The factorial structure of the 41-item version of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in a Spanish population of 8 to 12 years-old[1]

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ABSTRACT. On this instrumental study we intend to analyse the factorial structure of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in a Spanish sample using exploratory and confirmatory factorial analysis. As a second objective we intend to develop a short form of it for rapid screening and, finally, to analyze the reliabilities of both questionnaires. The SCARED was administered to a community sample of 1,508 children aged between 8 and 12 years. The sample was randomly split using half for the exploratory analysis and the other half for the confirmatory study. Furthermore a reduced version of the SCARED was developed using the Schmid-Leiman procedure. Exploratory Factor Analysis yielded a four factor structure comprised of Somatic/panic, Generalized anxiety, Separation anxiety and Social phobia factors.

This structure was confirmed using Confirmatory Factor Analysis. The four factors, the full scale and the short scale showed good reliabilities. The results obtained seem to indicate that the Spanish version of the SCARED has good internal consistency, and along with other recent results, has a structure of four related factors that replicates the dimensions proposed for anxiety disorders by the DSM-IV-TR.

KEYWORDS. Anxiety assessment. Anxiety disorders. Anxiety screening. Instrumental study.

RESUMEN. El presente estudio instrumental pretende analizar la estructura factorial del *Screen for Child Anxiety Related Emotional Disorders (SCARED)* en una muestra española utilizando tanto análisis factorial exploratorio como confirmatorio. Como objetivo secundario se pretende desarrollar una version reducida utilizable como instrumento de cribaje y, finalmente, analizar las propiedades psicométricas de ambos cuestionarios. El *SCARED* fue administrado a una muestra comunitaria de 1.508 niños de entre 8 y 12 años. Dicha muestra fue subdividida de forma aleatoria utilizando la primera mitad para el análisis exploratorio y la segunda para el confirmatorio. Además se desarrolló una versión reducida utilizando el procedimiento de Schmid-Leiman. El análisis factorial exploratorio reveló una estructura de 4 factores: *Somático/pánico, Ansiedad generalizada, Ansiedad de separación* y *Fobia social*. Esta estructura fue confirmada mediante al análisis factorial confirmatorio. Los cuatro factores, la escala completa y la escala reducida mostraron fiabilidades satisfactorias. Los resultados obtenidos parecen indicar que la version española del *SCARED*, al igual que algunos estudios recientes, presenta una estructura de cuatro factores relacionados que replican las dimensiones propuestas para los transtornos de ansiedad del DSM-IV-TR.

PALABRAS CLAVE. Evaluación de la ansiedad. Trastornos de ansiedad. Cribaje de la ansiedad. Estudio instrumental.

Several epidemiological studies indicate that anxiety disorders are one of the most prevalent categories of psychopathology among children and adolescents (American Academy of Child and Adolescent Psychiatry, 1997; Anderson, Williams, Mc Gee, and Silva, 1987; Ollendick, King, and Muris, 2002; Spence, 1998). Available data from the community suggest that 2.8% to 27% of children and adolescent might be affected by some form of broadly conceptualized anxiety disorder (Costello, Egger, and Angold, 2005; Costello, Mustillo, Erlanki, Keeler, and Angold, 2003; Krain *et al*., 2007) and half of these estimates put the figure above 10% (Costello and Angold, 1995). Separation anxiety disorder (SAD), generalized disorder (GAD), and specific phobias seemed to be the most common anxiety disorders in childhood (Bernstein, Borchardt, and Perwien, 1996).

