

# GENDER AND AGE DIFFERENCES IN COGNITIVE, PSYCHOPHYSIOLOGICAL AND BEHAVIOURAL RESPONSES OF SOCIAL ANXIETY IN ADOLESCENCE

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*The aim of this study was to analyze gender and age differences in social anxiety in adolescence through factor scores of the Social Phobia subscale of the Social Phobia and Anxiety Inventory (SP-SPAI): Social Interactions, Focus of Attention, Cognitive and Somatic Symptoms and Avoidance and Escape Behaviours. The sample consisted of 2543 students from secondary schools aged between 12 and 17. Results are shown for the general sample (N = 2543) and for the sample of adolescents classified as high social anxiety group (n = 317). Regarding the first group, girls scored higher on the Social Phobia subscale and all its factors except Avoidance and Escape (d = .32 – .35). As regards the high anxiety group, the analyses revealed that boys avoid and escape from social situations more frequently than girls (d = .23). No age differences were found in the factor scores for either of the two samples.*

**Key words:** Adolescence, Social anxiety, Gender, Age.

*El objetivo de este estudio fue analizar las gender differences y edad en social anxiety en la adolescencia a través de los factores que componen la subescala de Fobia Social del Social Phobia and Anxiety Inventory (SPAI): Interacciones Sociales, Foco de Atención, Respuestas Cognitivas/Psicofisiológicas y Conductas de Evitación y Escape. La muestra se compuso de estudiantes de Educación Secundaria Obligatoria (E.S.O.) de 12 a 17 años. Los resultados se presentan para la muestra general (N = 2.543) y para una muestra de adolescentes clasificados como grupo de alta social anxiety (n = 317). En la muestra general, las chicas presentaron puntuaciones más altas en la subescala de Fobia Social y en todos sus factores, excepto en Evitación y Escape (d = 0,32 – 0,35). El análisis de las puntuaciones factoriales en la muestra de alta ansiedad reveló que los chicos evitan y escapan de las situaciones sociales significativamente más que las chicas (d = 0,23). No se hallaron diferencias de edad en ninguno de los factores para ninguna de las dos muestras.*

**Palabras clave:** Adolescencia, Social anxiety, Género, Edad.

Recent years have seen considerable growth in research on social anxiety (SA from now on) in adolescence (García-López, Piqueras, Díaz-Castela, & Inglés, 2008). Social anxiety disorder, or social phobia, is characterized by persistent and marked fear in response to a variety of social situations, in which the person can be negatively evaluated by others (APA, 2000). Epidemiological studies indicate that this psychological disorder is one of the most common in adolescence, with prevalence rates ranging from 1.6 to 7% (e.g., Essau, Conradt, & Petermann, 1999). If one takes

into account the frequency of social fears and subclinical SA in community samples of adolescents, the figures are even higher, at between 8 and 12% (Chavira, Stein, Bailey, & Stein, 2004; Inglés et al., 2008; Inglés, Méndez, & Hidalgo, 2001).

Despite the development and validation of diverse measures for assessing SA and analyzing its characteristics in adolescents, there is still controversy over whether there are sex and age differences in the manifestation of global SA and its different components among adolescents.

Both in the case of gender differences and in that of age differences, the instrument most widely used, and which has shown the best psychometric properties in SA assessment, is the *Social Phobia and Anxiety Inventory* (SPAI; Turner, Beidel, Dancu, & Stanley, 1989). The gender and age differences assessed with this instrument have referred primarily to the *Social Phobia subscale*

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(SPAI-SP). The SPAI was validated in clinical and non-clinical samples of adolescents by Clark et al. (1994), who found that girls scored significantly higher than boys on all the scales, including the SPAI-SP. However, no significant differences were found according to age or for the Gender x Age interaction.

Subsequent studies have provided data from the SPAI-SP for clinical and community population separately. Thus, with regard to gender differences, clinical studies indicate their absence (García-López, Olivares, Hidalgo, Beidel, & Turner, 2001), whilst community studies have found higher levels of SA in women (García-López, Hidalgo, Beidel, Olivares, & Turner, 2008; Olivares et al., 1999). As regards age differences, a study with clinical sample found that SA levels increased with age (García-López et al. 2001), whilst research using community samples found the same effect for women but the opposite effect for men (Olivares et al., 1999).

