Brief Report

Optimal Cut-Off Score of Social Phobia and Anxiety Inventory-Brief Form

Detecting DSM-5 Social Anxiety Disorder and Performance-Only Specifier

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Abstract: No cut-off scores for the Social Phobia and Anxiety Inventory-Brief (SPAI-B) are available to screen for young adults with and without social anxiety disorder (SAD). In addition, there is a currently heated debate on the utility of the performance-only specifier in DSM-5. The present study is aimed at covering these gaps. Participants included 124 young adults in higher education with a clinical diagnosis of SAD and 81 healthy controls. The SPAI-B scores revealed a continuum of severity among the nonclinical population, performance-only specifier participants, and those with both performance and social interactional fears. Data suggested to use a rounded cut-off of 24 to screen for patients with both performance and interactional fears, and a rounded cut-off score of 23 for young adults with performance-only specifier. Findings demonstrated that the SPAI-B is particularly useful as a screening measure among young adults in higher education, but the limited discriminative capacity of the performance-only specifier may call into question the clinical utility of this recently established specifier.

Keywords: social anxiety, social anxiety disorder, SPAI-B, performance-only specifier, screening

Among the well-established social anxiety measures is the *Social Phobia and Anxiety Inventory* (SPAI; Turner, Beidel, Dancu, & Standley, 1989). Although the SPAI has excellent psychometric properties, its utility as a screening instrument may be limited due to its length. In an attempt to resolve this situation, the main authors of the original scale along with other colleagues developed a brief form, namely the SPAI-B (Garcia-Lopez, Hidalgo, Beidel, Olivares, & Turner, 2008). It is a brief version of the SPAI, albeit different in terms of the Likert scale format used, the number of items, and avoidance of heterocentric language, as recently proposed by Weiss, Hope, and Capozzoli (2013). This scale has been validated for adolescents and young adults in both online and paper-and-pencil format, particularly to be used as a screening measure (Garcia-Lopez, Sáez-Castillo, Beidel, & La Greca, 2015; Piqueras, Espinosa-Fernandez, Garcia-Lopez, & Beidel, 2012; Vieira, Salvador, Matos, Garcia-Lopez, & Beidel, 2013). However, no normative data are available. The present study aimed to establish SPAI-B cut-off scores to screen for young adults with and without social anxiety disorder (SAD). Given the current debate (Heimberg et al., 2014) after a performance-only specifier has been added to characterize individuals whose anxiety is limited to speaking or performing in public in DSM-5 (APA, 2013), we also examined whether a different cut-off score is needed for young adults in higher education using a performance-only specifier compared to (a) those with a full spectrum of SAD symptomatology and (b) healthy controls (absence of mental health diagnosis). Finally, we assessed the need to have normative data based on gender.

Methods

Participants

The sample comprised 205 young adults (27% men, 73% women) studying at the University of Jaen, a midsize southeast Province in Spain. Eighty-six percent and 14% of the sample were undergraduate and graduate students, respectively. The mean age was 21 years (*SD* = 3.33, range = 18–41 years).

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Table 1. Sociodemographic data, means (standard deviations), and comorbidity rates

	Healthy group	SAD, limited to performance-only specifier	SAD, excluding performance-only specifier	SAD, full spectrum	*p*'s (effect size, Cohen's *d*)
N	81	33	91	124	
Mean of age (*SD*)	21.53 (2.50)	20.84 (2.53)	21.53 (3.84)	21.35 (3.59)	*ns*
Female gender (number and frequencies)	43 (53.1%)	29 (87.9%)	78 (85.7%)	107 (86.3%)	Any SAD condition > Healthy .001[a]
SPAI-B means (*SD*)	15.90 (7.42)	26.90 (8.99)	37.66 (10.22)	34.86 (10.96)	SAD, no specifier > Healthy .001 (2.43)*** SAD, specifier > Healthy .001 (1.32)*** SAD, full > Healthy .001 (2.03)*** SAD, no specifier > SAD, specifier .001 (1.12)***
COMORBIDITY (number and frequencies)	0	16 (48.5%)	73 (80.2%)	89 (71.8%)	SAD, no specifier > Healthy .001 (1.84)*** SAD, specifier > Healthy .001 (1.55)*** SAD, full > Healthy .001 (1.67)*** SAD, no specifier > SAD, specifier .05 (0.46)*
Panic disorder without agoraphobia	0	2 (6.1%)	5 (5.5%)	7 (5.6%)	*ns*
Agoraphobia without history of panic disorder	0	0	4 (4.4%)	4 (3.2%)	*ns*
Specific phobia	0	11 (33.3%)	33 (30.3%)	4 (35.5%)	SAD, no specifier > Healthy .001 (1.50)*** SAD, specifier > Healthy .001 (1.36)*** SAD, full > Healthy .001 (1.42)***
Generalized anxiety disorder	0	1 (3%)	20 (22%)	21 (16.9%)	SAD, no specifier > Healthy .001 (1.58)*** SAD, full > Healthy .001 (1.45)*** SAD, no specifier > SAD, specifier .013 (0.51)**
Posttraumatic stress disorder	0	0	0	0	N/A
Obsessive-compulsive disorder	0	1 (3%)	0	1 (0.8%)	*ns*
Major depression	0	0	6 (6.6%)	6 (4.8%)	*ns*
Dysthymic disorder	0	0	1 (1.1%)	1 (0.8%)	*ns*
Attention-deficit/hyperactivity disorder	0	1 (3%)	4 (4.4%)	5 (4.0%)	*ns*

Notes. SAD = Social Anxiety Disorder; [a]All phi values were < .4 for chi-square test; *Small effect size; **Medium effect size; ***Large effect size (Cohen, 1988) for *t*-test comparisons.