Anxiety disorders, as with other internalizing disorders, are often underdiagnosed, because anxious children do not cause problems. However, there are reasons why it is important to identify childhood anxiety disorders: their relation to psychosocial difficulties,

(Brent *et al.*, 1998; Clarke, Hops, Lewinsohn, and Andrews, 1992; Messer and Beidel, 1994), the risk of developing other comorbid psychiatric disorders (Curry and Murphy, 1995; Thapar and McGuffin, 1997) and their continuity into adulthood (Keller *et al.*, 1992; Pfeffer, Lipkins, Plutchik, and Mizruchi, 1988). Taking into account the high prevalence and the negative consequences of childhood anxiety disorders, Birmaher *et al.* (1997) pointed out that a reliable and valid self-reported instrument needed to be developed to screen anxiety disorders symptoms and to provide diagnostic information about the different types of anxiety disorders. For this reason they developed the Screen for Child Anxiety Related Emotional Disorders (SCARED).

The SCARED is a 38 item self-report questionnaire. According to its authors, it measures five child and adolescent symptom dimensions, specifically: SAD, GAD, panic disorder (PD), social phobia symptoms (SP) and school anxiety. Due to the difficulties in discriminating between the social phobia factor and other anxiety disorders, Birmaher *et al.* (1999) re-examined the questionnaire adding three new items for SP, thus developing the final 41-item version of the SCARED (Birmaher *et al.*, 1999). Several studies have shown that SCARED is reliable, most of them obtained reliabilities in the range α = .70 – .85 depending upon the scale, and showed good convergent validity when it was related to other anxiety scales such as the State–Trait Anxiety Inventory for Children or the Revised Children's Manifest Anxiety Scale (Birmaher *et al.*, 1999; Boyd, Ginsburg, Lambert, Cooley, and Campbell, 2003; Hale, Raaijmakers, Muris, and Meeus, 2005; Muris, Merckelbach, Gadet, and Meesters, 2000; Muris, Merckelbach, Ollendick, King, and Bogie, 2002; Wren *et al.*, 2007; Wren, Bridge, and Birmaher, 2004). Thus, a sufficient number of studies have given support to the reliability and validity of the SCARED.

Referring to the factorial structure of SCARED, the seminal papers of Birmaher *et al.* (1997, 1999) reported a five factor structure, but other studies, such as Boyd *et al.* (2003) or Wren *et al.* (2007), found in the first case a four factor structure, the school phobia factor being integrated into the generalized anxiety factor, and a three factor structure in the second case. In Birmaher *et al.*'s original paper in 1997, four of the anxiety scales represented anxiety disorders corresponding to DSM categories. The fifth, the school phobia scale, according to Birmaher *et al.* (1997), could be best considered as a separate anxiety category.

Analyzing the revised 66 item version of SCARED (SCARED-R) developed by Muris, Merckelbach, Schmidt, and Mayer (1999), they reported a unidimensional solution, only finding other subscales when the factorial analysis was performed on parts of the SCARED-R. The same authors analyzed the initial 38 items version of SCARED finding also a strong first factor, although a confirmatory factorial analysis (CFA) reported a good fit for a five factors solution. Nevertheless, other CFA analyses performed on the SCARED showed a bad fit with the five factors solution and a good fit for both one and five factors solutions (Boyd *et al.*, 2003; Hale *et al.*, 2005).

The empirical evidence on its internal structure is one of the key aspects in test selection in psychological research (Carretero-Dios and Pérez, 2007). Given the diversity of factorial structures reported for the SCARED, we believe that some methodological issues must be studied if the lack of consensus on the factorial structure is to be

explained and the internal structure of SCARED determined. To begin with, most of the structures have used principal components analysis as the extraction method including both the seminal papers by Birmaher *et al*. (1997, 1999) and more recent studies such as those by Linyan, Kai, Fang, Yi, and Xueping (2008) and Muris *et al*. (2006). This method is questionable when, as in this case, a latent variable is intended to explain the relationships between the items. Furthermore, most of the exploratory factor analysis (EFA) studies have applied an orthogonal rotation which is only appropriate when the different factors are supposed to be independent. It seems difficult to suppose that different factors related to anxiety disorders are totally independent. There are three more facts that question this independence. One refers to the fact that those CFAs which reported a good fit with the five factor structure tested models with correlated factors. The second refers to the high internal consistencies reported for the full scale of the SCARED (around $\alpha = .90$), which are difficult to reach if the items implied in the scale belong to five independent subscales. Thirdly, many studies analyzing the factorial structure of the SCARED have found that the first factor to be extracted explains much more variance that the other factors, which may indicate the presence of an overall factor that explains the relationships between the subscales. Moreover, most of the EFA have been done using product moment correlations when, usually, a 3-point response format, such as the SCARED format, implies that the distribution of the items is usually non-normal, with asymmetric distribution and/or with an excess of kurtosis. In these cases polychoric correlation instead of Pearson correlation is advised (Muthén and Kaplan, 1992).

