and psychophysiological interferences. Internal consistency was high (.90) and test-retest reliability was moderate (.56). Significant differences were found in the variables sex and age, although the effect size was small in both variables and their interaction. Overall, the increase of the age value was inversely proportional to that of social anxiety measured with the SPAI-C; in participants of the same age, values were higher for girls than for boys. Results suggest that the Social Phobia and Anxiety Inventory For Children is a valid and reliable instrument to assess social anxiety in Spanish children and adolescents.

*Keywords:* children and adolescents, social anxiety, social phobia and anxiety inventory for children (spai-c), assessment, self-report, validation.

Los objetivos de este estudio fueron adaptar y analizar la estructura factorial, fiabilidad y validez del Inventario de Ansiedad y Fobia Social para niños (Social Phobia And Anxiety Inventory For Children, SPAI-C; Beidel, Turner y Morris 1995) en población española. El SPAI-C fue aplicado a una muestra de 1588 niños y adolescentes con edades entre 10 y 17 años. El análisis factorial confirmatorio determinó una estructura de cuatro factores: Actuación en público, Asertividad, Miedo y evitación/escape en los encuentros sociales e Interferencias cognitivas y psicofisiológicas. La consistencia interna fue alta (0.90) y la fiabilidad test-retest moderada (0.56). Se encontraron diferencias significativas en las variables sexo y edad, aunque con un tamaño del efecto bajo para ambas variables y su interacción. En general, el incremento del valor de la edad se muestra inverso al de la ansiedad social medida con el SPAI-C, mostrando las chicas valores más elevados para una misma edad que los chicos. Los resultados sugieren que el Inventario de Ansiedad y Fobia Social para niños es un instrumento válido y fiable para evaluar ansiedad social en niños y adolescentes españoles. *Palabras clave:* niños y adolescentes, ansiedad social, inventario de ansiedad y fobia social para niños (spai-c), evaluación, auto-informe, validación.

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Dedicated to the memory of Samuel M. Turner, model of excellence in research and human relations.

To Deborah C. Beidel for continuing to turn into reality part of Samuel's dreams.

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Social Phobia is characterized by excessive and persistent fear of being evaluated negatively by others in social situations (American Psychiatric Association -APA-, 2000). The onset of social phobia generally occurs in childhood or adolescence (Beidel & Turner, 2005); the prevalence of the disorder is high in both clinical and community samples, ranging from 2% to 20% in adults (Kessler, Berglund, Demier, Jin, Merikangas, & Walter, 2005) and from 4% to 10% in a community sample of children and adolescents (Olivares, 2005; Wittchen, Stein, & Kessler, 1999); it is one of the three most frequently diagnosed disorders in this period of life (Beidel & Turner, 2005).

The clinical relevance of Social Phobia is due to its consequences in the daily life of children/adolescents regarding their personal, academic, and health development (Olivares & Caballo, 2003). Children with this disorder are at greater risk of having emotional and social problems than those without social phobia (Trianes, Blanca, García, Muñoz, & Fernández, 2007). Moreover, several studies have shown the relevance of the negative consequences of social phobia in the decline of academic performance (Bernstein, Bernat, Davis & Layne, 2008); this leads to a greater risk of school dropout, to the development of other anxiety and mood disorders (Perroud et al. 2007), and to a greater probability to start to consume toxic substances (Morris, Steward, & Ham, 2005).

Although social anxiety is a serious disorder, few studies have explored its course and treatment in Spanish-speaking children and adolescents; one of the reasons for this is the limited number of instruments designed and/or validated for its assessment and diagnosis (Olivares, Ruiz, Hidalgo, García López, Rosa, & Piqueras, 2005; Sandín, Valiente, Chorot, Santed, & Sánchez Arribas, 1999). The Social Phobia and Anxiety Inventory for Children (SPAI-C; Beidel et al., 1995) is one of the instruments most widely used by the scientific community to assess social phobia in children and adolescents (Caballo, Olivares, López Gollonet, Irurtia, & Rosa, 2003); however, it has not been adapted or validated yet for its use in a Spanish population. The advantage of this instrument, compared to those that have already been validated, is the fact that it discriminates between Social Phobia and other anxiety disorders. This makes it very useful as well to guide the diagnosis and as a measure of treatment efficacy (Beidel & Turner, 2005; Gauer, Boaz, Ücker, Machado, & Olivares-Olivares, 2009).

