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Self-reported DSM-5 Anxiety Severity Measures: Evidence of Validity and Reliability in Spanish Youths

Verónica Vidal-Arenas[1], Jordi Ortet-Walker[1], Manuel Ignacio Ibáñez[1,2], Generós Ortet[1,2], and Laura Mezquita[1,2]
[1] Universitat Jaume I, and 2 Centre for Biomedical Research Network on Mental Health (CIBERSAM), Instituto de Salud Carlos III

Abstract

Background: Very few studies about the psychometric properties of the Anxiety Severity Measures (ASM) proposed in the DSM-5 exist, and none in Spanish-speaking populations. Thus, the aim of the present study was to provide validity and reliability evidence for the Spanish versions of the Agoraphobia, Social Anxiety, Separation Anxiety, Panic, Generalized Anxiety and Specific Phobia Severity measures. **Method:** Participants included 567 Spaniards (mean age=21.26, SD=3.61; 68.3% women). We performed Exploratory and Confirmatory Factor Analyses to test the structure of the scales, Differential Item Functioning (DIF) by sex, Cronbach's alpha and Ordinal Omega to test reliability, and the Pearson correlations between the ASM and different outcomes to provide evidence for convergent/discriminant (internalizing/externalizing symptoms) and criterion validity (satisfaction, quality of life and personality). **Results:** Structural analyses supported a one-factor solution for all of the ASM except for the Specific Phobia scale, which was also the only scale that exhibited DIF. Reliability indices ranked from .82 to .93. All six scales showed stronger associations with internalizing than externalizing measures and were also negatively related to criterion measures. **Conclusions:** The Spanish version of ASM is suitable for assessing anxiety-related symptoms, except the Specific Phobia Scale, which requires further examination.

Keywords: DSM-5 severity measures, psychometric properties, anxiety, young adults.

Resumen

Medidas de la Gravedad de la Ansiedad Autoinformadas del DSM-5: Evidencias de Validez y Fiabilidad en Jóvenes Españoles. **Antecedentes:** existen pocos estudios sobre las propiedades psicométricas de las Escalas de Gravedad de la Ansiedad (EGA) del DSM-5, y ninguno en población española. Así, el objetivo del estudio fue aportar evidencias de validez y fiabilidad de la versión española de las escalas para evaluar síntomas de Agorafobia, Ansiedad Social, Ansiedad por Separación, Pánico, Ansiedad Generalizada y Fobia Específica. **Método:** participaron 567 españoles (edad media= 21,26, DT= 3,61; 68,3% mujeres). Se realizaron análisis factoriales exploratorios y confirmatorios para testar la estructura, Funcionamiento Diferencial de Ítems (FDI) por sexo, alfa de Cronbach y Omega Ordinal para evaluar la fiabilidad y correlaciones de Pearson entre las EGA y otras variables para analizar la validez convergente/discriminante (síntomas internalizados/externalizados) y de criterio (satisfacción, calidad de vida y personalidad). **Resultados:** los análisis respaldan una estructura unidimensional para las EGA excepto para Fobia Específica, que además fue la única escala que mostró un FDI. Los índices de fiabilidad oscilaron entre 0,82 y 0,93. Las escalas se asociaron más con las conductas internalizadas que externalizadas, y se asociaron negativamente con las variables criterio. **Conclusiones:** la versión española de las EGA son adecuadas para evaluar síntomas relacionados con la ansiedad, excepto la escala de Fobia Específica que requiere más investigación.

Palabras clave: medidas de la gravedad DSM-5, propiedades psicométricas, ansiedad, adultos jóvenes.

From the first edition in 1952 to the present day, psychiatrists and psychologists have often used the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) in research and clinical practice. Nevertheless, the construct validity of the categorical diagnostic classification system has been questioned for more than 10 years based on a large body of evidence, such as: (1) temporal stability of taxometric diagnosis is low; (2) even though the categories make clinical decisions easier, they only do so in presence-absence terms; (3) many threshold problems have been identified, so high rates of *Not Otherwise Specified* diagnoses have been encouraged; (4) there are high comorbidity rates, especially in anxiety and emotional disorders, reported in general and clinical populations; (5) clinical features, and not etiological assumptions, define the criteria evaluation system (Belloch, 2012; Bjelland et al., 2009; Brown & Barlow, 2005; Krueger et al., 2018). Consequently, the DSM-5 Task Force outlines the need to consider the dimensional approach of psychopathology while revising the new edition of the DSM (Kraemer, 2007).