From the point of view of the sample size, some studies analysed moderate or large samples (around 500 individuals) whereas others analyzed small samples (around 200 individuals) and so do not provide a stable solution for a questionnaire of 41 items. Furthermore, when CFA has been performed, the sample sizes meant they could not be split in order to test the structure found by EFA in a different sample. Thus, the structure found in CFA may be contaminated by the characteristics of the sample used in the EFA. Finally, as Ferrando and Lorenzo-Seva (2000) pointed out, when personality or psychopathology questionnaires obtained by EFA are tested using CFA, the model proposed is usually rejected, although a series of different exploratory studies have previously replicated the same factorial structure. This case is especially usual in multidimensional questionnaires with a moderate or high number of items in each subscale. In these cases they propose that unrestricted models are more appropriate for testing the model fit in CFA. Moreover, children are less accurate than adults in assessing their own behaviours so less restrictive models are more suitable than restrictive ones.

The purpose of the present reseach, which may be considered an instrumental study according to Montero and León's (2007) research classification, is to analyze the factorial structure of the SCARED in a sample sufficiently large so as to allow it to be split into two subsamples, one for the EFA and the other for the CFA. In the first subsample an EFA analysis using polychoric correlations and oblique rotation procedures will be performed. Results obtained will be confirmed with a restricted CFA in the second subsample. On the other hand, we expect that the different subscales of the SCARED

are not independent, therefore we expect there is a second order factor that explains the interrelationships between them. To test this we will introduce a second order factor in the CFA to evaluate this possibility. If we find this structure of correlated factors we think that it may be useful for developing a short form of the SCARED choosing the items that are more closely related to the overall factor. We think that such a short form may be useful as a fast screening test for anxiety disorders. Finally, previous research has shown that anxiety is related to sex and age. In this respect, females have a higher risk of anxiety disorder symptoms while age is related to a decrease in separation anxiety and an increase in generalized anxiety in early childhood (Essau, Muris, and Ederer, 2002; Hale *et al.*, 2005; Wren *et al.*, 2007). Taking into account these results, we will test whether these age and sex differences are also found in the Spanish version of SCARED.

Method

Participants

The participants were 1,508 children (720 boys and 788 girls) aged between 8 and 12 years with a mean of 10.23 years ($SD = 1.23$). A total of 41% of the children belonged to families of a low socio-economic status, 39% to families of medium socio-economic status, and 20% to families of high socio-economic status. The children came from thirteen primary schools in Reus (Spain) which were chosen randomly from the state schools and state-subsidized private schools in the town. Reus is a medium-sized town of 100.000 habitants. The questionnaires of 18 children were excluded due to missing data in the test. The sample was then randomly split into two subsamples of 745 participants. The first consisted of 351 boys and 394 girls with a mean age of 10 years ($SD = 1.17$) and the second consisted of 359 boys and 386 girls with a mean of 10.26 years ($SD = 1.29$). Neither age ($t_{1488} = 1.02$; $p > .05$) nor sex rates ($\chi^2_1 = 2.42$; $p > .05$) differed across subsamples.