The SPAI-C (Beidel et al., 1995) is a self-report inventory specifically designed to assess responses that delimit the "social phobia" construct in the three response systems (cognitive, psychophysiological and motor), as described in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994). It is formed by 26 empirically-derived items that measure anxiety in various social situations, including the cognitive, somatic, and motor components of Social Phobia; some items are the result of averaging the scores of the elements

or sub items that they contain. Each item is scored on a 3-point Likert scale with 0 = never or very rarely, 1 = sometimes, and 2 = most of the time. Total scores range from 0 to 52 points.

Beidel et al. (1995) performed a confirmatory factor analysis and reported a three-factor model: Assertiveness/General Conversation, Traditional Social Encounters, and Public Performance. Beidel, Turner, and Fink (1996) identified five factors in a mixed (clinical and nonclinical) sample: Assertiveness, General Conversation, Public Performance, Physical and Cognitive Symptoms, and Avoidance. In an exploratory factor analysis performed on a Portuguese community sample, Gauer, Picon, Vasconcellos, Turner, and Beidel (2005) defined four factors that explained 47.66% of the total variance; the first factor, *Assertiveness*, explained 13.90% of the variance; the second factor, *Avoidance/Social Encounters*, explained 11.99%; the third factor, *Public Performance*, explained 11.74%, and the fourth factor, *Physical and Cognitive Symptoms*, explained 10.03% of the variance.

Regarding the reliability and validity of scores, Beidel et al. (1995) found an internal consistency coefficient (Cronbach alpha) of .95 and a test-retest reliability of .86 after two weeks and .63 after ten months. Beidel et al. (1996), however, found that the internal consistency (Cronbach alpha) of scores was .92 and built a function to discriminate between children with social phobia and others with externalizing or normal disorders. Finally, Gauer et al. (2005) showed that the internal consistency (Cronbach's alpha) of scores was .98 and the test-retest reliability was .88 in the following two weeks.

### *Objective of the study*

The objective of the present study was the adaptation and psychometric validation of the Social Phobia and Anxiety Inventory For Children (SPAI-C) in a sample of Spanish children and adolescents.

## Method

### *Participants*

Initially, 1630 Spanish boys and girls participated in this study. They regularly attended eight public and private state-subsidized Compulsory Secondary Education schools in the Region of Murcia (Spain). Schools were randomly selected among all those located in urban areas with a population over one thousand residents. Recruitment was carried out with the permission of parents' associations and school managers.

After correcting the questionnaires and eliminating questionnaires with incomplete or wrong answers, the final sample included 1588 children and adolescents: 47.54%

girls and 52.46% boys with ages ranging from 10 to 17 years (Mean = 13.36; *SD* = 2.24). The SPAI-C was administered again two weeks after the first time to 373 participants of the sample (48% boys and 52% girls; *Mean* = 10.28; *SD* = 4.66) to study its temporal stability.

### *Measuring instruments*

The following instruments were used to assess the converging evidence of the SPAI-C: the Liebowitz Social Anxiety Scale for Children and Adolescents (LSAS-CA; Masia-Warner, Hofmann, Klein, & Liebowitz, 1999), the Social Anxiety Scale for Adolescents (SAS-A; La Greca & Lopez, 1998), the Social Phobia Scale (SPS; Mattick & Clarke, 1998), and the Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998).

The LSAS-CA is composed of 24 items: 12 items refer to social situations involving relations, such as “*Starting a conversation with people you don’t know well*,” the other 12 items measure situations involving actions, such as “*Reading out loud in class*.” Each item measures both the intensity of fear experienced by children or adolescents in that situation and their degree of avoidance. The Spanish self-report version of the LSAS-CA has shown excellent psychometric properties and a very efficient structure to measure Social Phobia in children and adolescents, with two clearly differentiated subscales: fear and avoidance (López Pina, Olivares, & Sánchez-García, 2009).