The disparity of previous results on gender and age differences in SA between adolescents could be attributed both to the use of samples recruited in different contexts (clinical vs. community) and to the use of global measures, such as the SPAI-SP, without taking into account the latent factors or components they contain. Thus, for example, Olivares et al. (1999) carried out factor analyses on the SPAI-SP that yielded four factors: (a) *Social Interactions (SI)*, made up of 15 items referring to manifestations of anxiety in interpersonal relations, for instance, attending a meeting, being criticized by others, and so on; (b) *Cognitive and Somatic Symptoms (CSS)*, made up of 7 items on thoughts (e.g., "I'll probably make a mistake and look stupid") and physiological responses (sweating, palpitations, blushing, etc.) occurring in individuals in social situations, (c) *Focus of Attention (FA from now on)*, includes 6 items in which the person feels observed by others, and (d) *Avoidance and Escape (AE from now on)*, made up of 4 items that indicate the person's tendency to avoid or abandon social situations. However, no comparisons were made on the basis of these dimensions.

Indeed, only the study by Storch, Masia-Warner, Dent, Roberti and Fisher (2004) has explored this question, even though it did so with the child version of the SPAI (SPAI-C). This study showed a factor structure equivalent to that found in adolescents, with the following factors: *Assertiveness, General Conversation, Physical/Cognitive Symptoms, Avoidance and Public performance*. These authors found that girls scored higher in *Assertiveness, Physical/Cognitive Symptoms*

and *Public performance*. As regards age differences, the study found that adolescents aged 14-15 presented significantly higher levels in all the SPAI-C factors than those aged 16-17.

Thus, in spite of the data accumulated on gender and age differences through the use of the SPAI-SP, there are no studies in Spanish that have analyzed, not whether there are differences according to these variables in general SA, but such discrepancy in the manifestation of cognitive, physiological and motor responses and in interaction-related anxiety during adolescence, in either clinical or community population. Therefore, the aim of the present study is to make up for this knowledge gap by examining gender and age differences in global SA and in the different components of SA **included in the SPAI-SP in a community sample and a high-SA sample of Spanish adolescents**.

## METHOD

### Participants

**Random cluster sampling** was carried out with the aim of ensuring that all regions of the provinces of Murcia and Alicante were represented.

Total number of participants recruited was 2661, all school students from grades 1 to 4 of the Spanish education stage ESO (mandatory secondary education), of whom 118 (4.43%) were subsequently removed from the sample due to errors or omissions in their responses, on failing to obtain parental consent to take part, or because they were non-Spanish and with a poor command of the language. The final sample was made up of 2543 students, with an age range of 12 to 17 years ( $M = 13.89$ ;  $SD = 1.39$ ; distribution by gender and age in Table 1). The Chi-squared test of homogeneity of the frequency distribution revealed an absence of statistically significant differences between the eight Gender x Age groups ( $\chi^2 = 0.029$ ;  $p = 0.99$ ).

The high-SA sample was made up of 317 students (120 boys and 197 girls), with an age range of 12-17 years ( $M = 118.52$ ;  $SD = 16.37$ ), Table 3 shows the distribution by gender and age. The Chi-squared test of homogeneity of the frequency distribution revealed an absence of statistically significant differences between the eight Gender x Age groups ( $\chi^2 = 1.914$ ;  $p = 0.38$ ).

### Instruments

*Social Phobia and Anxiety Inventory* (SPAI; Turner et al., 1989).

The SPAI is made up of 45 items that measure social phobia and agoraphobia, both disorders being assessed

by means of two subscales. The *Social Phobia* subscale (SPAI-SP) has 32 items, 17 of which measure SA in four contexts: presence of strangers, authority figures, people of the opposite sex and people in general (e.g., “I get nervous when I have to speak in public”). The other subscales are those of *Agoraphobia*, made up of 13 items, and the *Difference* score resulting from subtracting the values of the *Social Phobia* and *Agoraphobia* subscales. In this work we used only the SPAI-SP, given that numerous studies have shown it to be the most appropriate for detecting young Spaniards with SA (García-López et al., 2001; Olivares et al., 2002).

The factor analyses carried out with the SPAI-SP identified the four factors already described in the previous section (Olivares et al., 1999). In the present study the internal consistency indices (Cronbach's Alpha) for the SPAI-SP and its factors are adequate for the two samples analyzed (see Tables 2 and 4).

### Procedure

An interview was arranged with the head teachers and educational psychologists at the participating schools to explain the goals of the research, describe the assessment instruments, ask for permission to carry out the study and request their cooperation and help. At a later date, a meeting was held with parents to explain the study to them and obtain their written informed consent authorizing their children to take part. The SPAI, to which the response was voluntary and anonymous, was administered collectively in the classroom. An identification number was previously assigned to the response sheets distributed to the participants (the completed sheets subsequently being marked by computer). Participants were asked to fill out the identification data (gender, age, school year, class, and school) and the response instructions were read out. The importance of answering all the questions was stressed. The researchers were present throughout the

administration of the test to clear up any possible doubts and make sure that the participants answered the questionnaire themselves. Mean time of application for the instrument was 20-25 minutes.

