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Psychometric properties of the social anxiety subscale of the Youth Anxiety Measure for DSM-5 (YAM-5-I-SAD) in a clinical sample of Spanish-speaking adolescents☆

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ABSTRACT

Background: The Youth Anxiety Measure-I for DSM-5 has recently been developed to assess youth's anxiety symptomatology. As social anxiety is one of the most common disorders in adolescence, this scale includes a subscale measuring social anxiety. However, psychometric properties of the YAM-5-I social anxiety subscale (YAM-5-I-SAD) in clinical samples are lacking. This paper aims to bridge the gap.
Methods: The sample comprised 24 clinically diagnosed and 24 healthy control Spanish-speaking adolescents aged 14–17 years.
Results: Data revealed that the YAM-5- I-SAD yielded excellent sensitivity, which makes it particularly useful as a screening tool to early detect socially anxious adolescents. In addition, the YAM-5-I-SAD evidenced good internal consistency and construct validity.
Limitations: Data are limited to the social anxiety subscale.
Conclusions: The YAM-5-I-SAD is a sensitive and specific measure to screen for adolescents with social anxiety.

1. Introduction

Social anxiety disorder (SAD) is defined by "marked fear or anxiety about one or more social situations in which the individual is exposed to possible scrutiny by others" (American Psychiatric Association, 2013). SAD is one of the most prevalent pediatric mental disorders and tends to become chronic if untreated (Wong and Rapee, 2015).

Even though there are measures with excellent psychometric properties to screen teenagers for SAD (for a review, please see Garcia-Lopez et al., 2015), there have not been any single scales that assess numerous DSM-5 anxiety disorders separation anxiety disorder, generalized anxiety disorder, panic disorder, social anxiety disorder, and selective mutism. The Youth Anxiety Measure-I for DSM-5 has recently been developed by Muris et al. (2017) for assessing symptoms of these disorders, with high reliability in Dutch and Spanish-speaking youth community samples (Garcia-Lopez et al., 2017; Muris et al., 2017). As social anxiety is one of the most common disorders in adolescence, this measure includes a subscale measuring social anxiety. However, psychometric properties of the YAM-5-I social anxiety subscale (YAM-5-I-SAD) in clinical samples are lacking.

As a first step to bridge this gap, the present study aims to examine the psychometric properties of the YAM-5-I 3-item social anxiety subscale (YAM-5-I-SAD) in a clinical sample identified by Garcia-Lopez et al. (2017). SAD remains underdetected and, therefore, undertreated, despite data revealing how mental disorders are the largest contributor to the all-cause morbidity burden as measured by global disability-adjusted life years (Wittchen et al., 2011). By using brief measures aligned with updated diagnostic manuals, socially anxious adolescents can be screened by researchers and clinicians worldwide, and would likely result in reduced burden.

2. Methods

2.1. Participants

The sample comprised 48 participants aged between 14 and 17 years (M = 15.29, SD = .96), of which 19 (39.58%) were boys. One-half of participants, aged between 14 and 17 years (M = 15.20, SD = .93), had a clinical diagnosis of SAD; seven (29.16%) were boys. The clinical sample received a primary clinical diagnosis of SAD, with a

☆ Research has been approved by the University and School Research Ethics Committee in compliance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) and the Charter of Fundamental Rights of the European Union.

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clinician-severity rating (CSR) ranging from 4 to 8 (M = 5.29, SD = 3.55); the age of onset was 6.29 (SD = 4.66); and the average number of comorbid disorders ranged from 0 to 6 (M = 1.17, SD = 1.20). Healthy control adolescents (50% boys) received no mental health diagnosis (M age = 15.25, SD = .94). Public and private schools were selected using a clustered random sampling method from the school lists of the Department of Education to ensure that the sample's socioeconomic status and ethnic composition were representative of the community. Data were collected within the context of a larger research project focused on youth's social anxiety.

Power analysis using G*Power (Faul et al., 2009) showed that a bivariate correlation of .43 could be detected at power of .95, alpha of .05 (one-tailed) with 48 participants. In the Receiver Operating Characteristic (ROC) analysis, a sample comprising 24 cases and 24 controls also provided power of .95 to distinguish an area under the curve of .78 from a null hypothesis of .5 in a one-tailed test, alpha = .05. No statistical age or gender differences between SAD and healthy conditions were observed.

2.2. Measures

The *Anxiety Disorders Interview Schedule for DSM-5 – Child and Parent Versions* (ADIS5-C/P; Albano and Silverman, 2018) assesses anxiety disorders in youth aged six to 17 years and is organized according to anxiety disorders included in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition ([DSM-5]; APA, 2013). The ADIS-5-C/P consists of comparable yet separate child and parent interviews. A Spanish translation by authors was administered subsequent to obtaining Oxford University Press' approval for the ADIS5-C/P to be used for research purposes.