The SAS-A consists of 22 items grouped into three subscales: Fear of Negative Evaluation (FNE), Social Avoidance and Distress in New Situations (SAD-N), and Social Avoidance and Distress in General Situations (SAD-G). The SAS-A has shown excellent psychometric properties in English-speaking (La Greca, & Lopez, 1998) and Spanish (Olivares et al., 2005) adolescent populations.

The SPS and the SIAS were constructed following the criteria of the DSM-III-R (APA, 1987) for Social Phobia with the purpose of assessing several aspects of the construct. Indeed, the objective of the SIAS is to measure anxiety responses in social relations, whereas the SPS was designed to measure performance anxiety (e.g., “*eating or drinking in public*”). Both tests include 20 items scored on a 5-point Likert scale (range: 0–4). Total scores range from 0 to 80 points. In the Spanish adolescent population, the reliability of scores in both tests was adequate ( $\alpha = .90$  –SPS– and  $\alpha = .89$  –SIAS–; Olivares, García López, & Hidalgo, 2001).

### *Procedure*

The translation of the SPAI-C was made by a professional translator with a degree in English Studies and reviewed by a bilingual clinical psychologist. A renowned American clinical psychologist who is bilingual and specialized in the assessment of anxiety disorders in children verified the

equivalence between the items in the original version and the translation; once the instrument had been endorsed by this specialist, it was applied to a stratified sample (range: 10–17 years) in a pilot study to ensure the content of the items was understood throughout the age range (Balluerka, Gorostiaga, Alonso Arbiol, & Aramburu, 2007).

The SPAI-C was administered along with the remaining scales listed in the previous section (LSAS-CA, SAS-A, SPS, and SIAS) in the schools after obtaining parental consent for children to participate in the study. Participants performed the tests voluntarily and collectively. The questionnaire does not include inverse items. Therefore, to control for acquiescent response set, the five tests were administered for two consecutive days in the morning, with a ten-minute break between each test and the next: three tests on the first day and two tests on the second day. In the breaks, participants were encouraged to make choices and express their opinion on three subjects related to sports, politics and social issues.

The rate of refusal to participate was .12%. In each class, two trained assistants thoroughly explained the instructions of the tests and provided individual attention to participants who requested it. It took participants about 15 minutes to complete the SPAI-C.

### *Statistical analysis*

Studies carried out by Beidel et al. (1995), Beidel et al. (1996) and Gauer et al. (2005) reported various factor structures resulting from an exploratory factor analysis (principal component) with varimax rotation. Therefore, it was decided to perform a confirmatory study of the factor structure that best explained the correlation matrix between items of the SPAI-C test. First, the total sample of children and adolescents was divided into two random subsamples. The first one was subjected to an exploratory factor analysis with MPLUS software (Muthén & Muthén, 1998–2007), extracting various factor solutions with 3 to 5 factors. This was done by using the weighted least squares and promax rotation method, since factors were expected to be related to each other. After this, the confirmatory factor analysis was performed on the second random sample to confirm the best-fitted solution with the results obtained. The decision on the goodness of fit of the proposed model was made using the following goodness-of-fit statistics: Root Mean Square Error of Approximation (RMSEA) below or equal to .06, Comparative Fit Index (CFI) above or equal to .95, and Tucker-Lewis fit Index (TLI) above or equal to .95 (Brown, 2006).

Reliability of scores was assessed by measuring internal consistency with Cronbach alpha and temporal stability with the test-retest correlation. Moreover, the concurrent validity of the SPAI-C with the scales LSAS-CA, SAS-A, SPS, and SIAS was assessed, and an analysis of variance was performed to study possible differences in the scale

depending on sex and age. Given that the child and adolescent sample was large, the size of the effects resulting from the ANOVA was also assessed.

## Results

### *Internal structure of the test*

Table 1 shows the results of the confirmatory factor analysis on the second random sample of the total child and adolescent sample. Given that the five-factor solution

yielded a factor with only two meaningful factor loadings, this factor solution was eliminated.