Instruments

The SCARED is a self-report questionnaire assessing anxiety disorder symptoms in children and adolescents from 8 to 18 years old. The scale is composed of 41-items and children are asked the frequency of each symptom on a 3-point-scale: 0 (*Almost never*), 1 (*Sometimes*), and 2 (*Often*). The Spanish version of the SCARED was developed using the back-translation method described by Hambleton (2005). The original items were first translated from English into Spanish by an English native speaker. The manuscript was independently translated back into English by another English native speaker. The original and back-translated versions were compared by the translators and two members of the research team who did not find significant differences between back-translations and the original versions.

Data analysis was performed using the software SPSS 15, LISREL 8.5 and FACTOR 7.2.

Procedure

The children who participated in this study completed the SCARED in their classrooms. Professional child psychologists gave the instructions on how to answer the test and helped them during the session. Before the study their parents received a letter which informed them about the study and they gave written informed consent. A total of 80% of the parents gave their consent and agreed to participate.
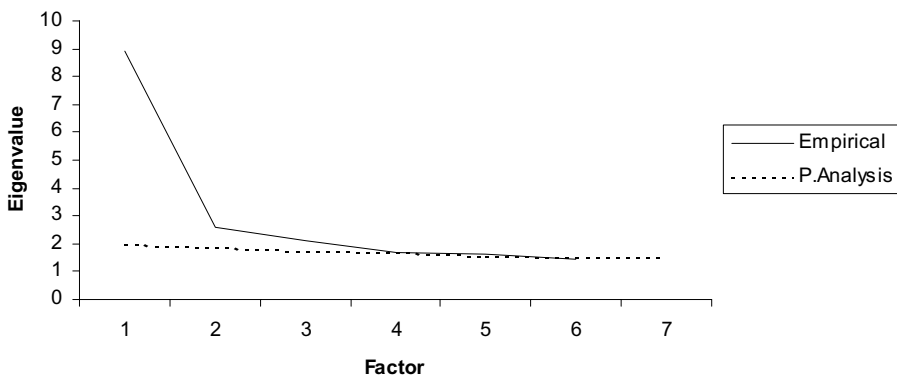
Results

Exploratory Factor Analysis

EFA was performed using the half of the total sample (n = 745). Analysis was performed using the software FACTOR 7.2 (Lorenzo-Seva and Ferrando, 2006) because software such as SPSS only allows the use of Pearson correlation matrixes. The loadings on the second order factor which was used to develop the short version of SCARED were computed using the hierarchical factor analysis developed by Schmid and Leiman (1957).

Taking into account that 29 items showed skeweness or kurtosis greater than one in absolute values, we did the EFA using polychoric correlations. The value of the Kaiser-Meyer-Olkin index was .80, so we concluded that the correlation matrix was suitable for factor analysis. The multivariate kurtosis coefficient was 2070.152 (Z = 70.59; p < .001). In this situation a factor analysis method that assumes normal multivariate distribution is not advisable. For this reason we chose Unweighted Least Squares as the factor extraction method. The scree test (Cattell, 1966) shown in Figure 1 suggested that four dimensions underlay the data. Parallel analysis (Lattin, Carroll, and Green, 2003) was also computed (see Figure 1). The test again indicated that four dimensions underlay the correlation matrix, so the inventory could be considered to be four dimensional.

FIGURE 1. Scree plot and parallel analysis for factor analysis.

To obtain a rotated solution we used direct oblimin procedure, so an oblique rotation procedure was applied. The four factors obtained after rotation were those initially proposed by Birmaher *et al.* (1997) related to the DSM-IV classification of anxiety disorders: *Panic/somatic*, *Generalized anxiety*, *Separation anxiety*, and *Social phobia*. Nevertheless the items of the school phobia factor did not load on a single factor, their loadings being spread across the remaining four factors. As Table 1 shows, most of the intercorrelations between the factors were moderate or high which indicates that these measures are not independent and that their relationships may be due to a second order factor.

TABLE 1. Correlation matrix between factors.

