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VALIDATION OF THE SOCIAL ANXIETY QUESTIONNAIRE FOR ADULTS (SAQ-A30) WITH SPANISH UNIVERSITY STUDENTS: SIMILARITIES AND DIFFERENCES AMONG DEGREE SUBJECTS AND REGIONS

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Abstract

This work presents the psychometric properties of the *Social Anxiety Questionnaire for Adults* (SAQ-A30) with university students and analyses the differences and similarities in social anxiety in the sample. The 15,504 participants, students of 20 degree subjects in 17 Spanish Autonomous Community regions, were given the SAQ-A30 and the "Liebowitz Social Anxiety Scale-Self Report" (LSAS-SR). A five-factor structure was obtained through several factor analyses as well as an exploratory structural equation modeling of the SAQ-A30. Factors

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included: "Speaking in public/Talking with people in authority", "Interactions with strangers", "Interactions with the opposite sex", "Assertive expression of annoyance, disgust or displeasure", and "Criticism and embarrassment". Internal consistency was .91 and concurrent validity (paired with LSAS-SR) was .66. Significant differences were found between males and females, but there were very limited differences between regions and subjects studied. These results confirm the five-factor structure and the good psychometric characteristics of the SAQ-A30, which make it a suitable instrument for assessing both general and specific social anxiety in universities, taking into account sex differences.
KEY WORDS: *social anxiety, social phobia, SAQ-A30, university students, sex differences*.

Social phobia (or social anxiety disorder) is defined by a marked and persistent fear, recognized by the individual as excessive or unreasonable, of one or more social or performance situations, usually including hypersensitivity to criticism, negative evaluation, or rejection by others. The high level of anxiety typically causes people to avoid the feared situations or, when they are impossible to escape or avoid, endure them with intense anxiety or distress. In the long term and due to the chronicity of the disorder (if treatment is not received), a significant impairment in the person's occupational, academic, or social functioning is observed (American Psychiatric Association [APA], 2000).

When a social phobia diagnosis is made it must be further specified whether it is "generalized" in type, i.e., the individual fears "most" social situations (APA, 2000). However, there are no defined parameters for deeming when social anxiety is or is not a general problem. Frequently, the decision tends to be based on one of the two following aspects: 1) number of feared social situations, or 2) a high total (or global) score in the assessment instrument used. We regard both criteria as questionable for, depending on the instrument used, there may be great variability with regard to the number of assessed situations, and the concept of "most" will depend, in turn, on this number. For instance, if we consider some of the self-report measures used most frequently internationally for assessment of social phobia/anxiety, we find that the Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987) is made up of 24 items or social situations, the Social Phobia Inventory (SPIN; Connor et al., 2000) includes 17 items or social situations and the Social Phobia and Anxiety Inventory (SPAI; Turner, Beidel, Dancu, & Stanley, 1989) is composed of 32 items (which can be broken down into 76 different social situations). On the other hand, if some of the most widely used interviews are considered, then the Anxiety Disorders Interview Schedule for DSM-IV: Lifetime Version (ADIS-IV-L; Di Nardo, Brown, & Barlow, 1994) and the Composite International Diagnostic Interview (CIDI; World Health Organization [WHO], 1997) are each found to include 13 social situations. Taking such differences between the various assessment instruments into account, the meaning of "most" could also differ considerably according to the instrument(s) used.

But the above difficulties are not the only ones encountered when assessing social anxiety/phobia. The number and type of factors found from the factor analy-

sis of numerous self-report instruments have varied considerably (see Caballo et al., 2010a). For instance, some researchers have found that a four-factor solution is the one best fitting their data, as is the case of the LSAS (e.g., Safren et al., 1999; Slavkin, Holt, Heimberg, Jaccard, & Liebowitz, 1990) whereas others have found a five-factor solution in this same scale (e.g., Baker, Heinrichs, Kim, & Hofmann, 2002). A further problem is that the factors are different depending on the study. Thus, the first two studies only share one common factor, whilst the third study has one factor coinciding with the first and two factors with the second. Furthermore the results from these three studies vary notably when compared with the structure proposed in other works (e.g., Fresco et al., 2001; Heimberg et al., 1999). Taking into account the relatively small number of LSAS items (24), it seems that more studies are needed to find a more stable and adequate factorial structure. Similar inconsistent findings in factor solutions have been reported for other social anxiety/phobia measures, such as the SPIN, which is increasingly being used (e.g., Antony, Coons, McCabe, Ashbaugh, & Swinson, 2006; Johnson, Inderbitzen-Nolan, & Anderson, 2006), and in which three (Radomsky et al., 2006) or five factors (Connor, et al., 2000) have been obtained as the most appropriate solutions. The SPAI has similar problems, with five (Osman, Barrios, Aukes, & Osman, 1995; Turner, Stanley, Beidel, & Bond, 1989), four (Olivares, García-López, Hidalgo, Turner, & Beidel, 1999) or one factor (Olivares, García-López, Hidalgo, & Caballo, 2004) proposed as the most suitable solution. Other instruments have greater problems. Thus the relevance of the Social Avoidance and Distress Scale (SAD; Watson & Friend, 1969) and the Fear of Negative Evaluation (FNE; Watson & Friend, 1969) as measures of social phobia/anxiety has been questioned (Olivares et al., 2004; Turner, McCanna, & Beidel, 1987) and correction errors have even been pointed out when obtaining the total score for the SAD (Hofmann, DiBartolo, Holaway, & Heimberg, 2004).

As if these obstacles were not enough, there are further relevancy problems when it comes to assessing social anxiety, which include: the way items are drawn up (generally without an empirical basis) by the authors of instruments; the exclusively English language origins of almost all of them; or the lack of consideration for possible cross-cultural differences or those linked to sex (see Caballo et al., 2010a, for a more detailed description of these problems). Aware of these gaps in the field of social anxiety/phobia assessment, we proposed to tackle some of them a few years ago. The consequence of this research was the development and validation of a new instrument for the assessment of social phobia/anxiety, the Social Anxiety Questionnaire for Adults (SAQ-A30) (see Caballo et al., 2006; Caballo et al., 2010a; Caballo et al., 2010b) and the discovery of similarities and differences associated to sex and age (see Caballo et al., 2008). Following a logical sequence in this research, we took on the validation of this new instrument among Spain's university population.

Previous findings on social phobia/anxiety in university samples have often produced inconsistent data with respect to certain aspects. For instance, it is not clear if there are significant differences between university men and women in social phobia/anxiety. Thus, while Iancu et al. (2006) using the LSAS, Stewart & Mandrusiak (2009) using the SPIN, or Eggleston, Woolaway-Bickel, & Schmidt (2004) using the

Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998), found that men and women did not significantly differ in their score on social anxiety, Schmidt & Richey (2008), using the LSAS, found that women had a significantly higher score than men in such a construct. Although the use of different instruments could lead to distinct results (which does not seem logical, however, considering they all presume to measure the same construct), two of the studies (with contradicting results) used the same instrument (the LSAS).

Aware of this, we decided to validate the new instrument we had drawn up for the assessment of social phobia/anxiety (the SAQ-A30) in the Spanish university population and investigate further features of the population, particularly those regarding the differences there may or may not be linked to sex and other aspects such as the course being taken or the region where study takes place.

Method

Participants

Participants were 15,504 university students from 17 Spanish regions (Ceuta and Melilla were not included). Mean age of the sample was 21.16 years (*SD* = 4.08) from a sample of 15,356 participants (148 subjects did not include their age). Minimum age was 17 and maximum age was 60. Table 1 shows the participant distribution by region and sex.

For 15,406 students, the distribution of participants by course, from largest to smallest was: Psychology (19.25%), Educational Sciences (13.79%), Economic and Business Sciences (9.85%), Civil Engineering (6.01%), Law (5.45%), Health Sciences (5.26%), Medicine (4.81%), Computer Sciences and Telecommunications Engineering (4.30%), Social Work (4.19%), Higher/Technical Architecture (3.94%), Science (Physics, Chemistry, etc.) (2.07%), Biology (1.81%), Information Sciences (1.78%), Physical Activity and Sports Sciences (1.41%), Philosophy and Literature (1.26%), Veterinary medicine (1.12%), Political Sciences and Sociology (0.77%), Dentistry (0.67%), Pharmacy (0.34%), Communication and Documentation (0.26%) and other degree subjects (11.67%). 98 students did not fill in this question (0.64%).