The *Social Phobia and Anxiety Inventory, Brief Form* (SPAI-B; Garcia-Lopez et al., 2008) is a short version of the SPAI that measures cognitive, somatic and behavioral symptoms, as well as interactional and performance-based social situations. It comprises 16 items using a 5-point Likert scale. This tool has been tested across different samples. Some research has demonstrated excellent psychometric properties of the SPAI-B (for a review, please see Garcia-Lopez et al., 2015).

The *Social Anxiety Scale for Adolescents* (SAS-A; La Greca and Lopez, 1998) contains three subscales: Fear of Negative Evaluation, Social Avoidance and Distress specific to new situations or unfamiliar peers, and Social Avoidance and Distress that is experienced more generally in the company of peers. It comprises 22 items rated on a 5- point Likert scale ranging from 1 = never to 5 = always. A Total score can also be computed. The scale has been translated and adapted for use in different cultures and languages, demonstrating favorable psychometric properties (Garcia-Lopez et al., 2015).

The *Children's Depression Inventory* (CDI; Kovacs, 1992) consists of 27 items and is used to measure the severity of the depressive syndrome in children and adolescents. Kovacs (1992) found good psychometric properties in clinical and healthy samples.

The *YAM-5 Part I* (Muris et al., 2017) measures symptoms of the major types of anxiety disorders. Based on a previous study (Garcia-Lopez et al., 2017), the social anxiety subscale (YAM-5-I-SAD) comprises three items.

2.3. Procedure

Parents and children were informed about the voluntary nature of participating in data collection and a consent form for this purpose was accompanied in the information letter. After obtaining consent from the adolescents and their parents/legal guardians, research assistants conducted the diagnostic interview (ADIS5-C) individually in the school setting (mean: 120 min; range: 75–150 min). Students also filled in additional social anxiety and depression measures. Parents were also administered the parent version (ADIS5-P; mean: 110 min; range: 70–135 min). Interviews were conducted by clinical psychology graduate students blinded to the objectives of the study. The study was approved by the school district and the University Research Ethics Committee in compliance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) and the Charter of Fundamental Rights of the European Union.

2.4. Statistical analysis

Age and gender differences were tested by means of analysis of variance (ANOVA). Cronbach's alpha, the greatest lower bound (glb), and the omega total coefficient were used to examine the internal consistency of the YAM-5-I-SAD. Glb and omega total coefficients were calculated using the psych and coefficient alpha packages (Revelle, 2015; Tong et al., 2014) in R statistical software (R Core Team, 2016). Construct validity was examined by calculating Pearson product-moment correlation coefficients. Correlation coefficients between .10 and .29 are indicative of a weak association, between .30 and .49 of a moderate association, and .50 or higher of a strong association (Cohen, 1988).

To determine the accuracy of the social anxiety measures in comparison with the diagnostic interview, receiver operating characteristic (ROC) curves were calculated. To identify the screening cut-off score, socially anxious adolescents were compared with their non-socially anxious peers. The Youden index, which is a function of sensitivity and specificity, provides a criterion for choosing the "optimal" threshold value and was used for this purpose. ROC curves were computed for the subscales and total scores of each anxiety measure (YAM5-I-SAD, SPAI-B, FNE/SAS-A, SAD-N/SAS-A, SAD-G/SAS-A and SAS-A Total score) to assess their ability to detect social anxiety disorder. We tested for significant differences in areas under curve (AUCs) using the method developed by DeLong et al. (1988). Sensitivity, specificity, positive predictive value, negative predictive value, positive diagnostic likelihood ratio, and negative diagnostic likelihood ratio were calculated using the optimal cut-off score for each of the different measures. All analyses were conducted using R version 3.3.2 (OptimalCutpoints, pROC, and epiR packages).

3. Results

3.1. Internal consistency

Internal consistency (Cronbach's alpha) of the YAM-5-I-SAD scale was found to be .88, the glb was .90, and the omega total coefficient was .89 (CI 95%; .84–.92).

3.2. Accuracy of the YAM-5-I-SAD as a screening measure for a SAD diagnosis

The AUC value of the ROC curves in the complete sample for the YAM-5-I- SAD was 1, indicating a high accuracy for identifying adolescents at risk for SAD. As can be seen in Table 1, a cut-off score of 4 in the YAM-5-I-SAD produced optimal screening with excellent sensitivity

Table 1
Construct validity. Correlations between scale.

	SPAI-B_TOTAL	CDI_TOTAL	FNE	SAD_N	SAD_G	SAS-ATOTAL
SPAI-B_TOTAL	–					
CDI_TOTAL	.69**					
FNE	.82**	.70**				
SAD_N	.82**	.57**	.74**			
SAD_G	.79**	.60**	.76**	.78**		
SAS-A_TOTAL	.89**	.70**	.94**	.90**	.89**	
YAM-5-I-SAD	.84**	.52**	.85**	.78**	.79**	.88**

** p < .01 statistically significant.

Table 2
AUC, optimal cut-off scores (highest Youden index value), and associated performance indexes of the different scales for the complete sample.