	Somatic/Panic	*Social Phobia*	*General*	*Separation Anxiety*
Somatic/panic	-			
Social phobia	.01	-		
General	.48	.17	-	
Separation anxiety	.49	.26	.44	-

Although scree-test and parallel analysis advised a 4-factor solution, we also tested a 5-factor solution to determine the possible presence of a school phobia factor. When this solution was tested we found a fifth factor related to school phobia, but this factor was highly related to the somatic-panic factor ($r = .70$) which makes it difficult to consider it as a separate factor.

Confirmatory Factor Analysis

CFA was performed using the software LISREL 8.5 on the second half of the sample ($n = 745$). The restricted model was specified by means of two marker variables which define recognizable factors. Usually these variables are items that show high loadings in the specified factor and low or null loadings in the others (Cattell, 1988). For this purpose the two items with highest loadings in each factor (and loadings below 0.20 in the other factors) in the EFA were used as markers of each factor. The remaining items are left free to load on every factor. A second order factor was introduced to explain the relationships between primary factors.
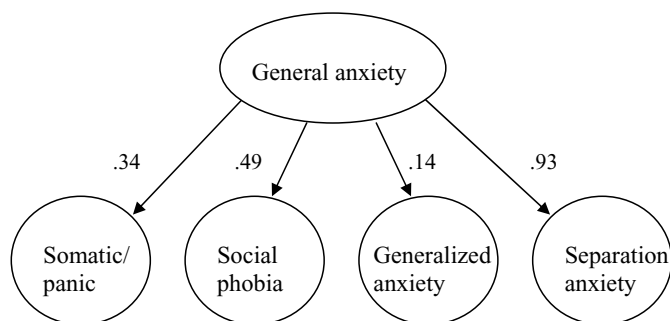
To perform the restricted CFA we use the two items with highest loadings on each factor in the EFA as marker items in the CFA. These items were 27 and 38 for the somatic/panic factor, 26 and 32 for the social phobia factor, 21 and 35 for the generalised anxiety factor, and finally, 4 and 13 for the separation phobia factor. Furthermore we specified a second order factor of general anxiety.

The CFA was performed using the Unweighted Least Squares (ULS) procedure, which does not assume a multivariate normal distribution. As the Chi-square is not applicable to the ULS method, we used ût indexes. The goodness of fit statistics showed that the data of the second sample fitted quite well to the four-factor structure proposed (*RMSEA* = .04 [.037 – .043]; *NFI* = .96; *CFI* = .98; *GFI* = .98; *AGFI* = .97). Table 2 shows the loadings of the items for the restricted factor solution with the four factors

proposed. In addition, Figure 2 shows the path diagram for the first and second order factors.

TABLE 2. Restricted factor solution for the SCARED items and Schmid-Leiman loadings for second order factor (10 greatest loadings in bold).