As shown in Table 1, the chi-square statistic was highly significant, as expected with such a large sample; however, the comparative fit indices (CFI) did not reach the expected cut scores indicating that covariances between items of the solutions tested were significantly greater than those of the null model. Still, the TLI and the RMSEA residual-based statistic exceeded the cut scores specified in the four-factor solution. The TLI index was .957, slightly higher than the selected cut score (.95), and the RMSEA statistic was .055,

Table 1  
*Confirmatory factor analysis of the SPAI-C scale*

Factor Solution	Chi-square	Probability	CFI	TLI	RMSEA
2 factors	632.172	$p < .001$	.661	.928	.071
3 factors	483.209	$p < .001$	.763	.950	.059
4 factors	437.588	$p < .001$	.794	.957	.055

Table 2  
*Four-factor solution of the SPAI-C scale*

	Factor 1	Factor 2	Factor 3	Factor 4
Item 1	.478			
Item 2	.248	.288		
Item 3	.706			
Item 4	.850			
Item 5	.332			
Item 6			.719	
Item 7			.607	
Item 8	.369			
Item 9			.615	
Item 10		.567		
Item 11		.586		
Item 12		.679		
Item 13		.429		
Item 14			.560	
Item 15			.589	
Item 16	.378			
Item 17		.330		
Item 18		.736		
Item 19			.525	
Item 20			.138	
Item 21				.455
Item 22			.329	.252
Item 23		.154		
Item 24				.410
Item 25				.874
Item 26				.874

**Factor 1:** Public performance. **Factor 2:** Assertiveness. **Factor 3:** Fear and avoidance/escape in social encounters. **Factor 4:** Cognitive and psychophysiological interferences.

substantially lower than the recommended cut score (.08). For this reason, a four-factor solution with promax rotation was chosen (Table 2).

The factor structure proposed for the SPAI-C scale in the sample of Spanish children and adolescents included the following four factors: Public performance (Factor 1), Assertiveness (Factor 2), Fear and avoidance/escape in social encounters (Factor 3), and Cognitive and psychophysiological interferences (Factor 4). Correlations between the four factors were relatively high (Table 3); the highest correlation was between factors 2 and 3 (.66) and the lowest correlation was between factors 1 and 4 (.56).

Table 4 shows the correlations between the SPAI-C and the other instruments that also assess social anxiety.

All correlations exceeded .60, and the highest one was that obtained between the SPAI-C and the fear subscale of the LSAS-CA.

*Reliability analysis*

The reliability analysis of scores in each of the factors showed Cronbach alpha coefficients between .73 and .80 (Table 5).

Test-retest reliability, calculated with Pearson's correlation coefficient, was .56 over a two-week interval. Table 6 shows that scores in the second administration of

Table 3  
*Correlations between the factors of the SPAI-C*

	Factor 1	Factor 2	Factor 3
Factor 2	.610		
Factor 3	.637	.663	
Factor 4	.560	.553	.660

**Factor 1:** Public performance. **Factor 2:** Assertiveness. **Factor 3:** Fear and avoidance/escape in social encounters. **Factor 4:** Cognitive and psychophysiological interferences.

Table 4  
*Correlations between the SPAI-C (total scores) and other instruments*

Assessment Instruments	Correlation	Assessment Instruments	Correlation
LSAS-CA	.74		
LSAS-CA (F)	.77	SAS-A (SAD-G)	.64
LSAS-CA (A)	.63	SAS-A (SAD-N)	.69
SAS-A	.72	SIAS	.71
SAS-A (FNE)	.61	SPS	.69

**LSAS-CA:** Liebowitz Social Anxiety Scale for Children and Adolescents; **LSAS-CA (F):** Fear subscale of the Liebowitz Social Anxiety Scale for Children and Adolescents; **LSAS-CA (A):** Avoidance subscale of the Liebowitz Social Anxiety Scale for Children and Adolescents; **SAS-A:** Social Anxiety Scale for Adolescents; **SAS-A (FNE):** Fear of Negative Evaluation subscale; **SAS-A (SAD-G):** Social Avoidance and Distress in General Situations subscale; **SAS-A (SAD-N):** Social Avoidance and Distress in New Situations subscale; **SIAS:** Social Interaction Anxiety Scale; **SPS:** Social Phobia Scale.