The inclusion criteria were:

(a) primary diagnosis of SAD (clinical sample) or no mental health diagnosis (healthy controls);
(b) subjects aged 18 years and above; and
(c) written informed consent.

Exclusion criteria were:

(a) current suicidal intent or risk; and
(b) a positive diagnosis of mental retardation, psychosis, or other psychiatric conditions that would limit their ability to understand assessment.

The clinical sample was composed by 124 young adults with a clinical, primary diagnosis of SAD (with or without the performance-only specifier). Among them, 33 (27%) participants met criteria for the performance-only specifier and 91 (73%) exhibited both social performance and interactional fears, resulting in a diagnosis of SAD. The healthy controls comprised 81 participants who received no mental health diagnosis.

Table 1 shows the sociodemographic characteristics and comorbidity rates for each condition. There were statistically significant gender differences between healthy and SAD groups, but phi value was low; and small size and gender imbalance in the clinical sample should be noted. As it can be seen, socially anxious adults exhibited a significantly higher number of comorbid disorders than healthy controls, particularly specific phobia and GAD. The participants with performance-only specifier differed from those with SAD (without the specifier) in overall and GAD comorbidity rates, although with small and medium effect sizes, respectively, according to Cohen (1988), who stated .2 indicates a small effect size, .5 indicates medium, and .8 large effect size.

Procedure

Participants with SAD were recruited through local advertisements to participate after providing informed consent. The healthy controls were recruited to undergo an experimental task aimed at examining selective directed forgetting in the young adult population. Participants filled in the scales in paper-and-pencil format, and interviews were conducted in a private room. The University Research Ethics Committee approved the study.

Measures

Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; DiNardo, Brown, & Barlow, 1994). Although designed specifically to diagnose anxiety disorders, the interview also assesses mood disorders and Attention-Deficit/Hyperactivity Disorder (ADHD). Additionally, it includes screening questions for a range of other disorders (Substance Abuse, Schizophrenia, Eating Disorders, Somatoform Disorders). The social phobia section (ADIS-SP) was used as the reference standard. In addition, DSM-5 criteria were adopted to classify performance-only participants as matching with the DSM-5 specifier. Furthermore, duration of fears and sociocultural context were taken into consideration for SAD diagnosis. Trained clinical psychology graduate students under the supervision of the first author administered the interview. The training included assigned readings on SAD, didactic seminar on the ADIS-IV, and at least three role-playing interviews.

The *Social Phobia and Anxiety Inventory, Brief form* (SPAI-B; Garcia-Lopez et al., 2008) assesses the three-response system approach (Lang, 1968) and both interactional and performance social situations. It consists of 16 items answered on a 5-point Likert-type scale. Items 15 and 16 are comprised of sub-items related to somatic symptoms; hence, item 15 is scored as the average of 4 sub-items, and item 16 as the average of 5 sub-items. Therefore, two decimals can be obtained. The SPAI-B score is the sum of item ratings minus 16. As a result, a total score can also be computed (range: 0–64). In this study, the scale has demonstrated excellent internal consistency (Cronbach's α coefficient value = .92).

Results

SPAI-B means and standard deviations across conditions were compared. Statistically significant differences were observed for healthy versus any SAD diagnosis groups as well as for participants with SAD (excluding those with the performance-only specifier) in comparison to those with the performance-only specifier, with all p's < .001 and large effect sizes, d's > .80 (see Table 1). In addition, young adults with the performance-only specifier exhibited statistically significant higher comorbidity with specific phobia compared to mentally health controls (large effect size), but only differed from those with SAD (excluding the specifier) in lower SPAI-B scores (large effect size) and comorbidity rates with GAD (moderate effect size).

The receiver operating characteristic (ROC) curve and the area under the curve (AUC) were analyzed to determine the best possible cut-off score. The results revealed that the area under the ROC curve was 0.95 (CI = 0.92–0.97) for healthy controls versus participants with diagnosis of SAD (both social performance and interactional fears), excluding those participants with the performance-only specifier. Concerning healthy versus performance-only specifier groups, the AUC was 0.83 (CI = 0.80–0.86). Considering healthy controls versus those with a full SAD spectrum, the AUC for the ROC was 0.92 (CI = 0.90–0.93). Finally, the area under the ROC curve was 0.79 (CI = 0.77–0.81) for participants with SAD (excluding those with the performance-only specifier) in comparison to those with the performance-only specifier, which suggests that there is a 79% probability that a young adult with SAD (excluding those with the performance-only specifier) will score higher on the SPAI-B than a young adult with a performance-only diagnosis of SAD.