### Data analysis

Comparisons were made between mean scores on the SPAI-SP and its subscales according to gender and age, for the general sample and the high-SA sample, using between-subjects 2 x 4 analysis of variance. Given the large sample size, F ratio may detect statistically significant differences erroneously. Therefore, we included the *d* index (standardized mean difference) proposed by Cohen (1981), which permits a rating of the effect size of the differences found. Its interpretation is: small effect size/low (0.20 – 0.49), moderate (0.51 – 0.79) and high/large ( $d \geq 0.80$ ).

## RESULTS

For the identification of adolescents with high SA we used as a criterion the cut-off point proposed by Olivares et al. (2002) for the SPAI-SP (100), which allows the rate of false positives to be minimized (1.32%). Therefore, the total sample ( $N = 2.543$ ) was divided in two: (a) high-SA group: adolescents with high SA scores ( $n_1 = 317$ ; 12.46%) and b) low/null SA: adolescents with moderate and low SA scores ( $n_2 = 2.226$ ; 87.53%). The results are presented for the general sample and for the sample of participants classified as high-SA group, considering the latter as clinical analogues or subclinical population.

### STUDY 1: GENERAL SAMPLE.

#### Gender differences and age in SA

Mean score of the sample on the SPAI-SP was 61.80 ( $SD = 32.18$ ; range = 32-224). The data revealed that girls scored significantly higher in SA than boys,  $F = 60.33$ ;  $p = 0.001$ , even if the effect size was small ( $d = 0.34$ ) (see Table 1).

Although the SA scores increased slightly at age 14-15, the differences were not statistically significant,  $F = 1.13$ ,  $p = 0.33$ . Nor were statistically significant differences found for the interactions Gender x Age,  $F = 0.67$ ;  $p = 0.51$ .

#### Gender and age differences in the factors of the SPAI-SP.

Statistically significant gender differences were found in all the factors of the SPAI-SP, except in the AE factor (see Table 2). Specifically, the ANOVA revealed that

**Table 1**  
Means and (standard deviations) in social anxiety  
by gender and age. General sample

	12-13	14-15	16-17	Total
Boys	56.6 (32.39) <i>n</i> = 557	57.14 (31.45) <i>n</i> = 595	54.99 (27.41) <i>n</i> = 165	56.50 (31.37) <i>n</i> = 1317
Girls	65.70 (32.65) <i>n</i> = 521	68.86 (30.87) <i>n</i> = 554	68.60 (34.36) <i>n</i> = 151	67.48 (32.09) <i>n</i> = 1226
Total	60.82 (32.84) <i>n</i> = 1078	62.79 (31.70) <i>n</i> = 1149	61.49 (31.62) <i>n</i> = 316	61.80 (32.18) <i>n</i> = 2543

girls scored significantly higher in anxiety, in the SI, CSS, FA and AE factors, though the magnitudes of these differences were small in all cases (see Table 2).

As regards age, no statistically significant differences were found in any of the SPAI-SP factors, nor for the interaction Gender x Age (see Table 2).

#### STUDY 2: SAMPLE WITH HIGH-SA.

##### Gender and age differences in SA

Mean total score on the SPAI-SP in the sample of adolescents with high SA was 118.52 ( $SD = 16.37$ ). The ANOVAs indicated the absence of statistically significant differences by gender and age. Nor was there a statistically significant effect for the interaction Gender x Age (see Table 3).

##### Gender and age differences in the factors of the SPAI-SP.

Table 4 shows the comparisons by gender and age for the high-SA sample in the four factors of the SPAI-SP. The analyses revealed the absence of statistically significant gender differences, except in the AE factor. Specifically, boys scored significantly higher than girls, though once again the magnitude of this difference was small ( $d = 0.23$ ). **Moreover, no differences were found for age, and no significant effect in the Gender x Age interactions** in any of the SPAI-SP factors in the high-SA group.

## DISCUSSION AND CONCLUSIONS

The aim of this work was to analyze gender and age differences in the levels of global SA, in both the representative community sample of Spanish adolescents and in a subsample of adolescents with high SA. Moreover, and in contrast to the case of most previous research, this study examines the gender and age differences in the dimensions underlying the SA construct.