Table 5  
*Internal consistency of the four factors of the SPAI-C*

Authors	Sample	N	Factor1	Factor2	Factor3	Factor4	Total SPAI-C
Beidel et al (1995)	Clinical	154	--	--	--	--	.95
Beidel et al (1996)	Clinical	148	--	--	--	--	.92
Gauer et al. (2005)	Community	1873	--	--	--	--	.83
Storch et al. (2004)	Community	1147	.92	.65	.83	.75	.92
Present study	Community	1588	.75	.76	.73	.80	.90

**Factor 1:** Public performance. **Factor 2:** Assertiveness. **Factor 3:** Fear and avoidance/escape in social encounters. **Factor 4:** Cognitive and psychophysiological interferences.

Table 6  
*Temporal stability of the SPAI-C*

Descriptive Statistics	SPAI-C(1)	SPAI-C(2)
N	373	373
Minimum	0	1.33
Maximum	30.2	26.87
Range	30.2	25.53
Mean	10.28	9.79
Standard deviation	4.66	5.25

(1) First application of the SPAI-C; (2) Second application of the SPAI-C (2-week interval)

Table 7  
*Descriptive data of the sample; means (Standard Deviations) according to variables Sex and Age*

Sex	Age	Total SPAI-C score Mean (SD)	Factor 1 Mean (SD)	Factor 2 Mean (SD)	Factor 3 Mean (SD)	Factor 4 Mean (SD)
Male	10	15.22 (9.20)	3.84 (2.89)	5.89 (3.38)	3.36 (2.49)	2.13 (1.95)
	11	15.19 (7.62)	3.54 (2.22)	6.12 (2.98)	3.56 (2.39)	1.97 (1.69)
	12	17.54 (7.82)	4.25 (2.82)	6.96 (2.58)	3.80 (2.52)	2.54 (1.73)
	13	14.79 (7.45)	3.34 (2.64)	6.18 (2.77)	3.54 (2.17)	1.73 (1.42)
	14	15.07 (7.07)	3.71 (2.72)	6.05 (2.72)	3.44 (1.93)	1.87 (1.35)
	15	13.49 (7.81)	3.15 (2.59)	5.52 (2.76)	3.16 (2.32)	1.66 (1.53)
	16	12.85 (6.88)	3.18 (2.47)	5.68 (2.83)	2.61 (1.99)	1.38 (1.16)
	17	12.90 (6.19)	3.19 (2.23)	5.24 (2.35)	2.77 (1.87)	1.63 (1.27)
	Total	14.70 (7.74)	3.54 (2.61)	5.99 (2.87)	3.29 (2.27)	1.87 (1.58)
Female	10	19.31 (9.41)	5.04 (3.09)	7.27 (3.07)	4.44 (2.77)	2.56 (2.01)
	11	15.95 (9.28)	3.98 (2.86)	6.34 (3.25)	3.34 (2.54)	2.29 (1.95)
	12	19.85 (11.01)	5.16 (3.45)	7.53 (3.57)	4.35 (3.13)	2.81 (2.15)
	13	17.99 (7.64)	5.05 (2.69)	6.73 (2.79)	3.65 (2.14)	2.55 (1.74)
	14	18.84 (8.99)	5.27 (3.14)	7.21 (2.85)	3.81 (2.43)	2.55 (1.94)
	15	15.88 (7.69)	4.46 (2.80)	6.20 (2.56)	3.15 (2.30)	2.08 (1.52)
	16	16.08 (7.17)	4.85 (2.63)	6.48 (2.72)	2.85 (1.99)	1.90 (1.48)
	17	16.66 (8.36)	4.87 (2.87)	6.78 (3.23)	2.98 (2.20)	2.02 (1.55)
	Total	17.62 (8.85)	4.85 (2.96)	6.82 (3.03)	3.59 (2.51)	2.35 (1.83)

the SPAI-C were slightly lower, with a decrease in mean scores from 10.28 to 9.79, although the difference between them was not significant [ $t(161) = 1.91, p = .058$ ].