We examined the sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), positive likelihood ratio, negative likelihood ratio, and the Youden Index for selected cut-off scores. The results showed that a cut-off score of 23.62 produced the best balance to discriminate healthy and SAD participants (excluding those with performance-only specifier), with good sensitivity (87%; 95% CI, 80–93) and specificity (91%; 95% CI, 85–98), a PPV of 92 (95% CI, 87–97), and a NPV of 86 (95% CI, 80–93). The corresponding Youden Index was .78. For the healthy versus performance-only specifier comparison, the results showed that a cut-off score of 23.00 produced the best balance, with good sensitivity (72%; 95% CI, 53–84), good specificity (90%; 95% CI, 83–96), a PPV of 74 (95% CI, 61–88), a NPV of 89 (95% CI, 79–91), and a Youden Index of .57. A cut-off score of 23.18 produced the best balance for the healthy controls versus those with a full SAD spectrum, with good sensitivity (82%; 95% CI, 75–89), good specificity (91%; 95% CI, 85–98), a PPV of 94 (95% CI, 89–98), and a NPV of 77 (95% CI, 71–84). The corresponding Youden Index was .74. Finally, for the participants with SAD (excluding those with the performance-only specifier) and the performance-only specifier comparison, a cut-off score of 32.75 produced the best balance, with good sensitivity (84%; 95% CI, 72–97), good specificity (73%; 95% CI, 63–81), a PPV of 52 (95% CI, 44–62), and a NPV of 93 (95% CI, 88–98). The corresponding Youden Index was .57.

Discussion

The manuscript presents with SPAI-B cut-off scores to detect young adults without and with social anxiety disorder (including individuals with performance-only social anxiety disorder) to be used in clinical practice.

First, the means across conditions reflect a continuum of severity from low social anxiety symptomatology (mild

SPAI-B scores) for healthy controls to moderate scores for the performance-only specifier participants and the highest scores for young adults with the full SAD spectrum, with statistical differences among groups. This is consistent with a dimensional solution, suggesting that it exists on a continuum of severity, which is in line with previous studies (Aderka, Nikerson, & Hofmann, 2012; Caballo, Salazar, Irurtia, Arias, & Hofmann, 2010; De Los Reyes, Bunnell, & Beidel, 2013; Olivares, Garcia-Lopez, Hidalgo, & Caballo, 2004; Ruscio, 2010).

Second, as it could be seen in Table 1, the performance-only specifier participants present with significantly lower social anxiety scores and differences in comorbidity rates with GAD compared to those participants with both interactional and performance fears or healthy controls. Uniqueness of performance-only specifier (lower social anxiety scores and comorbidity rates) appears to be consistent with findings from other researchers (Bögels et al., 2010), who have suggested that the specifier presents a different pattern than a full spectrum of SAD. However, the prevalence of participants with a performance-only specifier in our sample (26%) among those who met SAD criteria contrasts with lower rates in adolescents (3.8%, 6.8%, and 0% in Garcia-Lopez, Saez-Castillo et al., 2015; Garcia-Lopez & Moore, 2015; Kerns et al., 2013, respectively) and adults (0.3%; Crome et al., 2015).

Third, the area under the ROC curves reveals that the SPAI-B performs considerably better than chance in discriminating participants with any SAD group from mentally healthy individuals. Clinicians and researchers alike may use a rounded cut-off of 24 to screen for patients with both performance and interactional fears, whereas the cut-off score for young adults with performance-only specifier was set at 23, slightly lower than cut-off scores in adolescent population (Garcia-Lopez, Saez-Castillo et al, 2015).

However, the AUC for the ROC provided only adequate discrimination between the participants with SAD (excluding those with the performance-only specifier) and the performance-only specifier, which can be interpreted from a twofold perspective: (a) the SPAI-B's limited ability to discriminate the specifier from other categories may be due to the reduced number of items assessing social performance; and (b) our data call into question the clinical utility of this recently established specifier. This has clinical implications, particularly taking into account the issues raised by authors on this specifier, namely, low prevalence of performance-only specifier and that it merely reflects an indicator of severity not a different diagnostic entity (Crome et al., 2015; Eapen & Črnčec, 2014; Garcia-Lopez & Moore, 2015; Garcia-Lopez, Saez-Castillo et al., 2015; Heimberg et al., 2014; Kerns et al., 2013).

Finally, consistent with other social anxiety measures, no need for specific cut-off scores by gender was identified (Garcia-Lopez, De Los Reyes, & Salvador, 2015). It must be noted that the clinical participants of this study were not seeking treatment and may differ from a treatment-seeking sample. However, given the similar mean scores obtained in other studies with this scale (Garcia-Lopez et al., 2008; Garcia-Lopez, Saez-Castillo et al., 2015; Moore, Gomez-Ariza & Garcia-Lopez, in press; Piqueras et al., 2012; Vieira et al., 2013), the results likely provide clinically relevant information. Future studies should look at: (a) examining the discriminative validity of the SPAI-B to differentiate between adults with SAD and other mood and anxiety disorders, and (b) whether our results generalize to different cultures and community samples.

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