Therefore, about 160 medical and mental health professionals worked on the fifth DSM edition, through which the new project and its update were published in 2013 (American Psychiatrics Association [APA], 2013). Although the dichotomous or binary system of classification (*yes-no*) remained as in previous editions, a new section provides several dimensional assessment tools (APA, 2013). DSM-5 Section III includes two types of measures:

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Corresponding author: Verónica Vidal-Arenas
Facultad de Ciencias de la Salud
Universitat Jaume I
12071 Castellón (Spain)
e-mail: vvidal@uji.es

(1) Self-Rated Cross-Cutting Symptom Measures, which assess symptoms across diagnostic categories; (2) Severity Measures, which assess symptoms associated with specific disorders. Severity Measures were developed by specialist work groups (LeBeau et al., 2012) and comprise six anxiety-specific problems (social anxiety, agoraphobia, specific phobia, separation anxiety, panic, generalized anxiety disorder), depression, dissociative symptoms, and two measures for problems related to stress (posttraumatic and acute stress symptoms) (APA, 2013).

Moscicki et al. (2013) conducted a study to explore the subjective clinical utility of the new emerging measures in easiness and clarity terms, among other criteria. The findings indicated that about 70% of mental health professionals reported that they highly valued these assessment tools compared to the categorical evaluation system. Likewise, around 50% of patients reported that the emerging measures would help their clinicians to better understand their symptoms and to, thus, improve communication in clinical practice and therapeutic alliance.

As part of mental disorders, anxiety disorders are some of the most prevalent diagnoses worldwide (Bandelow & Michaelis, 2015), and rank in sixth place among the mental disorders that contribute to chronic conditions in Europe. Anxiety disorders also account for 4% of all years lived with disability (WHO Regional Office for Europe, 2019). For these reasons, providing brief and self-reported measures that cover and assess the main anxiety-related symptoms, such as those proposed in DSM-5 Section III, could be useful in research and also for clinical objectives.

Each DSM-5 Anxiety Severity Measure (ASM) comprises 10 items. Participants answer for the last 30 days (from 0 "*never*" to 4 "*all the time*") the frequency with which they have experienced different anxiety-related symptoms, such as avoidance, fear or nervousness, among others (LeBeau et al., 2012). There are reports of different sources of validity and reliability among other adapted scale versions (German sample, Beesdo-Baum, et al., 2012; Knappe et al., 2014; Brazilian sample, DeSousa et al., 2017; Turkish sample, Yalin et al., 2017; Dutch sample, Möller et al., 2014).

Specifically, previous studies with general and clinical populations have found evidence for one-factor structures for the Generalized Anxiety, Agoraphobia, Social Anxiety, and Panic scales (DeSousa et al., 2017; Knappe et al., 2014; Yalin et al., 2017). The Specific Phobia scale has shown a one-factor solution in clinical populations (e.g., Beesdo-Baum et al., 2012), but not in general populations (i.e., DeSousa et al., 2017). In addition, the scale scores have shown medium to large correlations with other scales that assess similar constructs (i.e., Social Anxiety, r=.47 to .62; Panic, r=.68 to .82; Agoraphobia, r=.36 to .73; Generalized Anxiety, r=.68 to .77) (DeSousa et al., 2017; Lebeau et al., 2012). These studies provide evidence about the structure and convergent validity of ASM. Regarding the scales' clinical sensitivity, large effect sizes were found for the Generalized Anxiety, Agoraphobia, Social Anxiety, and Panic scales (d >.80), with a medium effect size for the Specific Phobia scale (d =.72) (LeBeau, 2012), which adds evidence for the construct validity of the ASM scales. The Cronbach's alphas of the scales rank from .83 to .98, and the test-retest correlations (11 days on average later) from .71 to .84, show evidence of reliability of the scale scores, except for the Specific Phobia scale, with a test-retest correlation of .51 (LeBeau et al., 2012).