#### *Inferential analysis of social anxiety in children and adolescents*

Mean scores obtained by the sample were 12.90, with a standard deviation of 6.96. Means and standard deviations according to sex and age of participants are shown in Table 7.

To verify the existence of possible differences due to sex, age, and their interaction, an ANOVA was performed (both ways) and the effect size of the variables age and sex was calculated for the total score. Effect sizes of age ( $\eta^2 = .028$ ), sex ( $\eta^2 = .031$ ) and their interaction ( $\eta^2 = .004$ ) were very small; similar results were obtained in each of the four factors detected in the scale.

None of the interactions between sex and age were significant compared to the total score or to each of the four factors; however, statistically significant differences were found in the main effects of sex and age (Table 8) in the four factors obtained in this study. To find out in what age groups these differences occurred, the Tukey test was applied to the total scores (Table 9). Given that similar results were obtained in the remaining factors, the comparisons between age means in the four factors are not shown.

#### Discussion

The main objective of the present study was to adapt and validate the SPAI-C by applying it to a community sample of Spanish children and adolescents between 10 and 17 years old. This study provides initial support for the

Table 8  
ANOVA for the total score and the factors resulting from the factor analysis

		Total score	Factor 1	Factor 2	Factor 3	Factor 4
Sex	<i>F</i>	49.582	86.184	33.676	5.995	31.495
	<i>df</i>	1, 1571	1, 1572	1, 1571	1, 1572	1, 1572
	<i>p</i>	.000	.000	.000	.014	.000
	$\eta^2$	.031	.052	.021	.004	.020
Age	<i>F</i>	6.561	3.029	4.514	7.912	7.484
	<i>df</i>	7, 571	7, 1572	7, 1571	7, 1572	7, 1572
	<i>p</i>	.000	.004	.000	.000	.000
	$\eta^2$	.028	.013	.020	.034	.032
Sex x Age	<i>F</i>	.882	1.308	1.101	1.464	.615
	<i>df</i>	7, 1571	7, 1572	7, 1571	7, 1572	7, 1572
	<i>p</i>	.520	.243	.360	.176	.744
	$\eta^2$	.004	.006	.005	.006	.003

Table 9  
Statistical significance between age groups according to the Tukey test for the total score of the SPAI-C

Age	10	11	12	13	14	15	16	17
10								
11	.32							
12	.88	.00						
13	.89	.98	.14					
14	1	.61	.67	.98				
15	.00	.83	.00	.27	.02			
16	.00	.70	.00	.17	.01	1		
17	.18	.99	.00	.88	.38	.99	.98	

usefulness of the SPAI-C as an instrument to assess social anxiety in this age range.

Regarding the factor analysis of the SPAI-C, a four-factor structure was found, which agrees with the study carried out by Gauer et al. (2005). However, the results of this study differ from the 3 factors found by Beidel et al. (1995) and from the 5 factors obtained in a later study by Beidel, Turner, and Fink (1996) using a mixed (clinical and nonclinical) sample. This could be explained by the type of sample used: a clinical and mixed sample in the studies by Beidel et al. (1995, 1996) and a community sample in the study by Gauer et al. (2005).

Overall, the results of the present study agree with those of Storch, Masia-Warner, Dent, Roberti, and Fisher (2004), who obtained moderate correlations between subscales (from .56 to .61) and high correlations with the total score in the SPAI-C (from .74 to .87). A similar situation applies to concurrent validity: the present study shows a positive and statistically significant relationship between total

scores in the SPAI-C and the different tests used. In the case of the SAS-A, this agrees with the results obtained by Inderbitzen-Nolan, Davies, and McKeon (2004), who found a correlation of .79 between the SPAI-C and the SAS-A.

Reliability of scores in each of the four factors (.73 - .80) was generally lower than that obtained by Beidel, Turner, and Morris (1995, 1996) or Storch et al. (2004). Although these values are not very high, they are considered acceptable in experimental situations testing the quality of the instrument to assess the latent variables it is supposed to measure.