Instruments

In order to assess the participants' social anxiety, the following self-report instruments were used:

a) Social Anxiety Questionnaire for Adults (SAQ-A30; Caballo et al., 2010a; Caballo et al., 2010b). This new self-report instrument for the assessment of social anxiety is composed of 30 items which are rated on a 5-point scale, from 1= "Not at all or very slight level of unease, stress or nervousness" to

Table 1
Distribution by sex and age (mean age and standard deviation) of participants from each Spanish region

Spanish Regions	Women			Men			All subjects		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Andalusia	1,938	20.60	3.94	1,268	21.04	4.83	3,206	20.78	4.32
Aragon	658	20.92	4.30	348	21.18	3.85	1,006	21.01	4.15
Asturias	362	21.13	3.56	236	21.13	3.07	598	21.13	3.37
Canary Islands	294	21.99	4.43	180	22.52	4.54	474	22.19	4.47
Cantabria	240	22.17	3.52	49	22.26	2.76	289	22.19	3.40
Castile and Leon	1,118	21.78	4.63	512	22.01	5.05	1630	21.85	4.76
Castile-La Mancha	274	21.13	4.14	129	22.19	5.13	403	21.47	4.50
Catalonia	757	20.42	3.71	377	20.84	4.20	1,134	20.56	3.88
Valencian Community	448	21.19	4.05	179	21.44	4.62	627	21.26	4.22
Extremadura	606	20.91	3.92	189	21.37	4.63	795	21.02	4.10
Galicia	501	20.74	2.47	191	21.66	3.65	692	20.99	2.88
Balearic Islands	208	22.43	4.37	106	24.08	6.16	314	22.99	5.10
La Rioja	238	20.82	3.19	144	21.91	4.09	382	21.23	3.59
Madrid	1,713	21.14	3.61	597	21.19	3.57	2,310	21.15	3.60
Murcia	249	21.14	4.33	108	21.68	4.36	357	21.30	4.34
Navarre	162	20.17	3.57	20	20.25	1.45	182	20.18	3.40
Basque Country	639	20.76	3.11	318	21.04	3.89	957	20.85	3.39
All the regions	10,405	21.04	3.90	4,951	21.41	4.42	15,356	21.16	4.08

5= "Very high or extremely high level of unease, stress or nervousness" (see Appendix). The SAQ-A30 assesses five social anxiety dimensions: 1) Speaking in public/Talking with people in authority, 2) Interactions with strangers, 3) Interactions with the opposite sex, 4) Assertive expression of annoyance, disgust or displeasure, and 5) Criticism and embarrassment. Each dimension consists of six items distributed randomly throughout the questionnaire. To assess the social anxiety types using the SAQ-A30, the number of dimensions feared is considered. Full information on the development and validation of the questionnaire can be found in the references given earlier.

b) Liebowitz Social Anxiety Scale, Self-Report (LSAS-SR; Liebowitz, 1987). This is a 24-item instrument that assesses fear and avoidance of specific social situations. Respondents are asked to rate fear on a 4-point scale ranging from 0 (none) to 3 (severe) and avoidance on a 4-point scale ranging from 0 (never) to 3 (usually). The overall score is obtained by adding together the sub-scale score for fear or anxiety and that for avoidance.

Procedure

Lecturers at various Spanish universities were contacted in order to apply the questionnaires in several faculties, and members of the research team travelled to some regions to administer the questionnaires.

Both questionnaires were printed onto the same sheet (one on each side) and completion took between 10 and 15 minutes. The application was anonymous (participants did not have to give their name) and took place at the beginning of class during the 2008/2009 academic year.

Although data from both questionnaires were obtained, this study only presents those corresponding to the SAQ-A30 (except for a specific question as the concurrent validity of the former instrument).

Data analysis

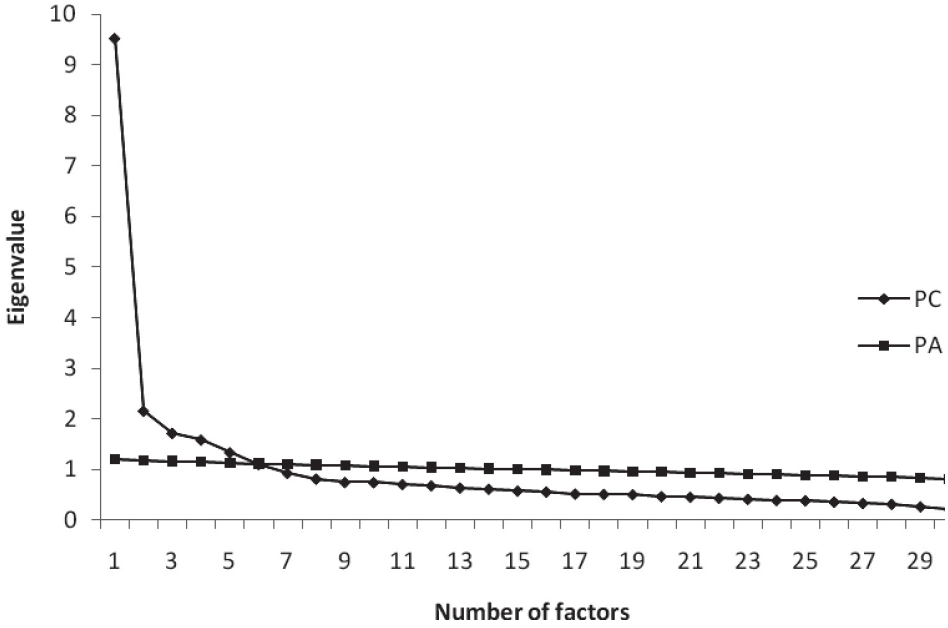
Data were subjected to three types of analysis: exploratory factor analysis, confirmatory factor analysis, and exploratory structural equation modeling. The sample of participants was divided in two random sub-samples (N_1= 7,752, N_2= 7,752). In the new samples equiprobability hypothesis regarding the sex variable ($\chi^2_{(1)}$= 0.020, p= .886) was accepted. Likewise, the usual checks for data adequacy for their factorisation were carried out: KMO= .932, Bartlett's test of sphericity: $\chi^2_{(435)}$= 75876.596, p= .000, mean of anti-image correlations = -.031 (of which only 11.72% exceeded the value of |0.10|), means of measures of sampling adequacy = .927, and calculation was made of an exploratory factor analysis (principal components) on the polychoric correlation matrix from the first sub-sample (Table 2), using an oblique rotation method (PROMAX). In order to verify if the number of factors was appropriate, a parallel analysis (Horn, 1965) was computed, given that the usual rule of eigenvalues higher than 1 tends to extract too many factors (Zwick & Velicer, 1986). As Figure 1 shows, the number of factors extracted by parallel analysis was five, while the eigenvalues higher than 1 were six. We opted, as a result, to retain the five-factor solution.

Table 2

Polychoric correlations matrix of the items composing the Social Anxiety Questionnaire for Adults (SAQ-A30)

Ítem	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	1																													
2	.31	1																												
3	.08	.20	1																											
4	.14	.28	.35	1																										
5	.20	.41	.21	.35	1																									
6	.17	.23	.33	.41	.34	1																								
7	.14	.21	.45	.31	.29	.44	1																							
8	.38	.17	.04	.10	.17	.17	.21	1																						
9	.19	.29	.14	.21	.32	.28	.27	.31	1																					
10	.09	.17	.29	.25	.19	.32	.27	.06	.26	1																				
11	.12	.26	.15	.23	.25	.27	.22	.20	.34	.34	1																			
12	.10	.18	.76	.31	.21	.32	.48	.09	.18	.32	.22	1																		
13	.15	.18	.32	.24	.23	.35	.32	.14	.25	.57	.29	.39	1																	
14	.12	.26	.11	.17	.23	.25	.23	.17	.35	.22	.43	.17	.30	1																
15	.16	.19	.29	.22	.23	.32	.37	.19	.25	.36	.26	.34	.46	.31	1															
16	.20	.18	.23	.22	.17	.26	.26	.24	.20	.20	.18	.26	.27	.22	.36	1														
17	.10	.18	.27	.27	.20	.32	.27	.13	.22	.56	.24	.31	.62	.27	.51	.33	1													
18	.13	.20	.54	.31	.25	.34	.49	.15	.23	.29	.21	.62	.36	.23	.37	.35	.37	1												
19	.16	.17	.23	.23	.19	.35	.27	.12	.26	.38	.24	.26	.48	.24	.35	.26	.42	.33	1											
20	.12	.20	.23	.46	.22	.42	.32	.13	.24	.28	.29	.25	.25	.28	.27	.22	.29	.31	.37	1										
21	.21	.23	.33	.31	.23	.32	.37	.25	.28	.26	.25	.37	.30	.26	.33	.45	.31	.48	.31	.38	1									
22	.17	.20	.27	.26	.24	.29	.34	.20	.23	.39	.22	.30	.45	.22	.45	.29	.47	.37	.36	.30	.42	1								
23	.18	.22	.31	.50	.26	.43	.35	.15	.27	.39	.30	.32	.45	.28	.37	.29	.43	.37	.39	.54	.40	.44	1							
24	.22	.25	.12	.21	.22	.24	.23	.31	.30	.16	.28	.15	.18	.32	.23	.33	.20	.26	.22	.27	.44	.30	.33	1						
25	.12	.20	.46	.28	.23	.30	.38	.14	.23	.27	.20	.49	.31	.20	.34	.32	.33	.47	.27	.28	.38	.36	.36	.30	1					
26	.17	.43	.19	.24	.36	.26	.26	.19	.43	.25	.44	.21	.26	.50	.28	.22	.27	.29	.26	.28	.31	.29	.32	.37	.36	1				
27	.14	.22	.26	.50	.27	.34	.26	.14	.22	.28	.24	.26	.31	.20	.30	.26	.35	.29	.29	.43	.32	.34	.54	.24	.34	.31	1			
28	.28	.22	.12	.17	.19	.21	.21	.32	.26	.09	.19	.14	.14	.27	.19	.32	.13	.22	.16	.18	.36	.24	.23	.46	.21	.31	.22	1		
29	.16	.22	.44	.27	.25	.36	.67	.18	.26	.28	.22	.49	.36	.24	.38	.28	.32	.57	.33	.31	.43	.37	.38	.28	.43	.32	.28	.31	1	
30	.15	.26	.31	.63	.30	.41	.32	.15	.26	.30	.30	.31	.33	.23	.32	.26	.34	.36	.32	.53	.38	.35	.61	.28	.33	.32	.60	.26	.38	1