First of all, with regard to the general community sample, the results indicate that girls presented significantly higher levels of SA than boys, and this is in accordance with the findings of previous clinical studies (Clark et al., 1994; Essau et al., 1999; García-López, Hidalgo et al., 2008; Inglés et al., 2008; Olivares et al., 1999; Piqueras, Olivares, & López-Pina, 2008; Storch et al., 2004) and non-clinical studies (Inglés et al., 2001; Inglés, Marzo, Hidalgo, Zhou, & García-Fernández, 2008; Méndez, Inglés, & Hidalgo, 2002; Olivares, Piqueras, & Rosa, 2006; Olivares et al., 2005; Piqueras et al., 2008; Zhou, Xu, Inglés, Hidalgo, & La Greca, 2008).

As far as the age variable is concerned, the absence of significant differences coincides with what was reported in previous research (Clark et al., 1994; García-López, Hidalgo et al., 2008; Olivares et al., 1999). Moreover, no differences by age or for the interaction Gender x Age were found in the dimensions of the SPAI-SP, **and this also supports previous findings.**

Social Phobia-SPAI						
Gender						
	Boys	Girls				
	Range	M (SD)	M (SD)	F	d	Cronbach's Alpha
SI	15-105	42.08 (16.41)	47.35 (16.81)	64.13*	-0.32	0.93
CSS	7-49	18.45 (8.06)	21.39 (8.55)	79.43*	-0.35	0.87
FA	6-42	18.52 (7.26)	21.05 (7.42)	75.37*	-0.34	0.81
AE	4-28	9.46 (4.43)	9.69 (4.45)	1.85 (n.s.)	-	0.73
Age						
	12-13	14-15	16-17			
	Range	M (SD)	M (SD)	M (SD)	F	Cronbach's Alpha
SI	15-105	44.44 (17.23)	44.99 (16.61)	43.85 (16.01)	0.69 (n.s.)	0.93
CSS	7-49	19.44 (8.53)	20.16 (8.24)	20.24 (8.65)	2.64 (n.s.)	0.87
FA	6-42	19.45 (7.49)	20.03 (7.31)	19.63 (7.70)	1.82 (n.s.)	0.81
AE	4-28	9.48 (4.46)	9.59 (4.40)	9.76 (4.50)	0.56 (n.s.)	0.73

*Note.* SI = Social Interactions. CSS = Cognitive and Somatic Symptoms. FA = Focus of Attention. AE = Avoidance and Escape. \*  $p = 0.001$ ; (n.s.) = non-significant.

	12-13	14-15	16-17	Total
Boys	120.57 (16.50) $n = 52$	116.44 (16.77) $n = 58$	116.72 (11.82) $n = 10$	118.25 (16.31) $n = 120$
Girls	118.87 (14.60) $n = 85$	118.34 (17.73) $n = 86$	119.26 (18.34) $n = 26$	118.69 (16.45) $n = 197$
Total	119.51 (15.31) $n = 137$	117.58 (17.32) $n = 144$	118.55 (16.65) $n = 36$	118.52 (16.37) $n = 317$

As regards gender differences in the dimensions of SA, the results of this study are partially congruent with the only previous study that has looked at this question, namely, the work by Storch et al. (2004), in which it was indicated that women presented significantly higher levels than men in lack of assertiveness, physical and cognitive symptomatology and anxiety in relation to public activities. However, the analysis of the size of the differences found, in all cases small, leads us to question the relative importance of this variable in the explanation of SA in community samples of adolescents (García-López, Hidalgo et al., 2008). These findings are also partially consistent with those of previous research using other instruments which found higher levels of SA, greater fear of negative judgements from peers and greater **social distress** among women (Ranta et al., 2007; Sandín et al., 1999).

With regard to the sample referred to as high-SA group,

first of all, approximately 12% of the participants were identified as socially anxious, a percentage very similar to those of other studies in Spain using the SPAI-SP (9.17%, Piqueras et al., 2008; 13.35%, García-López, 2007; 12.06%, Inglés et al., 2008).

Secondly, no significant differences were found by gender and age in global levels of SA global, and this is consistent with the results from García-López et al. (2001) and with Fehm et al.'s (2008) assertion that in clinical samples gender differences are not normally found, and when they do appear, the rate of SA tends to be slightly higher in males. In this sense, it is assumed that gender roles and social expectations play an important part in the more active help-seeking behaviour found in male patients.