Taken together, preliminary evidence for the psychometric properties of the ASM is promising, at least for the Generalized Anxiety, Agoraphobia, Social Anxiety, and Panic scales, while the Specific Phobia requires further research due to its weak reliability and validity evidence, and because its latent structure is not clear, as do the Separation Anxiety scales due to lack of research. In addition, although ASM are available in Spanish (APA, 2014), as far as we know no previous study provides evidence for the validity and reliability of their scores. For these reasons, and following Muñiz and Fonseca-Pedrero's (2019) recommendations, we aim to provide evidence for: 1) the structure of the six Spanish language ASM; 2) Differential Item Functioning by sex; 3) scales' internal consistency; 4) convergent and discriminant validity (i.e., by relating them to internalizing and externalizing symptoms); 5) scales' criterion validity (i.e., relating them to personality traits, subjective satisfaction and quality of life) in a sample of young adults, a population that has shown a high prevalence of anxiety problems (e.g., American College Health Association-National College Health Assessment, 2019).

Based on previous studies, we hypothesized that one-factor solutions would provide adequate fit indices for five of the six ASM. With the Specific Phobia scale and based on the inconsistent results about its structure found in previous studies, we tested its structure in a more exploratory fashion. Scales' internal consistencies were expected to be higher than the standard cut-off of .70. We also expected higher associations of ASM with other scales that assess internalizing symptoms (i.e., worry, anxiety, depression) than with externalizing symptom scales (i.e., drug-related problems) (Kotov et al., 2017). Finally, we expected higher ASM scores to be negatively related to the emotional stability personality trait (Kotov et al., 2010), satisfaction with life (Proctor et al., 2009) and quality of life (Olatunji et al., 2007).

Method

Participants

A total of 858 college students from a university in eastern Spain participated, but only the data from the cases who completed the ASM (n = 567) were included in the present work. Also, we considered the drug use data only in the participants who reported alcohol use at least once or twice in the last 6 months (n=412), marijuana use in at least the last month (n=115), and who reported currently smoking tobacco (n =114). The participants included 31.7% (n=180) males and 68.3% (n=387) females with a mean age of 21.26 (SD=3.61) that ranged from 18 to 51 years. Most of the participants were single (85%), and 34% were first, 23% second, 18% third, 17% last (fourth or fifth year) academic year students, and 8% had already finished their studies.

Instruments

For all the measures (unless otherwise specified), we created composite scores by averaging items and reverse-coding items whenever appropriate to indicate that higher scores signify higher construct levels. See *Supplemental material* for descriptive and reliability indices for validity measures, available in https://osf.io/3wrbg/.

*Spanish version of Anxiety Severity Measures***.** We used the ASM freely published by the APA (2014), which used a five-point answer scale, from 0 (*never*) to 4 (*always*), but we made a few modifications compared with the original scales. Firstly, we changed the time frame of assessment to report the symptoms experienced "in the

last 6 months" instead of the 30 days of the initial (LeBeau et al., 2012) and other adapted versions (e.g., Beesdo-Baum et al., 2012), following the temporal criterion for anxiety disorders specified in the DSM-V (APA, 2013). The free online version published on the APA website uses a 7-day time frame (see https://www.psychiatry.org/psychiatrists/practice/dsm/educational-resources/assessment-measures). Secondly, we adapted the statement for each scale to an online assessment format. The Specific Phobia scale restricted feared situations to only one and was, thus, transformed into multiple-choice, in which each participant could specify more than one option. Furthermore, we included an "*Others (specify)*" option. The final version used in the present work is available upon request to the authors.

DSM-5 Self-rated Level 1 Cross-Cutting Symptom Measure. DSM-5 Self-rated Level 1 (APA, 2013) comprises 23 items to assess 13 psychopathology domains. The participants report the symptoms experienced in the last 14 days on a 5-point Likert Scale (from *none* or *not at all*, to *severe* or *nearly every day*). Previous studies have shown evidence of validity and reliability of its scores in youths (Bravo et al., 2018). The present study assessed the anxiety and depression domains.