Figure 1
Results of the parallel analysis with the Social Anxiety Questionnaire for Adults (five factors)



Note: PC = Principal components; PA = Parallel analysis with ramdom eigenvalues.

In order to carry out confirmatory factor analysis (CFA), the polychoric correlation matrix and asymptotic variance-covariance matrix of the second sub-sample were taken and analyzed with LISREL, v. 8.8 (Scientific Software International, 2006) using diagonally weighted least squares (DWLS) as the estimation method, given that the data did not fulfil the requirements needed to use a maximum likelihood (ML) estimation method. All the loadings in more than one factor were limited to zero, and covariance of the indicator errors was not allowed. Three models were tested: a first unifactorial model (M1), a second five correlated factors model (M2), and a third five first-order factors and one second-order factor model (M3).

At the same time, computation was made of an exploratory structural equation modeling (ESEM) analysis through the program Mplus, v. 5.2 (Muthén & Muthén, 2008) on the 7,752 participants of the second sub-sample. The ESEM models incorporate many of the advantages of confirmatory factor analysis, of structural equation modeling, and of exploratory factor analysis. Currently, the ESEM models are considered the best option for finding the structure of psychological measures, defining the cut-off points, and testing which model best fits the data (Marsh, 2007; Marsh, Hau, & Grayson, 2005).

Table 3

Factor loadings of the items from the SAQ-A30 in the exploratory factor analysis (EFA - Promax) and in the exploratory structural ecuation modeling (ESEM - Geomin)

Factor	*Items for each factor of the Social Anxiety Questionnaire for Adults (SAQ-A30)*	*Item #*	EFA (PROMAX) (*N*= 7,752)					ESEM (GEOMIN) (*N*= 7,752)				
			F1	F2	F3	F4	F5	F1	F2	F3	F4	F5
F1	Having to speak in class, at work, or in a meeting	12	**.91**	.04	-.06	.00	-.14	**.85**	.05	.01	.06	-.04
	Speaking in public	3	**.90**	-.04	.03	-.02	-.19	**.81**	.01	.08	.05	-.09
	Being asked a question in class by the teacher or by a superior in a meeting	18	**.74**	.08	-.02	-.02	.09	**.59**	.08	.06	.02	.22
	Participating in a meeting with people in authority	7	**.68**	-.01	.01	.10	.06	**.45**	.11	.08	.06	.29
	Talking to a superior or a person in authority	29	**.66**	.06	-.03	.04	.16	**.44**	.14	.09	.02	.30
	While having dinner with colleaques, classmates or workmates, being asked to speak on behalf of the entire group	25	**.55**	.08	.05	.03	.10	**.41**	.15	.09	.14	.11
F2	Talking to people I don't know at a party or a meeting	17	-.01	**.83**	.04	-.03	-.04	.03	**.72**	.07	.04	.05
	Maintaining a conversation with someone I've just met	13	.06	**.81**	-.02	.06	-.09	.11	**.71**	.03	.07	-.03
	Making new friends	10	.01	**.75**	.03	.14	-.22	.05	**.62**	.09	.14	-.10
	Looking into the eyes of someone I have just met while we are talking	19	-.02	**.58**	.12	.02	.04	.03	**.46**	.13	.08	.07
	Greeting each person at a social meeting when I don't know most of them	15	.15	**.58**	-.07	.03	.13	.14	**.47**	-.01	.12	.17
	Attending a social event where I know only one person	22	.08	**.52**	.09	-.09	.23	.09	**.39**	.14	.03	.26
F3	Asking someone attractive of the opposite sex for a date	4	.09	-.16	**.85**	.05	-.10	.12	-.06	**.73**	.08	-.02
	Telling someone I am attracted to that I would like to get to know them better	30	.00	.01	**.84**	.00	.02	.05	.00	**.77**	.05	.06
	Asking someone I find attractive to dance	27	-.07	.09	**.75**	-.03	.03	-.02	.10	**.59**	.08	.05
	Being asked out by a person I am attracted to	20	-.06	.10	**.70**	.02	.02	.02	.15	**.53**	.06	.06
	Starting a conversation with someone of the opposite sex that I like	23	-.04	.28	**.65**	-.04	.05	.02	.26	**.59**	.04	.09
	Feeling watched by people of the opposite sex	6	.19	.10	**.38**	.15	-.01	.18	.14	**.34**	.12	.12
F4	Telling someone that their behavior bothers me and asking them to stop	26	.04	.05	-.01	**.72**	.07	.06	.04	.05	**.70**	.04
	Telling someone that they have hurt my feelings	11	-.08	.22	.02	**.63**	-.06	.00	.16	.08	**.50**	.02
	Expressing my annoyance to someone that is picking on me	14	-.08	.24	-.11	**.62**	.08	-.01	.13	-.02	**.59**	.06
	Having to ask a neighbor to stop making noise	2	.09	-.19	.10	**.61**	.07	.06	-.07	.07	**.48**	.09
	Refusing when asked to do something I don't like doing	9	-.01	.09	-.05	**.58**	.16	.01	.08	.01	**.45**	.19
	Complaining to the waiter about my food	5	.15	-.16	.21	**.55**	-.04	.15	-.07	.18	**.42**	.04
F5	Being criticized	28	.01	-.13	.02	.08	**.72**	-.01	-.11	.03	.16	**.60**
	Talking to someone who isn't paying attention to what I am saying	8	-.07	-.02	-.12	.08	**.70**	-.09	.00	-.03	.11	**.51**
	Being reprimanded about something I have done wrong	24	-.05	-.01	.07	.15	**.63**	-.04	-.01	.09	.17	**.53**
	Greeting someone and being ignored	1	-.06	-.08	-.01	.08	**.58**	-.09	-.01	.01	.17	**.39**
	Being teased in public	16	.14	.22	.01	-.17	**.54**	.14	.15	.08	.02	**.42**
	Making a mistake in front of other people	21	.27	.09	.15	-.10	**.49**	.21	.08	.15	.05	**.48**

Note: F1= Speaking in public/Talking with people in authority; F2= Interactions with strangers; F3= Interactions with the opposite sex; F4= Assertive expression of annoyance, disgust or displeasure; F5= Criticism and embarrassment.
EFA was computed on the first ramdomized sub-sample and the ESEM on the second one.

Finally, to make the comparisons by sex, region and university course Sudent's *t* and analysis of variance (one-way ANOVA) were used. Additionally, Cohen's *d* was used to calculate the magnitude of the statistically significant differences (*t*-tests and F-tests).

Results

STATISTICAL CHARACTERISTICS OF THE SAQ-A30

Exploratory factor analysis of the SAQ-A30

Table 3 shows the results of the exploratory factor analysis (EFA, although the results with the ESEM are also included) and the loading of every item of the SAQ-A30 in the five factors found. This five-factor solution explains the 54.39% of the common variance. The first factor *Speaking in public/Talking with people in authority* has an eigenvalue of 9.52 and explains the 31.74% of the common variance. The second factor *Interactions with strangers* has an eigenvalue of 2.16 and explains the 5.72% of the common variance. The third factor *Interactions with the opposite sex* has an eigenvalue of 1.72 and explains the 5.72% of the common variance. The fourth factor *Assertive expression of annoyance, disgust or displeasure* has an eigenvalue of 1.59 and explains the 5.28% of the common variance. Finally, the fifth factor *Criticism and embarrassment* has an eigenvalue of 1.34 and explains the 4.45% of the common variance.