Thirdly, in relation to the differences found in socially anxious adolescents for the different dimensions of SA, it is noteworthy that while girls report higher levels in cognitive and somatic symptoms and in focus of attention, it is boys that present higher levels of avoidance and/or escape responses, this being the only dimension for which statistical significance was attained. These results partly confirm the findings of Essau et al. (1999), who reported that boys show greater lack of assertiveness, more physical/cognitive symptoms and greater fear of public performance and social interactions, but they do not confirm that boys exhibit more motor behaviours of avoidance and escape (Essau et al., 1999; Rao et al., 2007).

Nor were age-related differences found in the factors of the SPAI-SP for the high-SA sample. However, the point of highest SA was earlier in the group with high SA (12-13 years) than in the general sample (14-15 years).

In sum, despite the fact that the magnitude of the differences is small in all cases, the majority of studies coincide in the assertion that adolescent girls show higher levels of global SA than their male peers. The few studies that have analyzed gender differences in the dimensions of the SA construct conclude that women present more physical and cognitive symptoms and greater social fear, whilst avoidance and escape from feared social situations appears to be more characteristic of boys. The cultural variable is probably a relevant element for the analysis of these results, since despite the changing distribution of roles, the idea persists that it is the boy or man who must assume the more active posture in social contexts, which leads to more stringent social expectations (for example, those which assume

Social Phobia-SPAI						
Gender						
		Boys	Girls			
	Range	M (SD)	M (SD)	F	d	Cronbach's Alpha
SI	15-105	72.92 (9.58)	72.63 (11.18)	0.31 (n.s.)	-	0.76
CSS	7-49	32.03 (7.30)	32.83 (6.36)	1.05 (n.s.)	-	0.69
FA	6-42	29.03 (6.31)	30.02 (5.17)	2.29 (n.s.)	-	0.69
AE	4-28	16.26 (4.45)	15.20 (4.63)	4.04*	0.23	0.62
Age						
		12-13	14-15	16-17		
	Range	M (SD)	M (SD)	M (SD)	F	Cronbach's Alpha
IS	15-105	74.10 (10.10)	71.91 (10.56)	70.93 (12.12)	2.50 (n.s.)	0.76
RCP	7-49	32.43 (6.61)	32.37 (6.97)	33.50 (6.31)	0.28 (n.s.)	0.69
FA	6-42	29.54 (5.59)	29.71 (5.24)	29.75 (7.32)	0.38 (n.s.)	0.69
EE	4-28	15.43 (4.51)	15.57 (4.70)	16.36 (4.48)	0.58 (n.s.)	0.62

*Note.* SI = Social Interactions. CSS = Cognitive and Somatic Symptoms. FA = Focus of Attention. AE = Avoidance and Escape. \*  $p < 0.05$ ; (n.s.) = non-significant.



that it is up to boys to initiate a conversation with a girl). In the face of this greater social pressure, socially anxious boys may present more avoidance and/or escape responses.

In relation to the age variable there is much less agreement. However, studies that have found significant differences coincide in identifying the 13 to 15 age range as the period in which there appear the highest levels of SA, both global and in its dimensions, especially in physical and cognitive symptomatology. These differences can probably be attributed to the fact that this period very often marks the change (or its approach) from middle school to high school, with the consequent process of adaptation to (or preparation for) a new context, need to make a new group of friends, and increase in relevance of the role of interaction with the opposite sex. Other studies have identified multiple factors that influence the increase in SA in adolescence, such as the maturation of cognitive abilities, greater capacity for empathy, the growing importance of peer relations and the emergence of greater demands at school, with the consequent increase in fear of academic performance assessment (Rao et al., 2007).

The interpretation of these results should consider certain limitations which future studies must address. First of all, and despite the fact that research with English- and Spanish-speaking adolescents corroborates the psychometric guarantees and diagnostic capacity of this paper and pencil instrument, it would be appropriate for future studies to administer a clinical interview or other types of assessment, so that the diagnosis is not based exclusively on the cut-off score of the self-report. Moreover, it would be strongly advisable and enriching to carry out studies of the factor invariance of the SPAI-SP and its factors, as a function of variables such as age, gender, and social anxiety level (high vs. low), as recently proposed by Inglés, Marzo et al. (2008). Likewise, future research should analyze and control the possible mediating effect of an increase in demands for social interaction, highly relevant in this developmental period, **between** age and the development and maintenance of SA.

In conclusion, this study suggests the relevance of taking into account the gender and age variables in the manifestation of cognitive, physiological and behavioural symptomatology of SA in adolescents. The results can be of use to teachers, school psychologists and clinical psychologists as an empirical basis for the development of more effective preventive and intervention initiatives.

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