Penn State Worry Questionnaire (PSWQ). We administered the PSWQ to evaluate the degree of worry as a core symptom of Generalized Anxiety Disorder. The questionnaire includes 16 items scored on a 5-point response scale from 0 (*none*) to 4 (*much*). Evidence of validity and reliability of its scores of the Spanish version is published at Nuevo et al. (2009).

Alcohol Use Disorder Identification Test (AUDIT). We assessed alcohol use and misuse with the 10-item AUDIT (Carretero et al., 2016). The participants answer the first eight items on a 5-point scale, and the last two items on a 3-point scale. It analyses two domains: consumption (three first items) and alcohol-related problems (seven last items). Previous studies have shown evidence of validity and reliability of its scores among college students (Carretero et al., 2016).

Brief Marijuana Consequences Questionnaire (BMCQ). We assessed marijuana-related problems with the BMCQ (e.g., impaired control, risky behaviors), which is composed of a 20-item dichotomous (*yes-no*) scale. Previous studies have shown evidence of validity and reliability of its scores among college students cross-nationally (Bravo et al., 2019).

Fagerström test for nicotine dependence. We evaluated nicotine dependence with the modified and Fagerström test, which comprises six items (Becoña & Vázquez, 1998). Previous studies have provided evidences of validity and reliability among college students (Arias-Gallegos et al., 2018).

Big Five Personality Trait Short Questionnaire (BFPTSQ). We evaluated the Five-Factor Model (FFM) of personality (aka Big five) with the Spanish version of the BFPTSQ (Ortet et al., 2017), which comprises 50 items answered on a 5-point response scale from 0 (*totally disagree*) to 4 (*totally agree*). It assesses the FFM broad domains: openness, extraversion, emotional stability, agreeableness and conscientiousness. Previous studies have provided evidences of validity and reliability of its scores across countries and gender (Mezquita et al., 2019).

Satisfaction with Life Scale (SWLS). We applied the SWLS (Vázquez et al., 2013) to measure subjective quality of life, which comprises five items that score on a 7-point scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). For consulting evidences of validity and reliability of its scores, see Esnaola et al. (2017).

Quality of Life Index (QL-I). The Quality of Life index (QL-I) comprises 10 items ranging from 0 (*bad*) to 10 (*excellent*). It assesses nine specific domains; Physical and Psychological/Emotional Well-being, Self-care and Independent Functioning, Occupational and Interpersonal Functioning, Social Emotional Support, Community and Services Support, Personal and Spiritual Fulfillment and a Global Perception of Quality of Life. Previous studies have reported validity evidences of this measure (Mezzich et al., 2000).

Procedure

Individuals provided informed consent before starting to participate. Before undertaking the assessment of the participants, the university's ethical committee approved the project in which the study was conducted. The students completed the main part of the assessment with an online survey on the Qualtrics platform, while a few other measures were completed in paper-and-pencil format (i.e., PSWQ and the AUDIT) when they went to the laboratory to receive their compensation of 5 euros.