Composite reliability and average variance extracted

Regarding the reliability and validity indexes for the models being tested, calculation was made of the composite reliability of every latent variable (i.e., the internal consistency of the constructs) and the average variance extracted for each of the latent constructs (i.e., validity or degree to which the indicators accurately measure the corresponding construct). All the values described are included in Table 4.

To calculate composite reliability the following formula was used:

$$\rho_c = \frac{\sum \lambda^2}{\sum \lambda^2 + \sum \theta}$$

where ρ_c is composite reliability, λ factor loadings and θ the error variances of the indicators.

To obtain the average variances extracted, we applied the formula:

$$\rho_v = \frac{(\sum \lambda)^2}{(\sum \lambda)^2 + \sum \theta}$$

Table 4
Composite reliability (ρc) and average variance extracted (ρv) of the three models

Factors of the Social Anxiety Questionnaire for Adults (SAQ-A30)	Model 1		Model 2		Model 3	
	ρ_c	ρ_v	ρ_c	ρ_v	ρ_c	ρ_v
F1. Speaking in public/Talking with people in authority	.929	.312	.878	.545	.863	.514
F2. Interactions with strangers			.841	.469	.836	.462
F3. Interactions with the opposite sex			.867	.522	.856	.502
F4. Assertive expression of annoyance, disgust or displeasure			.783	.378	.772	.364
F5. Criticism and embarrassment			.744	.339	.753	.345

where ρ_v is the average variance extracted, λ factor loadings and θ the error variances of the indicators.

As can be seen in Table 4, the reliability of the five specified constructs exceed the threshold of .74; the average variance extracted is over 50% in factors 1 and 3 in models two (correlated factors) and three (hierarchical). The rest of the factors have obtained values below 50% in the average variance extracted (AVE).

Table 5
Fit indices of the three tested models with the confirmatory factor analysis (CFA) and Model 2 with the exploratory structural equation modelling (ESEM) regarding the SAQ-A30

	Model	N	χ^2	S-B χ^2	DF	RMSEA	NFI	TLI	CFI	IFI	SRMR
	Model 1	7,752	11215.51	32583.28	405	.100	.90	.90	.90	.90	.082
CFA	Model 2	7,752	7364.00	10714.90	395	.058	.97	.97	.97	.97	.051
	Model 3	7,752	8137.69	10792.75	400	.058	.97	.97	.97	.97	.059
ESEM	Model 2	7,752	8249.42		295	.061	---	.97	.98	---	.028

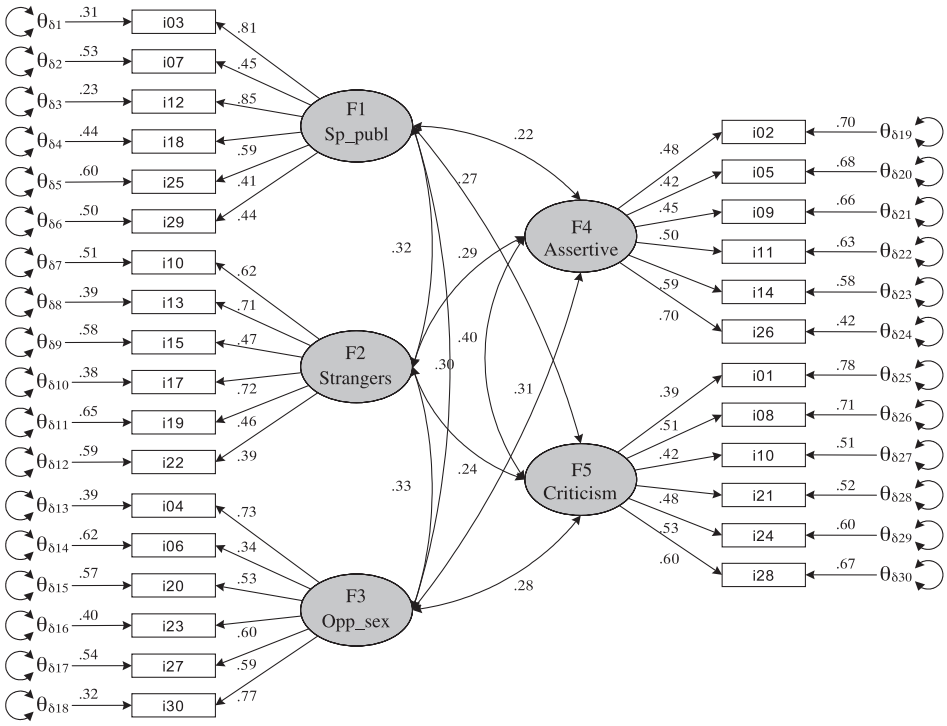
Note: SAQ-A30= Social Anxiety Questionnaire for Adults; χ^2= corrected chi-square; S-Bχ^2= Satorra-Bentler chi-square; DF= degrees of freedom; RMSEA= Root mean square error of approximation; NFI= Normed fit index; TLI= Tucker-Lewis index (Non-normed fit index); CFI= Comparative fit index; IFI= Incremental fit index; SRMR= Standardized root mean square residual.

Confirmatory factor analysis (CFA) and exploratory structural equation modeling (ESEM)

Results from the CFA and the ESEM are presented in Table 5. As can be seen, the five correlated factors model (M2) showed the best fit, although followed closely by the five first-order factors and one second-order factor model (M3). Figure 2 presents graphically the results obtained with the ESEM in Model 2.

From the data obtained by this analysis, we can conclude that the five correlated factors model (M2) constitutes an adequate representation of social anxiety in the studied sample, which is proof of validity based on the factorial structure of the SAQ-A30.

Figure 2
Graphic representation of the exploratory structural equation modelling with Model 2 for the SAQ-A30



Note: SAQ-A30= Social Anxiety Questionnaire for Adults; F1 Sp_publ= Speaking in public/Talking with people in authority; F2 Strangers= Interactions with strangers; F3 Opp_sex= Interactions with the opposite sex; F4 Assertive= Assertive expression of annoyance, disgust or displeasure; F5 Criticism= Criticism and embarrassment.

More statistical data on the SAQ-A30

Correlations among the five factors of the SAQ-A30 were also computed. Table 6 shows that correlations are relatively low. Furthermore, concurrent validity of the SAQ-A30 and its factors with the LSAS-SR was also calculated. Results of the

Table 6
Inter-factor correlations for exploratory factor analysis of the SAQ-A30

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	**1.00**	.47	.48	.32	.36
Factor 2	.33	**1.00**	.46	.35	.36
Factor 3	.30	.33	**1.00**	.40	.37
Factor 4	.22	.29	.31	**1.00**	.39
Factor 5	.27	.24	.28	.40	**1.00**

Note: EFA correlations (Promax) in the upper half of the diagonal; ESEM correlations (Geomin) in the lower half of the diagonal.
SAQ-A30= Social Anxiety Questionnaire for Adults; Factor 1= Speaking in public/Talking with people in authority; Factor 2= Interactions with strangers; Factor 3= Interactions with the opposite sex; Factor 4= Assertive expression of annoyance, disgust or displeasure; Factor 5= Criticism and embarrassment.

Table 7
Correlations (Pearson) among the Social Anxiety Questionnaire for Adults (SAQ-A30) and its 5 factors with the Liebowitz Social Anxiety Scale-Self-Report (LSAS-SR)

SAQ-A30 factors	*LSAS-SR*		
	LSAS-Anxiety	LSAS-Avoidance	LSAS-Total
F1. Speaking in public/Talking with people in authority	.57	.43	.54
F2. Interactions with strangers	.58	.47	.56
F3. Interactions with the opposite sex	.56	.43	.53
F4. Assertive expression of annoyance, disgust or displeasure	.49	.39	.47
F5. Criticism and embarrassment	.44	.36	.43
SAQ-A30 Total	.70	.55	.66

obtained correlations can be seen in Table 7. Finally, the reliability of the SAQ-A30 was calculated. Thus, the split-half reliability (Guttman) was .93, while the internal consistency of the questionnaire (Cronbach's alpha) was .91.

Characteristics of the differences and similarities in social anxiety between genders, regions and degree

Differences between men and women in social anxiety

Bearing in mind previous studies carried out with this instrument in which the differences between men and women have remained constant (Caballo et al., 2008; Caballo et al., 2010a; Caballo et al., 2010b), the first analysis was to check whether these differences are maintained both at a global level (SAQ-A30 total), and within the different dimensions of social anxiety. Table 8 shows the scores for men and women in those areas, with some significant differences discovered using the Student's *t* and at a level of $p < .0001$. In order to see the magnitude of these differences we found Cohen's *d* for each of the dimensions and the global score of the SAQ-A30. These differences are between small and medium, highlighting the greater anxiety on the part of women both in the dimension of *Speaking in public/Talking with people in authority* ($d = 0.69$) and in the global aspect of social anxiety ($d = 0.55$).