Item	Somatic/ panic	Social phobia	Factor Generalized anxiety	Separation anxiety	Second order
1. When I feel frightened, it is hard to breathe.	.57				**.54**
6. When I get frightened, I feel like passing out.	.50				**.52**
12. When I get frightened, I feel like I am going crazy.	.43				**.61**
15. When I get frightened, I feel like things are not real.	.34				.51
18. When I get frightened, my heart beats fast.	.27				.40
19. I get shaky.	.33				**.52**
22. When I get frightened, I sweat a lot.	.43				.39
24. I get really frightened for no reason at all.	.32				.51
27. When I get frightened, I feel like I am choking.	.65				**.60**
34. When I get frightened, I feel like throwing up.	.47				**.53**
36. I am scared to go to school.	.26				.52
38. When I get frightened, I feel dizzy.	.62				**.58**
3. I don't like to be with people I don't know well.		.22			.07
10. I feel nervous with people I don't know well.		.24			.32
26. It is hard for me to talk with people I don't know well.		.58			.23
32. I feel shy with people I don't know well.		.71			.22
39. I feel nervous when I am with other children or adults and I have to do something while they watch me		.27			.41
40. I feel nervous when I am going to parties, dances, or any place where there will be people that I don't know well.		.31			.37
41. I am shy.		.52			.24
5. I worry about other people liking me.			.24		.37
14. I worry about being as good as other kids.			.25		.19
21. I worry about things working out for me.			.63		.36
23. I am a worrier.			.41		.39
28. People tell me that I worry too much.			.29		.38
31. I worry that something bad might happen to my parents.			.30	.37	.40
33. I worry about what is going to happen in the future.			.38		.20
35. I worry about how well I do things.			.69		.39
37. I worry about things that have already happened.			.29		.40
2. I get headaches when I am at school.				.30	.41
4. I get scared if I sleep away from home.				.42	.34
7. I am nervous.				.31	.13
8. I follow my mother or father wherever they go.				.14	.39
9. People tell me that I look nervous.				.35	.43
11. I get stomachaches at school.				.25	.47
13. I worry about sleeping alone.				.47	.46
16. I have nightmares about something bad happening to my parents.				.60	**.55**
17. I worry about going to school.				.32	.49
20. I have nightmares about something bad happening to me.				.56	**.56**
25. I am afraid to be alone in the house.				.39	.46
29. I don't like to be away from my family.				.28	.31
30. I am afraid of having anxiety (or panic) attacks.				.29	**.52**

FIGURE 2. Path diagram for first and second order factors.

Taking into account previous literature, we also tested two alternative models: the unidimensional model and the five-factor model. Both the unidimensional model (*RMSEA* = .061 [.058 - .063]; *NFI* = .80; *CFI* = .85; *GFI* = .84; *AGFI* = .82) and the five-factor model (*RMSEA* = .055 [.053 - .058]; *NFI* = .84; *CFI* = .88; *GFI* = .88; *AGFI* = .84) gave a poorer fit than the proposed four-factor model.

Invariance of the data structure for both genders was assessed in a general way by testing the hypothesis of equal covariance matrices in both groups. Assessment of this hypothesis is relatively simple, and can be carried out with a standard SEM package by testing a factor-analytic model in which: a) the number of factors is specified to be the same as the number of variables; b) the pattern loading matrix is identity, and c) the residual covariance matrix is a null matrix. With these restrictions, the hypothesis of invariant covariance matrices is assessed by testing the equality of the inter-factor covariance matrices. Acceptance of this hypothesis means that any factorial model that involves these matrices can be considered to be invariant in both genders and, therefore, justifies the joint analysis of the male and female data as belonging to a single group.

In the present case, the invariant-covariance model had a rather good fit, more so taking into account the power of the goodness-of-fit statistics when both the sample and the model are very big. The value of the chi-squared goodness-of-fit statistic was 1,162 with 861 associated degrees of freedom. The point estimated value of the *RMSEA* was .02 and the corresponding 90% confidence interval was (.018 - .028). Finally the values of the *gamma-GFI* and the *TLI-NNFI* goodness-of-fit statistics were .98 and .97, respectively. Therefore, it seems reasonable to assume that the structure of the data is essentially the same in both genders, so all the respondents can be considered to belong to a single group.

Table 2 shows the loadings of the SCARED items on the second order factor developed by the Schmid-Leiman method. We developed this short version by choosing the ten items with highest loadings in this overall anxiety factor. As can be seen, the chosen items for the short version of the SCARED belonged to the *Somatic/panic* factor (7 items) and the *Separation anxiety* factor (3 items).

Reliabilities and descriptive statistics of the resulting scales

Table 3 shows reliability coefficients (α) for the full scale, the short scale and the subscales of SCARED. As can be seen all the measures showed sufficient or good reliabilities, with them being especially high for the two overall measures (full and short scales) and for the somatic/panic factor.

TABLE 3. Reliabilities (α) for the four scales, the short version and the total score of SCARED (Interval confidence for reliabilities at a 95% level between brackets).