Data Analysis

Firstly, we performed a Confirmatory Factor Analysis (CFA) of a single factor model to test the structural validity of the Agoraphobia, Social Anxiety, Separation Anxiety, Panic and Generalized Anxiety scales using Mplus 8.4. Due to the non-normality observed with all the scales (skewness ≥ 1.5; kurtosis ≥ 3.0) and sample size ($n \geq 500$), we applied a Diagonally weighted least squares (WLSMV) model estimator (Li, 2016). We evaluated the model's goodness-of-fit using the comparative fit index (CFI), the Tucker–Lewis Index (TLI) and the root mean square error of approximation (RMSEA). Thus CFI and TLI >.90 and >.95 indicated an acceptable and optimal fit, respectively (Marsh et al., 2004). RMSEA values ≤.10 indicate an acceptable fit (i.e., Weston & Gore, 2006). To test Differential Item Functioning (DIF) response by sex we followed steps to calculate a single covariate MIMIC model; (1) CFA for the total sample, (2) MIMIC model without direct effects, and (3) if the modification indices include significant direct effects, the model is tested with these suggested direct effects (Jones, 2006). With the Specific Phobia scale, we carried out an Exploratory Factor Analysis (EFA) using SPSS v.25, and we employed principal axis factoring and Oblimin method rotation. In order to select the number of retained factors, we performed a Parallel Analysis based on principal axis factoring. We also applied Cronbach's alpha (Cronbach, 1951) and Ordinal Omega coefficients (McDonald, 1999) to test the reliability of the scores using SPSS v.25 and Mplus 8.4, respectively. Finally, we performed a descriptive analysis of the sample, and Pearson's correlations between the ASM and the other scales, to explore the convergent, discriminant and criterion validity of the scales using SPSS v.25. According to Cohen (1992), correlation values ≥.10, .30 and .50 are considered a small, medium and large effect size, respectively.

Results

Structural validity evidence

Table 1 shows the fit indices of the one-factor CFA of the Agoraphobia, Social Anxiety, Separation Anxiety, Panic,

Generalized Anxiety scales. Among CFA analysis, the CFI and TLI went from .949 to .977 and .934 to .971, respectively, with acceptable to optimal fit indices (Marsh et al., 2004). However, the RMSEA values were higher than the recommended cut-off of .10 (Hu & Bentler, 1999). The factor loadings of each item on their factor were all significant and ranked from .670 to .921. They can be provided by the first author upon request.

When performing the EFA of the Specific Phobia Scale, the KMO (.87) and Bartlett's Test of Sphericity (X^2 =2890.63, *df* =45, *p* <.000) indicated that the extraction method fitted the data well. The parallel analysis showed the adequacy of retraining two factors. In the first factor, items from 1 to 5 and item 10 showed the highest factor loadings (see Table 2). These items represent an anxiety factor that explained 49.77% of variance. The second factor comprised items 6 to 9 and explained 14.20% of additional variance. This second factor represents the avoidance component of anxiety problems. It is noteworthy that items 8 and 9 also showed cross-loadings in the anxiety factor (see Table 2). A close association between anxiety and avoidance factors appeared (*r* =.59). Therefore, it would seem that the Spanish version of the Specific Phobia scale is composed of two differentiated, but also mutually dependent, facets.

Table 1
One-Factor Model Fit Indices

	Confirmatory Factor analysis				
	X²	**df**	**CFI**	**TLI**	**RMSEA (90% CI)**
Agoraphobia	359.938	35	.966	.956	.128 (*.116 - .140*)
Social Anxiety	312.730	35	.970	.961	.118 (*.106 - .130*)
Separation Anxiety	340.093	35	.956	.944	.123 (*.112 - .135*)
Panic	337.133	35	.977	.971	.123 (*.112 - .136*)
Generalized Anxiety	357.449	35	.949	.934	.127 (*.116 - .140*)

Table 2
Factor Loadings of Each Item on Its Factor for the Specific Phobia Scale

	Factor loadings	
	Anxiety	**Avoidance**
Item 1	**.75**	-.01
Item 2	**.79**	-.00
Item 3	**.77**	-.04
Item 4	**.74**	.00
Item 5	**.87**	-.06
Item 6	-.01	**.85**
Item 7	-.09	**.91**
Item 8	.32	**.41**
Item 9	.35	**.44**
Item 10	**.50**	.10

Note: To consult the content of each item see https://www.psychiatry.org/psychiatrists/practice/dsm/educational-resources/assessment-measures

Item validity evidence

Among DIF analyses, non-significant effects from sex were observed except for the Specific Phobia scale (see Table 3). Specifically, DIF by sex was found for item 10 (i.e., use of drugs to cope; males > females). After considering this direct effect among MIMIC model for Specific Phobia, no other significant effects were observed.