Table 8
Means (and standard deviations) of men and women in the five dimensions of the Social Anxiety Questionnaire for Adults (SAQ-A30) and in the total score

SAQ-A factors or dimensions	Men (*N*= 5,060)		Women (*N*= 10,601)		*d*
	M	*SD*	*M*	*SD*	
F1. Speaking in public/Talking with people in authority	16.3	4.78	19.68	5.04	0.69
F2. Interactions with strangers	13.17	4.19	14.11	4.55	0.22
F3. Interactions with the opposite sex	17.04	4.96	19.29	5.00	0.45
F4. Assertive expression of annoyance, disgust or displeasure	15.74	4.26	17.14	4.41	0.32
F5. Criticism and embarrassment	18.00	4.33	19.51	4.19	0.35
SAQ-A30 Total	80.22	16.75	89.67	17.62	0.55

Note: Men and women differ significantly in all the means ($p < .0001$). The effect size of the differences between men and women calculated through Cohen's *d* are also included.

Differences and similarities among Spanish regions in social anxiety

Given the social anxiety differences found between men and women, we considered it more appropriate to compare the results obtained for each sex separately when dealing with the different regions. The data were analysed by an analysis of variance of 17 (regions) x 2 (gender) x 6 (SAQ-A30 total and its factors or dimensions). In order to determine possible differences the Tukey *post-hoc* test for unequal samples was used.

Table 9 shows the scores in global social anxiety (SAQ-A30 total) and its five dimensions for university men from the Spanish regions. By focusing on each of the dimensions specifically, it can be seen that the lowest and highest scoring students for *Speaking in public/Talking with people in authority* belong to the Spanish regions of Asturias and Canary Islands, respectively (the Navarre sample was too small to consider). However, there are no statistically significant differences between any of the regions on this factor or dimension. The same is true for the 2nd factor, *Interactions with strangers,* where no differences between regions were found. The lowest and highest scoring students in this dimension belong to the Spanish regions of Murcia and the Basque Country, respectively. In the 3rd factor, *Interactions with the opposite sex,* the lowest and highest scores are found in the regions of Asturias and the Basque Country, respectively. There are no significant differences among any regions in this dimension, except between the Basque Country and the regions of Aragon ($p < .05$, $d = 0.32$), Asturias ($p < .001$, $d = 0.43$), Castile and Leon ($p < .05$, $d = 0.33$) and Galicia ($p < .05$, $d = 0.36$). In all these cases, the mean score of the Basque Country students is higher than the other regions. The effect size of these differences is always small (Cohen's $d < 0.50$).

In the 4th dimension, *Assertive expression of annoyance, disgust or displeasure,* statistically significant differences were only found between students of Catalonia and the Basque Country, with a higher mean score of the participants from the latter ($p < .01$, $d = 0.35$). However, the students scoring lowest and highest in this dimension are from the regions of Castile-La Mancha and Extremadura, respectively (Navarre was not considered for the reason stated above). In the 5th dimension*, Criticism and embarrassment,* there were no differences between any Spanish regions. The students scoring lowest and highest in this dimension are from Cantabria and La Rioja, respectively.

Finally, in *global social anxiety*, measured by the total score on the SAQ-A30, there are no statistically significant differences, except between the Basque country and the regions of Asturias ($p < .01$, $d = 0.44$), Catalonia ($p < .01$, $d = 0.36$) and Galicia ($p < .05$, $d = 0.43$), where the students of the first region have a higher global social anxiety than the students of the three other regions. The effect size of these differences is, in all cases, small (Cohen's $d < 0.50$).

When comparing the results of women from the Spanish regions in the present study, we found more differences than for men, although they were also limited (Table 10). If each dimension of social anxiety is considered, then it can be seen that in the 1st dimension, *Speaking in public/Talking with people in authority,* statistically significant differences were only found between students of two regions, i.e.,

Table 9

Distribution of mean scores on the Social Anxiety Questionnaire for Adults (SAQ-A30) and its dimensions of the participant men by Spanish region

Spanish Regions	*N*	Scores on the SAQ-A30 and its dimensions											
		F1. Speaking in public/ Talking		F2. Interactions with strangers		F3. Interactions opposite sex		F4. Assertive expression		F5. Criticism embarrassment		SAQ-A30 total score	
		M	*DT*	*M*	*DT*	*M*	*DT*	*M*	*DT*	*M*	*DT*	*M*	*DT*
Andalusia	1267	16.49	4.81	12.97	4.32	16.88	4.85	15.70	4.32	17.88	4.47	79.72	17.12
Aragon	348	16.08	4.40	13.21	4.07	16.80	5.04	15.54	4.05	18.21	4.25	79.79	15.57
Asturias	236	15.25	4.74	12.76	4.21	16.18	5.38	15.33	4.33	17.34	4.38	76.80	17.88
Canary Islands	180	16.93	4.85	13.20	3.97	17.14	4.81	15.69	4.43	17.93	4.37	80.96	16.35
Cantabria	49	16.04	4.36	13.40	4.19	17.64	4.51	15.53	3.92	16.71	4.25	79.98	14.56
Castile and Leon	511	16.29	4.80	13.58	4.24	16.77	4.95	16.08	4.17	18.46	4.33	81.23	17.31
Castile-La Mancha	129	16.48	4.26	12.71	3.90	16.52	4.64	14.97	4.06	17.70	4.11	78.35	14.64
Catalonia	376	15.88	4.94	12.87	4.30	16.88	5.24	15.07	4.24	17.54	4.50	78.12	18.29
Valencian Community	179	16.91	4.64	13.62	3.86	17.53	5.06	16.03	4.34	18.85	4.24	82.99	15.91
Extremadura	186	16.40	4.76	13.44	3.91	17.52	4.83	16.68	4.00	18.66	3.94	82.63	15.31
Galicia	191	15.42	4.82	12.89	4.18	16.27	4.64	15.94	4.28	17.21	4.22	77.47	15.59
Balearic Islands	106	15.98	4.79	12.72	4.33	16.87	4.92	16.03	3.91	17.93	4.37	79.96	16.62
La Rioja	144	16.66	4.53	13.33	3.91	17.10	4.95	15.78	4.15	18.90	3.99	81.88	16.40
Madrid	597	16.15	5.01	13.10	4.24	17.42	5.09	15.57	4.31	17.76	4.36	80.07	16.43
Murcia	108	16.45	4.61	12.68	4.00	17.00	4.37	15.67	4.41	18.26	4.26	80.10	14.93
Navarre	20	17.45	4.55	12.95	3.76	18.05	4.81	14.74	3.87	16.95	3.88	81.82	14.98
Basque Country	318	16.92	4.67	14.13	4.02	18.37	4.76	16.55	4.25	18.57	3.91	84.44	16.45

Catalonian women students have less anxiety than those from Extremadura (p < .01, d = 0.24). The women students scoring highest and lowest in this dimension are from the regions of Navarre and Catalonia, respectively. In the 2nd dimension, *Interactions with strangers,* students from Andalusia have significantly less anxiety than those from Castile and Leon (p < .001, d = 24) and than those from Cantabria (d = 0.36), Castile-La Mancha (d = 0.32), La Rioja (d = 0.36) and Navarre (d = 0.46); in all these cases, p < .05. The students from Catalonia have less anxiety than those from Castile and Leon (p < .001, d = 0.26), Castile-La Mancha (p < .01, d = 0.34), La Rioja (p < .01, d = 0.38) and Navarre (p < .01, d = 0.48) (p < .0 1) and than those from Cantabria (p < .05, d = 0.38) and the Basque Country (p < .05, d = 0.22). The students from Asturias have lower anxiety than those from La Rioja (p < .05, d = 0.34) and Navarre (p < .05, d = 0.55), while students from Madrid have less social anxiety than those from Castile and Leon (p < .01, d = 0.20) and the students from Balearic Islands have less anxiety than those from Navarre (p < .05, d = 0.44). The regions of La Rioja and Catalonia had the highest and lowest social anxiety scores, respectively, in this dimension. In the 3rd dimension, *Interactions with the opposite sex,* there are statistically significant differences between the students from Navarre and those from Asturias (p < .01, d = 0.51), Canary Islands (p < .01, d = 0.49), Catalonia (p < .001, d = 0.55), Galicia (p < .05, d = 0.50) and Murcia (p < .05, d = 0.45). In all cases, Navarre's students have the highest anxiety scores in this dimension.