	AUC	ll	ul	Cut-off	Se	Sp	PPV	NPV	DLR+	DLR-
SPAIB_TOTAL	.99	.97	1.01	24.65	.92	1.00	1.00	.92	–	.08
FNE	.98	.94	1.01	19.00	1.00	.88	.89	1.00	8.00	.00
SAD_N	.94	.87	1.00	17.00	.96	.79	.82	.95	4.60	.05
SAD_G	.95	.88	1.02	8.00	.92	.88	.88	.91	7.33	.10
SASA_TOTAL	.99	.97	1.01	45.00	.96	.96	.96	.96	23.00	.04
YAM-5-I-SAD	1.00	.99	1.00	4.00	1.00	.96	.96	1.00	24.00	.00

Area Under Curve (AUC) (with 95% confidence interval; ll: lower limit, ul: upper limit), optimal cut-off scores (highest Youden index value), and associated performance indexes of the different scales for the complete sample. Se: sensitivity; Sp: specificity; PPV: positive predictive value; NPV: negative predictive value; DLR+: positive diagnostic likelihood ratio; DLR-: negative diagnostic likelihood ratio.

and specificity of 1.00 and .96 respectively, a positive predictive value (PPV) of .96, and a negative predictive value (NPV) of 1. Based on DeLong's test and AUC values, no significant differences were observed between the SAS-A, the SPAI-B and the YAM-5-I-SAD. Therefore, SPAI-B, SAS-A and YAM 5-I-SAD had similar sensitivity and specificity (Table 2).

3.3. Gender and age differences

The ANOVA showed that boys and girls did not differ significantly in their YAM-5-I- SAD scores ($p > .05$). No significant main effects of age or interaction effects of gender and age were found.

3.4. Construct validity

Pearson product-moment correlations were computed between the YAM-5-I-SAD score and conceptually related social anxiety measures and mood measures. Table 1 shows correlations between all scales. The correlations between the YAM-5-I-SAD subscale and the SPAI-B, FNE subscale and Total score of the SAS-A were very high. The YAM-5-I-SAD subscale also correlated strongly with both SAD subscales of the SAS-A. Finally, the YAM-5-I-SAD subscale correlated highly with the CDI.

These high correlations (above .50) suggest that all scores and subscales are highly correlated. The correlation coefficients were statistically significant in all cases ($p < .01$).

In addition, correlations between social anxiety scales such as the SPAI-B and the FNE, SAD-N subscales and Total score of the SAS-A were very high. The SPAI-B also correlated strongly with the SAD-G subscale and moderately with the CDI, whereas SAS-A measures correlated highly with its subscale but to a lesser extent with the CDI.These high correlations (above .50) suggest that social anxiety and depressive scores and subscales are highly correlated. The correlation coefficients were statistically significant in all cases ($p < .01$).

4. Discussion

Based on the AUC for the ROC, the results demonstrate the discriminative capacity of social anxiety scales in differentiating between populations. Due to the absence of differences among scales, researchers and clinicians may be interested in administering a more sensitive (YAM-5-I-SAD), specific (SPAI-B) or balanced measure (SAS-A) for screening purposes. As for the predictive validity of the YAM-5- I-SAD, the cut-off score of 4 seems appropriate when differentiating adolescents with social anxiety disorder from the general population.

The YAM-5-I-SAD correlated significantly with all scales, but the highest correlations (above .75) corresponded to scales that measure social anxiety (SPAI- B and SAS-A subscales), thus supporting concurrent validity evidence of the YAM-5-I- SAD score in Spanish-speaking adolescents. However, the magnitude of the correlations with the SAS-A reveals that even though these scales provide similar information, they do not tap the same part of the social anxiety construct. Above .50 correlations with the depression scale also suggests the need for transdiagnostic approaches, given that symptoms of SAD appear alongside symptoms of depression. For this reason, more interventions addressing comorbidity are necessary.

Finally, some limitations should be noted. Due to the small sample size, performance-only specifier data could not be reported. Second, the subscale is limited to three items. However, even with such a restricted number of items, the data reveal that the YAM-5-I-SAD evidences good psychometric properties. As has been reported, three items are enough to explain a construct (Brown, 2015; Osborne and Costello, 2009; Terwee et al., 2012). Further studies should evaluate whether the psychometric properties of the YAM-5-I-SAD can be generalized to younger populations, in line with Simon et al.'s (2017) study involving Dutch children. Similarly, cross-cultural and transnational studies are needed in order to apply this measure in other countries and cultures. Furthermore, a comparison of results from different samples is required

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