Reliability of the scores and descriptive statistics

Table 4 shows the descriptive data for males and females, and the reliability coefficients for each scale. Cronbach's alpha and Omega coefficients were all salient (>.70). There were no significant differences in the scale means for gender, except for the Specific Phobia scale, which was higher for females than males (Anxiety factor, t_{565}=2.573, *p*<.01, *d*=-.24; Avoidance factor, t_{565} =2.140, *p*<.05, *d*=-.20).

Convergent/discriminant validity evidence

Table 5 shows the correlations between each ASM with the other psychopathology measures and personality traits. As expected, the correlations between the ASM were higher with the internalizing than the externalizing measures, except for the tobacco severity index, which showed small/medium correlations with all the ASM, apart from Specific Phobia.

Criterion-related validity evidence

All the ASM scales showed the strongest association with the lower emotional stability personality trait, apart from the Social Anxiety Scale measure, which was related mainly to introversion, followed by lower emotional stability. All the ASM, except for the avoidance factor of the Specific Phobia scale, were negatively associated with subjective satisfaction and quality of life, save the Spiritual Fulfillment score (see Table 5).

Table 3
Model Fit Indices for DIF Analysis by Sex

	Models without direct effects					Models with direct effects				
	X²	**df**	**CFI**	**TLI**	**RMSEA (90% CI)**	**X²**	**df**	**CFI**	**TLI**	**RMSEA (90% CI)**
Agoraphobia	380.229	44	.966	.957	.116 (*.105-.127*)			–		
Social Anxiety	315.375	44	.972	.965	.104 (*.093-.115*)			–		
Separation Anxiety	356.447	44	.957	.946	.111 (*.101-.122*)			–		
Panic	367.267	44	.977	.971	.114 (*.103-.125*)			–		
Generalized Anxiety	375.006	44	.950	.937	.115 (*.105-.126*)			–		
Specific Phobia	464.650	53	.940	.920	.133 (*.122-.144*)	447.431	41	.942	.923	.132 (*.121-.143*)

Table 4
Descriptives for Males and Females and Reliability Coefficients

	Agoraphobia	Social Anxiety	Separation Anxiety	Panic	Generalized Anxiety	Specific Phobia	
						Anxiety	Avoidance
Cronbach's Alpha *(95% CI)*	.92 *(.91-.93)*	.92 *(.91-.93)*	.90 *(.89-.91)*	.93 *(.92-.94)*	.90 *(.89-.92)*	.88 (.86-.89)	.82 (.80-.84)
Male	.91 *(.90-.93)*	.91 *(.89-.93)*	.91 *(.88-.91)*	.94 *(.92-.95)*	.90 *(.87-.92)*	.88 *(.85-.90)*	.83 *(.78-.87)*
Female	.91 *(.90-.93)*	.93 *(.92-.94)*	.89 *(.87-.91)*	.93 *(.92-.94)*	.91 *(.89-.92)*	.88 *(.86-.90)*	.82 *(.79-.85)*
Omega *(95% CI)*	.92 *(.90-.93)*	.93 *(.91-.94)*	.90 *(.88-.92)*	.93 *(.92-.95)*	.91 *(.88-.92)*	.88 *(.87-.90)*	.82 *(.79-.85)*
Male	.92 *(.90-.94)*	.92 *(.90-.93)*	.91 *(.89-.93)*	.94 *(.92-.96)*	.90 *(.87-.92)*	.88 *(.83-.92)*	.82 *(.77-.87)*
Female	.92 *(.90-.93)*	.93 *(.92-.95)*	.90 *(.87-.92)*	.93 *(.91-.95)*	.91 *(.89-.93)*	.89 *(.86-.91)*	.82 *(.79-.85)*
Mean score (SD)	4.16 (5.35)	6.62 (6.61)	4.17 (5.34)	3.45 (5.81)	7.21 (6.12)	4.36 (4.56)	3.93 (3.69)
Male	4.37 (5.44)	6.68 (6.45)	4.50 (5.86)	3.68 (5.99)	6.57 (5.84)	3.64 (4.26)**	3.44 (3.56)*
Female	4.06 (5.31)	6.60 (6.70)	4.03 (5.09)	3.34 (5.73)	7.51 (6.23)	4.69 (4.66)**	4.16 (3.73)*