In the 4th dimension, *Assertive expression of annoyance, disgust or displeasure,* the students from Catalonia had less anxiety than those from Castile and Leon (p < .0001, d = 0.27), Cantabria (p < .01, d = 0.42), La Rioja (p < .01, d = 0.38), the Basque Country (p < .01, d = 0.24) and Navarre (p < .05, d = 0.46). The women students scoring highest and lowest in this dimension are from the regions of Navarre and Catalonia, respectively. In the 5th dimension*, Criticism and embarrassment,* there are more regions with statistically significant differences between them, although, in general, these differences are small. The students from Catalonia have significantly lower anxiety mean scores than the students from Extremadura (p < .01, d = 0.25), La Rioja (p < .01, d = 0.37) and Navarre (p < .01, d = 0.23) and than those from Cantabria (p < .05, d = 0.46) and the Basque Country (p < .05, d = 0.30). The students from Galicia have lower anxiety mean scores than those from Cantabria (p < .05, d = 0.36), Extremadura (p < .05, d = 0.24), La Rioja (p < .05, d = 0.36) and Navarre (p < .05, d = 0.48). The students from Murcia have lower anxiety scores than those from La Rioja (p < .05, d = 0.33) and Navarre (p < .05, d = 0.45). The women students scoring highest and lowest in this dimension are from the regions of Navarre and Catalonia, respectively.

Finally, in *global social anxiety,* the students from Catalonia have less anxiety than those from Navarre (p < .0001, d = 0.63) and the Basque Country (p < .0001, d = 0.30), than those of Cantabria (p < .001, d = 0.46), Castile and Leon (p < .001, d = 0.28), Extremadura (p < .001, d = 0.30), La Rioja (p < .01, d = 0.41) and Castile-La Mancha (p < .05, d = 0.35). The students from Asturias had lower anxiety scores than those from Cantabria (p < .05, d = 0.38), and, finally, in the global social anxiety differences, the students from Navarre had higher anxiety mean scores

Table 10

Distribution of mean scores on the Social Anxiety Questionnaire for Adults (SAQ-A30) and its dimensions of the participant women by Spanish region

Spanish Regions	*N*	Scores on the SAQ-A30 and its dimensions											
		F1. Speaking in public/ Talking		F2. Interactions with strangers		F3. Interactions opposite sex		F4. Assertive expression		F5. Criticism embarrassment		SAQ-A30 total score	
		M	*DT*	*M*	*DT*	*M*	*DT*	*M*	*DT*	*M*	*DT*	*M*	*DT*
Andalusia	1938	19.60	4.94	13.64	4.48	19.21	5.00	17.10	4.50	19.67	4.26	89.14	17.43
Aragon	658	19.49	4.67	14.08	4.28	19.19	4.73	17.08	4.22	19.66	4.16	89.55	16.22
Asturias	362	19.63	5.11	13.74	4.53	18.80	4.91	16.64	4.28	19.27	3.95	87.72	16.51
Canary Islands	294	19.30	5.30	13.86	4.29	18.65	5.29	17.03	4.59	19.53	4.18	88.43	17.81
Cantabria	240	20.38	4.89	15.25	4.36	20.28	4.88	18.13	4.04	20.41	3.92	94.07	17.23
Castile and Leon	1118	19.80	4.80	14.73	4.43	19.28	4.72	17.50	4.18	19.46	3.93	90.76	16.21
Castile-La Mancha	274	20.45	5.06	15.17	5.05	19.97	5.00	17.25	4.52	19.65	4.17	92.46	18.77
Catalonia	756	19.02	5.33	13.53	4.65	18.49	5.21	16.30	4.71	18.85	4.44	86.09	17.53
Valencian Community	448	20.01	4.87	13.95	4.60	19.59	5.12	17.21	4.20	19.27	4.19	89.95	16.68
Extremadura	605	20.31	5.20	14.36	4.56	19.95	5.09	17.20	4.44	19.96	4.29	91.46	18.72
Galicia	501	19.96	5.22	13.94	4.65	18.82	4.93	17.20	4.54	18.92	4.27	88.85	17.84
Balearic Islands	208	19.66	5.11	13.77	4.45	19.28	4.57	16.91	4.40	19.72	3.88	89.56	16.59
La Rioja	236	19.92	5.51	15.36	4.93	19.81	5.23	18.03	4.41	20.53	4.67	93.79	19.81
Madrid	1710	19.46	5.14	13.84	4.53	19.17	5.04	17.00	4.50	19.23	4.11	88.63	17.51
Murcia	249	19.51	5.25	14.25	4.56	18.95	5.10	16.85	4.24	19.03	4.32	88.96	17.93
Navarre	160	20.40	4.77	15.74	4.59	21.17	4.45	18.29	3.81	20.87	3.92	96.88	16.54
Basque Country	639	19.64	4.90	14.53	4.45	19.90	4.98	17.36	4.25	19.78	4.16	91.31	17.41

than those from Asturias ($p < .01$, $d = 0.55$), Andalusia ($p < .05$, $d = 0.46$), Canary Islands ($p < .05$, $d = 0.49$), Galicia ($p < .05$, $d = 0.49$), Madrid ($p < .05$, $d = 0.48$) and Murcia ($p < .05$, $d = 0.45$). The women students scoring highest and lowest in this dimension are from the regions of Navarre and Catalonia, respectively.

Differences and similarities among degree subjects in social anxiety

We also compared scores obtained in the different social anxiety dimensions and global social anxiety from students sampled on different university courses. As mentioned earlier, given the differences between men and women we decided to compare men and women separately. We analysed the data using an analysis of variance of 21 (degree subjects) x 2 (sex) x 6 (SAQ-A30 total and its factors or dimensions) using the Tukey *post-hoc* test for unequal samples when comparing the scores of students from different subjects.

Table 11 shows the scores for global social anxiety (SAQ-A30 total) and its five dimensions in university men from different degree subjects. By focussing on each of the dimensions specifically, no significant differences were found between any university subjects in the first four dimensions.

In the 1st dimension, *Speaking in public/Talking with people in authority*, male students of Communication and Documentation had the highest anxiety mean scores and those of Philosophy and Literature the lowest. In the 2nd dimension, *Interactions with strangers,* male students of Veterinary Medicine scored the highest in anxiety while male students of Philosophy and Literature scored lowest. In the 3rd dimension, *Interactions with the opposite sex*, male students of Veterinary Medicine scored highest in anxiety and those of Pharmacy lowest. In the 4th dimension, *Assertive expression of annoyance, disgust or displeasure*, male students of Veterinary Medicine scored highest in anxiety and those of Computer Sciences and Telecommunications Engineering lowest.

Regarding the 5th dimension, *Criticism and embarrassment,* the only finding was that men who studied Physical Activity and Sports Sciences had more anxiety than the students of Computer Sciences and Telecommunications Engineering ($p < .05$, $d = 0.47$) and than those of Science (Physics, Chemistry, etc.) ($p < .05$, $d = 0.47$). The highest and lowest scores in this dimension were obtained by male students of Physical Activity and Sports Sciences and Pharmacy, respectively. When considering *Global social anxiety* there were only statistically significant differences between male students of Computer Sciences and Telecommunications Engineering (lower anxiety) and those of Economic and Business Sciences (higher anxiety) ($p < .05$, $d = 0.27$). Men studying Communication and Documentation showed the highest scores on social anxiety while students of Pharmacy had the lowest scores.

When comparing data among women students from several degree subjects more differences among them were found than when comparing men students, although these differences are also limited (Table 12). When considering each of the social anxiety dimensions we can see that in the 1st dimension, *Speaking in public/Talking with people in authority,* female students of Law show less anxiety than

Table 11

Distribution of mean scores on the Social Anxiety Questionnaire for Adults (SAQ-A30) and its dimensions for the participant men by degree subjects