Temporal stability obtained for the Total Score of the SPAI-C (.56) was moderate and lower than that of the study by Beidel et al. (1995), who obtained a value of .86 after two weeks and a value of .63 after ten months. It was also lower than that obtained by Gauer et al. (2005), who reported a Pearson product-moment correlation coefficient of .77. Such differences could be explained by the age range of the sample used (10 - 17 years), that is, by the effect of the variability associated to self-observation and self-report at earlier ages of the age range chosen.

A second objective of this study was to explore the differences in levels of social anxiety depending on age and sex. Results show significant differences in the total scores of the SPAI-C regarding sex and age, although effect sizes are not relevant in sex or age (.031 and .028 respectively) or their interaction (.004); no significant differences were found in the latter (.520). However, age-related data support the results of other studies (Inderbitzen-Nolan et al., 2004; La Greca & Lopez, 1998; Sandín, Chorot, Valiente, Santed & Sánchez Arribas, 1999), which have found that social anxiety tends to decrease progressively as adolescents approach adult age. It should be noted, however, that the data of this study do not show a constant decrease but rather increases and decreases that can generally be associated to relevant events in school life such as a change of school and level of education; this seems to happen in both boys and girls, with the value of social anxiety measured with the SPAI-C at the age of 12 and 14 years (Table 7). In any case, scores of girls were always higher than those of boys at any age, especially those mentioned.

Statistically significant differences were also obtained in the factors Cognitive and psychophysiological interferences, Public performance, and Assertiveness; again, scores of girls were higher than those of boys (Table 8).

These data match those obtained by Gauer et al. (2005) in a Brazilian community sample and also those obtained by other studies that have used various measures of social anxiety both in an English-speaking population (La Greca & Lopez, 1998) and a Spanish-speaking population (Olivares, Piqueras & Rosa, 2006). In all these cases, girls reported higher levels of social anxiety, greater fear of negative evaluation, and higher discomfort and social avoidance responses in new social situations, which is consistent with the findings reported by Sandín, Chorot, et al. (1999).

In short, results of the present study endorse the SPAI-C as a valid instrument to assess social anxiety in Spanish children and adolescents. However, these data should be interpreted considering certain limitations present in this study. First, these results can only be applied to a Spanish community population of children and adolescents and not to a clinical population or to people from other cultures or ethnic groups. Second, it is necessary to consider the potential response error that may occur in any questionnaire; that is, adolescents and especially children may underestimate or overestimate their real perception of social anxiety when completing a self-report.

To counter these possible limitations and obtain greater support for the validity and reliability of the SPAI-C in Spanish children and adolescents, further research should address the following issues: (i) using the SPAI-C in clinical samples (ii), calculating correlations with questionnaires assessing clinically-relevant constructs (e.g., depression, self-esteem), (iii) calculating correlations with diagnostic tests, (iv) establishing correlations with measures obtained from external observers of interpersonal functioning (e.g.,

parents, teachers, peers), (v) analyzing correlations with data from observation records (e.g., role-playing tests, natural observation, and (vi) studying the sensitivity of the questionnaire to detect therapeutic changes obtained with the treatment programs.

The relevance of the SPAI-C should also be underlined. Besides providing quantitative and qualitative information through the scores obtained by children and adolescents, the study of responses to its items also shows cross-cultural validity (Gauer, Boaz, Ücker, Machado, & Olivares-Olivares, 2009). This makes it possible to discuss the present findings in this field with those obtained by researchers in other cultural contexts, contributing both to the theoretical development of clinical psychology and to its empirical basis.

A limitation of this study is concerns the generalization of results: it is only possible to do so for a population with the same characteristics as the participants in this study; that is, boys and girls aged between 10 and 17 years with a medium to low socioeconomic status who are enrolled in public and private state subsidized schools and live in towns with a population over one thousand residents in the Region of Murcia (Spain). The use of a self-report measure also has its limitations: in spite of the precautions taken, younger participants may have altered their responses due problems of understanding and social desirability. A new study is needed to include more informants and sources of information, that is, reports from parents and teachers, observational tests, and other self-report measures (Olivares-Olivares, Rosa & Olivares, 2007).

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