Note: Statistically significant differences between men and women at * $p < .05$ and ** $p < .01$

Table 5
Pearson Correlations between Anxiety Severity Measures and Outcomes

	Agoraphobia	Social Anxiety	Separation Anxiety	Panic	Generalized Anxiety	Specific phobia	
						Anxiety	Avoidance
Internalizing-related measures							
PSWQ	.28***	.28***	.33***	.29***	.40***	.28***	.14**
DSM-5 L1 - Anxiety	.31***	.36***	.35***	.38***	.44***	.31***	.17***
DSM-5 L1 - Depression	.25***	.29***	.27***	.26***	.36***	.25***	.12**
Externalizing-related measures							
AUDIT- alcohol consumption	-.06	.03	-.09	-.03	-.02	-.03	.01
AUDIT- alcohol-related problems	.11*	.11*	.14**	.13**	.14**	.04	.06
Brief Marijuana Consequences Questionnaire	.19*	.14	.28**	.08	.17	.01	-.07
Fagerström test	.31**	.25**	.29**	.27**	.22*	.07	.03
Criterion measures							
Personality traits							
Emotional Stability	-.23***	-.31***	-.29***	-.27***	-.38***	-.33***	-.14**
Extraversion	-.16***	-.37***	-.14**	-.08	-.10*	-.12**	-.06
Conscientiousness	-.07	-.17***	-.10*	-.06	-.12**	.11**	-.08
Openness	-.05	-.08	-.09*	.00	-.06	.02	-.01
Agreeableness	-.12**	-.17***	-.16***	-.15***	-.16***	-.13**	-.10*
Satisfaction with Life Scale	-.24***	-.29***	-.25***	-.25***	-.35***	-.20***	-.07
Quality of life:							
Physical Well-being	-.23***	-.22***	-.25***	-.28***	-.35***	-.26***	-.16***
Psychological/Emotional Well-being	-.30***	-.35***	-.34***	-.33***	-.45***	-.31***	-.14**
Self-Care/Independent Functioning	-.27***	-.27***	-.35***	-.30***	-.33***	-.20***	-.08
Occupational Functioning	-.16***	-.17***	-.28***	-.20***	-.26***	-.15***	-.06
Interpersonal Functioning	-.29***	-.31***	-.33***	-.28***	-.33***	-.21***	-.06
Social Emotional Support	-.24***	-.18***	-.29***	-.23***	-.24***	-.16***	-.03
Community/Services Support	-.20***	-.21***	-.22***	-.29***	-.30***	-.17***	-.05
Personal Fulfillment	-.30***	-.38***	-.35***	-.34***	-.42***	-.24***	-.10*
Spiritual Fulfillment	-.04	-.13**	-.04	-.08	-.13**	-.11**	-.00
Overall Quality of Life	-.29***	-.31***	-.33***	-.33***	-.41***	-.21***	-.08

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Discussion

The latest edition of the DSM recognizes the need to dimensionally assess psychopathology. Although studies across countries have provided validity and reliability evidence for the ASM (APA, 2013), to our knowledge none of them has been studied in Spanish-speaking populations. Therefore, the aim of this study was to provide evidence of the psychometric properties of the six ASM from the DSM-5 (i.e., Agoraphobia, Specific Phobia, Social Anxiety, Separation Anxiety, Panic, Generalized Anxiety

scales) among young Spanish adults. We tested their structural configuration, DIF by sex, their internal consistency coefficients, and its association with different psychopathology, personality, quality of life and satisfaction with life measures.

The CFA results showed acceptable to adequate fit indices (CFI and TLI) for the one-factor solutions for the Agoraphobia, Social Anxiety, Separation Anxiety, Panic and Generalized Anxiety scales. Although the RMSEA coefficients were higher than the recommended cut-off of .10, this was expected given the non-normality scores distribution (Li, 2016). In accordance with previous studies, all five scales showed evidence for a unidimensional structure, which supports using a single overall score. In addition, no DIF by sex were observed, thereby indicating evidence of item validity in both sex groups.