Scale	Reliability
Somatic/panic	.78 (.765 - .798)
Social phobia	.69 (.673 - .720)
Generalized anxiety	.69 (.672 - .718)
Separation anxiety	.70 (.687 - .730)
Full scale	.86 (.857 - .877)
Short version	.78 (.763 - .796)

Table 4 shows the descriptive statistics for the full scale and the four scales of the SCARED proposed by the CFA solution across gender and age levels. We performed a factorial analysis of variance with gender and age as factors for the full scale and the four scales of SCARED. The analysis was performed in the 9-12 age range because there were very few 8-year-old children ($n = 8$), which means that it is not recommendable to include them in a factorial analysis of variance.

Gender had a significant effect ($p < .01$) on the full scale and on the social phobia ($\eta^2 = .013$), generalised anxiety ($\eta^2 = .007$) and separation anxiety ($\eta^2 = .006$) scales. In all cases we obtained small effect sizes and girls scored higher than boys. The age factor was significant only for the generalised anxiety and the separation anxiety scales ($p < 0.01$; $\eta^2 = .018$). Finally, no age by gender interaction was significant.

TABLE 4. Descriptive statistics for the full scale and subscales of SCARED across gender and age levels.

	Age	Full scale		Somatic/ panic		Social phobia		Generalised anxiety		Separation anxiety	
		M	SD	M	SD	M	SD	M	SD	M	SD
Boys	9	23.32	11.97	4.04	3.91	5.25	2.99	6.67	3.84	6.55	4.09
	10	23.12	10.78	3.84	3.86	5.40	3.02	6.96	3.32	6.02	3.66
	11	23.46	10.30	3.81	3.10	5.76	2.90	7.48	3.35	5.54	3.43
	12	21.86	9.22	3.78	3.52	5.62	2.93	6.75	3.17	4.98	2.83
	Total	23.17	10.76	3.87	3.59	5.51	2.96	7.06	3.45	5.88	3.64
Girls	9	25.98	9.50	4.41	3.48	6.56	2.81	6.98	3.03	7.14	3.55
	10	25.61	10.46	4.17	3.75	6.34	2.82	7.60	3.31	6.59	3.41
	11	25.16	9.90	4.00	3.40	6.16	2.95	8.04	3.46	6.07	3.23
	12	23.57	9.20	3.40	2.78	6.08	2.80	7.68	3.22	5.46	3.12
	Total	25.36	9.94	4.10	3.50	6.31	2.86	7.61	3.31	6.44	3.39

TABLE 4. Descriptive statistics for the full scale and subscales of SCARED across gender and age levels (cont.).

	Age	*Full scale*		*Somatic/ panic*		*Social phobia*		*Generalised anxiety*		*Separation anxiety*	
		M	SD	M	SD	M	SD	M	SD	M	SD
Total	9	24.71	10.81	4.24	3.69	5.93	2.97	6.83	3.43	6.86	3.82
	10	24.45	10.67	4.01	3.81	5.90	2.95	7.30	3.33	6.32	3.54
	11	24.32	10.12	3.91	3.26	5.96	2.93	7.76	3.41	5.81	3.34
	12	22.77	9.21	3.58	3.14	5.87	2.86	7.24	3.22	5.24	2.99
	Total	24.31	10.40	3.99	3.54	5.93	2.93	7.34	3.39	6.17	3.53

Discussion

The results obtained using both EFA and CFA seem to indicate that the structure that best fits the SCARED is the one with four related factors. This structure is quite similar to the one reported by Wren *et al*. (2007), the school phobia factor being distributed across the remaining factors, with the result that the resulting structure replicates quite well the four anxiety disorder categories proposed by the DSM-IV-TR. Furthermore, three of the factors *(Somatic/panic*, *Separation anxiety* and *Generalized anxiety)* were closely related to each other, while the social phobia factor was not as closely related.