Degree subject	*N*	Scores on the SAQ-A30 and its dimensions											
		F1. Speaking in public/ Talking		F2. Interactions with strangers		F3. Interactions opposite sex		F4. Assertive expression		F5. Criticism embarrassment		SAQ-A30 total score	
		M	*DT*	*M*	*DT*	*M*	*DT*	*M*	*DT*	*M*	*DT*	*M*	*DT*
1. Psychology	521	16.36	4.98	12.84	4.40	17.68	5.17	15.75	4.32	17.73	4.28	80.31	17.09
2. Physical Activity and Sports Sciences	155	16.86	4.61	13.44	4.17	16.27	4.86	16.41	4.34	19.42	4.12	82.39	16.55
3. Economic and Business Sciences	632	16.79	4.61	13.71	4.15	17.34	4.74	16.10	4.15	18.31	4.06	82.37	15.78
4. Law	303	15.66	4.88	13.03	4.29	16.55	5.32	15.11	4.20	17.71	4.44	78.08	17.94
5. Philosophy and Literature	53	15.43	2.85	12.72	3.45	16.38	4.32	16.57	3.85	18.70	3.50	80.02	11.02
6. Computer Sciences and Telecommunications Engineering	502	16.07	4.95	12.81	4.39	16.69	5.06	15.09	4.46	17.39	4.57	77.85	17.50
7. Higher/ Technical Architecture	332	16.66	4.64	13.02	3.97	16.63	4.56	15.68	4.20	18.21	4.29	80.19	15.86
8. Health Sciences	134	16.98	4.82	13.44	4.60	17.31	4.84	15.88	3.94	18.09	4.31	81.77	17.15
9. Social Work	97	16.79	4.45	13.47	3.80	17.27	3.60	16.45	3.95	18.06	4.11	81.85	13.66
10. Science (Physics, Chemistry, etc.)	135	15.81	4.96	13.05	4.70	17.04	4.86	15.73	4.31	17.31	4.78	78.91	18.49
11. Educational Sciences	370	15.99	5.05	13.26	4.36	17.07	5.08	16.05	4.21	18.04	4.52	80.54	18.01
12. Political Sciences and Sociology	45	16.51	4.82	13.51	4.15	16.80	4.95	16.31	3.91	17.44	4.17	80.58	16.66
13. Pharmacy	13	15.92	5.30	13.08	4.76	15.15	5.06	16.38	5.85	15.77	4.15	74.42	21.44
14. Medicine	194	16.85	4.50	13.45	3.78	17.71	4.81	15.79	4.02	18.74	3.94	82.33	15.16
15. Civil Engineering	635	15.97	4.62	13.14	4.05	16.95	5.05	15.63	4.07	18.03	4.36	79.78	16.64
16. Biology	82	16.21	4.91	13.65	4.01	16.41	4.26	16.18	4.89	17.62	4.14	79.21	16.14
17. Communication and Documentation	13	18.77	5.21	13.23	5.66	19.77	5.29	16.23	4.55	18.15	6.64	86.15	23.11
18. Information Sciences	87	16.87	4.51	14.05	3.92	17.94	4.84	16.39	4.16	19.24	4.01	84.45	14.90
19. Dentistry	34	16.06	3.96	12.85	3.60	16.41	3.97	15.16	3.43	18.41	3.88	79.41	11.28
20. Veterinary Medicine	54	17.70	4.37	14.26	4.16	18.26	4.66	16.61	4.11	17.80	4.52	84.10	15.95
21. Other degree subjects	540	15.97	4.88	12.79	3.95	16.80	5.18	15.54	4.45	17.83	4.34	78.94	16.63

female students of Economic and Business Sciences ($p < .001$, $d = 0.31$), Health Sciences ($p < .001$, $d = 0.31$) and Medicine ($p < .001$, $d = 0.29$) and than those of Educational Sciences ($p < .05$, $d = 0.24$). Female students of Political Sciences and Sociology had less anxiety than those of Economic and Business Sciences ($p < .05$, $d = 0.66$), Health Sciences ($p < .05$, $d = 0.65$), and Medicine ($p < .05$, d = 0.62). In this dimension, female students of Health Sciences and of Political Sciences and Sociology had the highest and lowest scores for anxiety, respectively. Regarding differences in the 2nd dimension, *Interactions with strangers,* it was only found that female students of Educational Sciences showed more anxiety than those of Psychology ($p < .0001$, $d = 0.20$) and Law ($p < .0001$, $d = 0.32$), and other degree subjects ($p < .001$, $d = 0.20$). Highest and lowest scores in this dimension were from women studying Educational Sciences and Political Sciences and Sociology, respectively. In the 3rd dimension, *Interactions with the opposite sex,* women students of Educational Sciences showed more statistically significant anxiety than those of Law ($p < .01$, $d = 0.28$), and other degree subjects ($p < .05$, $d = 0.16$). As in the former dimension, highest and lowest scores were from Educational Sciences and Political Sciences and Sociology, respectively.

Regarding the 4th dimension, *Assertive expression of annoyance, disgust or displeasure,* female students of Law had less anxiety than those of Educational Sciences ($p < .0001$, $d = 0.37$), Economic and Business Sciences ($p < 0.01$, $d = 0.28$), Health Sciences ($p < .01$, $d = 0.25$), Social Work ($p < .01$, $d = 0.28$), and Medicine ($p < .01$, $d = 0.25$), and than those of Psychology ($p < .05$, $d = 0.25$). Female students of Educational Sciences had more statistically significant anxiety than those of other degree subjects ($p < .05$, $d = 0.16$). Highest and lowest scores in this dimension were for women students of Pharmacy and Communication and Documentation, respectively. Regarding differences in the 5th dimension, *Criticism and embarrassment,* it was only found that female students of Psychology had less statistically significant anxiety than those of Economic and Business Sciences ($p < .001$, $d = 0.24$), and Educational Sciences ($p < .001$, $d = 0.26$). The highest scores were for the students of Dentistry and the lowest ones for the students of Communication and Documentation.

Finally, on *social global anxiety*, female students of Law had lower statistically significant anxiety than those of Educational Sciences ($p < .0001$, $d = 0.38$), Economic and Business Sciences ($p < .0001$, $d = 0.34$), Health Sciences ($p < .001$, $d = 0.31$), Medicine (p < .01, $d = 0.28$), and Social Work ($p < .05$, $d = 0.26$). Female students of Educational Sciences score higher on global anxiety than those of Psychology ($p < .0001$, $d = 0.20$), other degree subjects ($p < .001$, $d = 0.21$), and Political Sciences and Sociology ($p < .05$, $d = 0.68$). Women studying Educational Sciences presented the highest scores in global social anxiety while those of Political Sciences and Sociology showed the lowest scores.

Table 12

Distribution of mean scores on the Social Anxiety Questionnaire for Adults (SAQ-A30) and its dimensions for the participant women by degree subjects

Degree subject	*N*	Scores on the SAQ-A30 and its dimensions											
		F1. Speaking in public/ Talking		F2. Interactions with strangers		F3. Interactions opposite sex		F4. Assertive expression		F5. Criticism embarrassment		SAQ-A30 total score	
		M	*DT*	*M*	*DT*	*M*	*DT*	*M*	*DT*	*M*	*DT*	*M*	*DT*
1. Psychology	2434	19.70	5.11	13.89	4.58	19.23	4.98	17.16	4.39	19.14	4.13	89.06	17.70
2. Physical Activity and Sports Sciences	60	19.49	4.81	14.37	4.75	19.03	4.85	17.54	3.56	19.77	4.40	90.82	17.46
3. Economic and Business Sciences	873	20.25	4.80	14.44	4.33	19.57	4.63	17.27	4.21	20.13	4.06	91.61	16.55
4. Law	521	18.67	5.24	13.32	4.76	18.50	5.05	16.01	4.79	19.19	4.54	85.62	18.67
5. Philosophy and Literature	141	19.29	5.06	14.13	4.59	18.83	5.30	16.92	4.42	18.68	4.42	87.96	17.67
6. Computer Sciences and Telecommunications Engineering	148	18.94	5.02	13.63	4.56	18.19	5.18	16.07	4.55	18.91	4.20	85.45	17.74
7. Higher/ Technical Architecture	272	20.01	4.99	13.66	4.29	18.43	4.94	16.69	4.59	18.97	4.07	87.60	17.11
8. Health Sciences	667	20.27	4.91	14.38	4.39	19.59	4.82	17.18	4.40	19.76	4.05	91.10	16.94
9. Social Work	545	19.70	5.03	14.16	4.58	19.60	4.89	17.31	4.31	19.56	3.89	90.24	16.68
10. Science (Physics, Chemistry, etc.)	184	19.93	4.78	14.04	4.12	19.06	4.99	16.95	4.33	19.21	4.06	88.71	15.80
11. Educational Sciences	1738	19.90	4.96	14.81	4.59	19.90	4.96	17.73	4.39	20.22	4.22	92.62	17.65
12. Political Sciences and Sociology	73	16.93	5.31	12.48	3.63	17.01	4.82	16.44	3.84	18.27	4.47	81.30	15.41
13. Pharmacy	39	19.29	4.84	13.63	4.08	19.60	5.32	17.82	4.71	19.50	4.20	89.97	17.13
14. Medicine	545	20.16	5.02	14.09	4.64	19.65	4.84	17.20	4.38	19.51	4.20	90.75	17.60
15. Civil Engineering	290	19.03	4.93	13.65	4.48	18.59	4.86	16.48	4.45	18.90	4.26	87.09	17.60
16. Biology	197	19.47	5.16	14.28	4.39	18.98	5.01	17.41	4.23	19.20	3.85	89.34	16.33
17. Communication and Documentation	27	19.00	4.67	14.37	5.08	19.70	6.00	15.63	3.78	17.18	4.43	85.89	17.75
18. Information Sciences	186	18.80	4.87	14.07	4.77	19.26	5.31	17.18	4.47	19.34	4.19	88.55	18.23
19. Dentistry	70	19.26	5.56	12.85	4.76	18.58	4.80	16.38	3.91	20.43	3.70	87.19	16.80
20. Veterinary Medicine	117	19.49	5.18	14.38	4.32	19.09	4.85	17.19	4.54	19.71	4.15	89.45	17.36
21. Other degree subjects	1252	19.46	5.05	13.91	4.57	19.07	5.28	17.01	4.43	19.40	4.25	88.83	18.10