With the Specific Phobia scale, two correlated subfactors or facets appeared. The first facet, named *Anxiety*, comprises items that assess cognitive and physical symptoms, while the second, named *Avoidance* assesses cognitive and behavioral avoidance. Previous research has found a one-factor solution of this scale to be adequate in a clinical sample (Beesdo-Baum et al., 2012). Conversely, a one-factor solution proved inadequate when testing the scale structure in a community sample (DeSousa et al., 2017). Thus, previous results, along with the present study, suggest that the latent structure of the Specific Phobia construct, as measured by the ASM of DSM-5, varies according to sample characteristics (i.e., community *vs*. clinical samples). However, as far as we know, only two studies in a German clinical sample and a Brazilian community sample evidence this scale's structure (Beesdo-Baum et al., 2012; DeSousa et al., 2017). Therefore, and also considering that DIF by sex was observed in one item of the scale, more structural validity evidences of this scale are needed in future research.

Regarding the reliability of scores, the Cronbach's alpha and omega coefficients were over .70 in the overall sample, and also across sex groups. As far as we know, these results provide the first evidence of reliability of the scores of the Spanish DSM-5 ASM.

To provide convergent/discriminant validity evidences of ASM, we related them to internalizing and externalizing symptoms. In line with the HiTOP model of psychopathology (Kotov et al., 2017), all six scales were significantly and more closely associated with internalizing (e.g., worry, anxiety and depression symptoms) than externalizing measures (drug use measures). However, the nicotine dependence scores were positively associated with all six scales. This finding is consistent with previous results, which indicate that nicotine-dependent patients are at higher risk of presenting more severe anxiety symptoms than non-nicotine-dependent individuals (Jamal et al., 2012). Furthermore, although our results provide convergent/discriminant validity evidences of ASM, the magnitude of correlations was lower than that found in previous studies (DeSousa et al., 2017; LeBeau et al., 2012). This finding could be due to either the modification to the assessed time frame or the selected measures to provide convergent/discriminant validity evidences. Finally, in accordance with the literature (Kotov et al., 2010; Olatunji et al., 2007; Proctor et al., 2009), we found significant and negative associations among all six scales and criterion measures (i.e. emotional stability, satisfaction with life, quality of life domains).

Although we believe that the present study makes an important contribution to the field, it also has several limitations. Firstly, as we used a sample of college students, it is necessary to investigate its generalization to other populations (e.g., clinical populations). Secondly, due to time limitations during the assessment sessions, we included only a few measures to test the convergent and discriminant validity of the scales. Therefore, it would be advisable to include specific measures for all six anxiety problems (e.g., Fear Questionnaire for phobias, Marks & Mathews, 1979), and other scales to assess externalizing symptoms rather than only drug use measures (e.g., antisocial behavior or non-substance addictions, Loranger et al., 1994) in future studies. Related to the drug use variables, despite there being evidence that self-report surveys are potentially and reasonably accurate measures of consumption (Northcote & Livingston, 2011), the addition of more objective measures to assess drug use (e.g., breath alcohol concentration) is recommended.

Despite these limitations, the present research provides the first empirical evidences on the psychometric properties of Spanish DSM-5 ASM. Specifically, we provide evidence for the structure, reliability, convergent/discriminant and criterion validity of the Agoraphobia, Social Anxiety, Separation Anxiety, Panic, Generalized Anxiety and Specific Phobia DSM-5 scales in college students from Spain. Therefore, these scales are suitable assessment tools for measuring the anxiety disorder-related symptoms from DSM-5 in Spanish-speaking individuals in both sexes, except the Specific Phobia scale which required a further examination.

These issues are highly relevant considering that the vast majority of psychological problems are already present in college students at pre-matriculation, which has been related to high odds of attrition, and anxiety problems were the most prevalent cross-national class of disorders (Auerbach et al., 2016). Hence using these short self-reported measures can help to reduce the time spent on assessing individuals (National Guideline Alliance., 2016), and cut long waiting lists for mental health services, as common barriers to participate in treatment (e.g., among college students, Vidourek et al., 2014). All in all, these scales can help both clinical and research efforts as efficient ways to adopt early screening strategies.

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