The model proposed in the CFA shows the existence of an overall anxiety factor that may explain the interrelationships between the factors. This factor may also explain why the first extracted factor of the SCARED and the SCARED-R usually accounts for much more variance than the remaining factors (Muris *et al*., 1999). Taking this into account, we tried to develop a short version of the SCARED that allows a quick screening procedure. This version has been developed choosing the items with highest loadings in the overall anxiety second order factor and shows a good internal consistency. This is not the first attempt to develop a short scale for the SCARED. Birmaher *et al*. (1999) developed a 5-items (one for each factor) version using discriminant analysis where they kept the items with highest discrimination values between anxious and non-anxious children whilst imposing the restriction that all SCARED scales should be represented. We think that our procedure it is preferable because if the purpose is to develop an instrument that represents an overall index of anxiety disorders it is better to choose the items in terms of their loadings as an overall factor and not take into account the restriction of the primary factor to which they belong. Furthermore, it is difficult to reach a sufficient internal consistency with such a short scale (5 items), in fact, when the short scale proposed by (Birmaher *et al*., 1999) was tested with our data its internal consistency was very poor (α = .43). Nevertheless, further research is needed in order to establish the sensitivity and specificity of the short scale in discriminating between anxious and non-anxious children.

Referring to the reliabilities of the Spanish version of SCARED, both the full scale and the specific scales showed good or sufficient ones, especially in the case of the

full scale and the somatic/panic scale. Although the reliabilities are sufficient in all cases, it should be noted that they were similar or slightly lower than the ones reported in previous studies, such as those of Birmaher *et al.* (1999), or Muris *et al.* (1999). However, most of them included adolescents in the samples whereas our data was obtained from children, which may explain the decrease in reliability on certain scales. A study with a similar age range (Essau *et al.*, 2002) obtained similar internal consistencies to the ones reported in our study.

The results relating gender and SCARED scores showed that girls tend to have higher anxiety levels than boys. This result has been reported in previous research and has been related to the higher risk of anxiety disorder symptoms in females. In the same way results for age are also coherent with previous research which has found that age is related to a decrease in separation anxiety and with an increase in generalized anxiety in the early childhood. It is worth mentioning the absence of significant interactions between age and gender, that is, the differences in anxiety symptoms between boys and girls are stable across the 9 to 12 year-old range. This is an important issue because although gender differences in personality traits related to anxiety such as neuroticism do not emerge until the early adolescence, the differences in anxiety symptoms are present before this moment (Canals, Vigil-Colet, Chico, and Marti-Hennenberg, 2005). It has to be noted that the results reported above have been obtained from a sample of 8 to 12 year olds so we can only establish the validity of the results for this part of the population and further research will have to analyse if this factorial structure is also valid for adolescents.

Finally the study presented above has some limitations that should be addressed in future research. Firstly, self-reports are not as frequently used with children as with adults because it is assumed that children are less accurate at assessing their own behaviours, so although the self-report version of SCARED gives relevant information to diagnose anxiety disorders it should be complemented with other sources of information, such as parents' or teachers' reports. It is important, then, to take into account the low relationships usually found between the self-report and the parent-report versions of SCARED with values between $r = .25$ and $r = .60$, which indicates at both types of questionnaires may gave us complementary information (Birmaher *et al.* 1997; Muris *et al.* 1999; Wren *et al.* 2007). Further research should analyse the relationships of both forms of SCARED in the Spanish version and the possible effects of variables such as social desirability or acquiescence on how children and parents respond to SCARED. Secondly, further research should establish the convergent validity of SCARED using other self-reports of anxiety in children which have proved to be related to SCARED's original version: for example, Spence's Children Anxiety Scale, the State–Trait Anxiety Inventory for Children or the Revised Children's Manifest Anxiety Scale (Essau *et al.* 2002; Muris *et al.* 2002). Finally, a second stage of this research should establish the discriminant validity of both the Spanish version of SCARED and its reduced form, and their ability to screen anxiety disorders in children.

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