Discussion

The present work strongly supports the psychometric properties of the Social Anxiety Questionnaire for Adults (SAQ-A30) obtained in former studies with other populations (Caballo et al., 2008; 2010a; 2010b). In fact, the solid five-factor structure of the questionnaire was confirmed, to such an extent that all the items load on the same factors as a former study with more than 13,000 participants from 14 Latin American countries, Spain, and Portugal (Caballo et al., 2010b). The five factors appear to be clear and are maintained in studies of several countries and in different populations. This could constitute the basis for finding the fundamental multifactorial structure of social anxiety. In both this and the previous study, the unifactorial explanation of social anxiety is clearly ruled out, although the five first-order factors and one second-order factor model would not constitute a poor explanation. In all events, all the factors are correlated among themselves and although the correlations are not strong, they form a global construct called social anxiety. However, the SAQ-A30 stands out from many other questionnaires on social anxiety because it focuses on dimensions, and the severity of the social anxiety does not refer to the global score (although this is closely related) but rather to the score in each of the five dimensions. The more high-scoring dimensions there are, the more generalised the anxiety is. This new approach to social anxiety can clear up clinical doubts about how to differentiate Generalised social anxiety from Specific social anxiety. All that needs to be decided is how many dimensions an individual should score highly in for general anxiety to be considered. In a former study (Caballo et al*.,* 2010b), three dimensions were considered as the cutting point for the Generalized social phobia.

Analysis regarding the concurrent validity of the SAQ-A30 (in the present study with the LSAS-SR) shows that there is a greater relationship between the SAQ-A30 and the anxiety subscale than with the avoidance subscale. This is somewhat expected as the aim of the assessment is similar in the anxiety subscale and the SAQ-A30. It is clearly doubtful whether the LSAS-SR avoidance subscale provides any useful additional information, as other authors have pointed out (e.g., Heimberg et al., 1999; Oakman et al., 2003), particularly if it is borne in mind that according to the DSM-IV-TR (APA, 2000) it is no longer necessary for individuals with social phobia to avoid the social situations they fear, but enough for them to remain in these situations, albeit with a high degree of anxiety.

Besides the solid stability of the five-factor structure of the SAQ-A30 obtained both in this and a previous study (Caballo et al*.,* 2010b), we would like to highlight the excellent psychometric properties of the questionnaire that make it suitable for use in clinical as well as research settings. Taking these data into account, we think that information can be gained about some interesting and new features. Thus, we have considered the possible differences in social anxiety between regions and degree subjects. The results we have obtained show very few differences considering that we compared regions and subjects always within the same sex. The reason for this separation by sex is based on the fact that the differences between men and women are constant and clearly significant, which would mask the real differences

between regions and subjects if it were not taken into account. Thus, we hardly find any differences between male university students from the different regions. Only male students from the Basque Country region appear to have significantly more social anxiety than four regions in *Interactions with the opposite sex* and four regions in *Global social anxiety*, although these differences are always small (Cohen's $d < 0.45$ in all the cases). Taking such small and circumscribed differences into account, it would be difficult to assert there are differences in social anxiety between men from different regions.

More can be said about women students from the various regions because the differences are greater in many cases and, above all, more numerous. Standing out are: the lower social anxiety of female students from Catalonia and Andalusia compared to six and five regions, respectively, in the *Interactions with strangers* dimension; that of Catalonia in *Assertive expression of annoyance, disgust or displeasure* over five regions; and that of Catalonia and Galicia in the *Criticism and embarrassment* dimension compared to five and four regions, respectively. Also noticeable is the greater anxiety of female students from Navarre in the *Interactions with the opposite sex* dimension and in *Global social anxiety* compared to five other regions. However, all these differences between regions are small (Cohen's $d < 0.45$), except for the Navarre students, whose differences with some regions (4 from 16) are moderate (Cohen's $d > 0.50$). Taking these data into account, we cannot, again, establish any clear and systematic differences between regions for women students. Only Navarre seems to have some greater differences (increased social anxiety) compared to some regions whose students expressed lower social anxiety. However, the sample size for women students from Navarre prevents us from reaching any firmer conclusions.

The differences found among students of various degree subjects appear to be very scarce. They are practically non-existent among men, which means social anxiety seems not to be more characteristic of those taking any particular university degree. With regards women, the only noticeable differences are for those studying law compared to some other subjects (6 from 20), which indicates that these students show lower anxiety than those in subjects related to health (Health Sciences, Social Work, Medicine), education (Educational Sciences) or economics (Economic and Business Sciences). Perhaps the behaviour required of a future female law graduate means these students need to be bolder or less anxious socially than students from other subjects that possibly do not require such behaviour. This is, however, something that needs more research.

Conclusion

On the basis of the results obtained in this study we can conclude that the SAQ-A30 is a valid and reliable questionnaire for use with the whole Spanish university population, and that the concept of assessing anxiety by dimensions is innovative and closer to the reality of subjects than traditional questionnaires. Likewise, the limited differences found between students from different Spanish regions and

different degree subjects points to the usefulness of the measure for use at universities across the country as a whole. We would like to end by highlighting the general lack of differences in social anxiety in the sample population. It does not seem that students from different regions or different subjects vary from each other with regards social anxiety, that is, being a man or a woman appears to be more of a determining factor when it comes to assessing social anxiety in a person than whether that person is on a particular course or from a specific region.

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Code:_____ Age:_____ Female ❑ Male ❑ Education/Profession:_____/_____

SOCIAL ANXIETY QUESTIONNAIRE FOR ADULTS (SAQ-A30)

(Caballo, Salazar, Irurtia, Arias, and CISO-A Research Team, 2010)

Below are a series of social situations that may or may not cause you UNEASE, STRESS OR NERVOUSNESS. Please place an "X" on the number next to each social situation that best reflects your reaction.

If you have never experienced the situation described, please *imagine* what your level of UNEASE, STRESS, OR NERVOUSNESS might be if you were in that situation, and place an "X" on the corresponding number.

LEVEL OF UNEASE, STRESS OR NERVOUSNESS

Not at all or very slight 1	Slight 2	Moderate 3	High 4	Very high or extremely high 5

Please rate all the items and do so *honestly*; do not worry about your answer because there are no right or wrong ones.

1.	Greeting someone and being ignored	1	2	3	4	5
2.	Having to ask a neighbor to stop making noise	1	2	3	4	5
3.	Speaking in public	1	2	3	4	5
4.	Asking someone attractive of the opposite sex for a date	1	2	3	4	5
5.	Complaining to the waiter about my food	1	2	3	4	5
6.	Feeling watched by people of the opposite sex	1	2	3	4	5
7.	Participating in a meeting with people in authority	1	2	3	4	5
8.	Talking to someone who isn't paying attention to what I am saying	1	2	3	4	5
9.	Refusing when asked to do something I don't like doing	1	2	3	4	5
10.	Making new friends	1	2	3	4	5
11.	Telling someone that they have hurt my feelings	1	2	3	4	5
12.	Having to speak in class, at work, or in a meeting	1	2	3	4	5
13.	Maintaining a conversation with someone I've just met	1	2	3	4	5
14.	Expressing my annoyance to someone that is picking on me	1	2	3	4	5
15.	Greeting each person at a social meeting when I don't know most of them	1	2	3	4	5
16.	Being teased in public	1	2	3	4	5
17.	Talking to people I don't know at a party or a meeting	1	2	3	4	5
18.	Being asked a question in class by the teacher or by a superior in a meeting	1	2	3	4	5
19.	Looking into the eyes of someone I have just met while we are talking	1	2	3	4	5
20.	Being asked out by a person I am attracted to	1	2	3	4	5
21.	Making a mistake in front of other people	1	2	3	4	5
22.	Attending a social event where I know only one person	1	2	3	4	5

23. Starting a conversation with someone of the opposite sex that I like	1	2	3	4	5
24. Being reprimanded about something I have done wrong	1	2	3	4	5
25. While having dinner with colleagues, classmates or workmates, being asked to speak on behalf of the entire group	1	2	3	4	5
26. Telling someone that their behavior bothers me and asking them to stop	1	2	3	4	5
27. Asking someone I find attractive to dance	1	2	3	4	5
28. Being criticized	1	2	3	4	5
29. Talking to a superior or a person in authority	1	2	3	4	5
30. Telling someone I am attracted to that I would like to get to know them better	1	2	3	4	5