

## Brief Report

# DEVELOPMENT AND VALIDATION OF AN OVERALL ANXIETY SEVERITY AND IMPAIRMENT SCALE (OASIS)

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*Establishing severity and impairment associated with anxiety is important in many settings. We developed a brief (five-item) continuous measure, the Overall Anxiety Severity and Impairment Scale (OASIS), which can be used across anxiety disorders, with multiple anxiety disorders, and with subthreshold anxiety symptoms. Seven hundred eleven college students completed the OASIS and additional self-report assessments of anxiety-related concerns and symptoms. A subset of students completed several measures again 1 month later. Results of a split-sample analysis suggested a single-factor structure, with all five items having salient loadings. The OASIS demonstrated excellent 1-month test-retest reliability, and convergent and divergent validity. The OASIS merits consideration as a brief measure of anxiety-related severity and impairment that can be used across anxiety disorders. Depression and Anxiety 23:245–249, 2006. © 2006 Wiley-Liss, Inc.*

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## INTRODUCTION

Establishing severity and impairment associated with anxiety is important in many settings, including primary care, patient referral services, and psychiatric and public health research studies. Although there are measures of severity and impairment that have been applied to psychiatric disorders [e.g., Sheehan Disability Inventory; Sheehan, 1983], and measures that are specific to particular anxiety disorders [e.g., Liebowitz Self-Rated Disability Scale for social phobia; Schneier et al., 1994], there are no measures of severity and impairment across anxiety disorders or for subsyndromal anxiety. Because co-occurring and subsyndromal anxiety disorders are common and associated with significant impairment [e.g., Weiller et al., 1998], it is important to be able to measure anxiety severity and impairment in such cases.

Our goal was to develop a brief questionnaire, the Overall Anxiety Severity and Impairment Scale (OASIS), that can be used as a continuous measure of anxiety-related severity and impairment across anxiety disorders, regardless of whether an individual meets criteria for a single anxiety disorder, for multiple anxiety disorders, or has subthreshold symptoms but does not meet criteria for any particular anxiety disorder. Our aim was to design the OASIS so that it would be useful as a continuous measure in clinical and epidemiological research studies and could be used as a

screening measure in research and clinical settings once norms are determined.

## METHODS

*Scale Development:* Our objective in designing the OASIS was to capture the most important domains of anxiety severity and impairment in a brief and pragmatic manner. First, we followed the DSM-IV-TR guidelines [American Psychiatric Association, 2000] to establish anxiety severity and related impairment. To capture severity, we included an item regarding frequency of feeling anxious and an item regarding the intensity of anxious feelings. We asked about interference with work and school as one item and social life/relationships as one item. Finally, to

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capture impairment specific to anxiety, we included an item to assess impairment due to avoidance [American Psychiatric Association, 2000]. The item content was developed and refined in an iterative process that involved review and commentary by anxiety experts at the University of California, San Diego. We initially included an item regarding frequency of worry, but this item did not contribute to the psychometric properties of the scale and was thus removed. The five resulting items can be viewed in the Appendix. (*Note.* The OASIS was administered to the sample described here without reference to time frame and without behavioral anchors. These have since been added to give the scale greater clinical utility.) Participants were asked to respond to the items on a 5-point scale (Table 1). Higher scores indicated greater anxiety-related severity and impairment.

**Participants and Procedures:** Participants ( $n = 711$ ) were undergraduates taking an Introduction to Psychology class who completed a questionnaire packet for extra course credit. Average age was 18 (ranging from 16 to 44,  $SD = 1.71$ ). The majority was female (72.6%). Participants were 54.3% Caucasian, 15.1% Latino and/or Hispanic, 6.9% Asian, 6.9% Filipino, 2.7% African American, and 11.4% mixed or other. A subsample of participants ( $n = 75$ ) who volunteered to participate in additional studies for payment completed the OASIS and several more questionnaires 1 month later. Average age was 18 (range, 17–23,  $SD = 0.93$ ). Participants were 70% female, 57% Caucasian, 14% Latino, 12% Filipino, 8% Asian American, and 9% other.

**Measures:** All participants completed the following well-validated self-report inventories: Beck Depression Inventory [BDI; Beck and Steer, 1993], Brief Symptom Inventory 18 [BSI-18; Derogatis, 2000], Fear Questionnaire [FQ; Marks and Mathews, 1979], and

Spielberger Trait Anxiety Questionnaire [Spielberger, Gorsuch, Lushene, 1970].

The reliability subsample also completed the following well-validated self-report measures: Anxiety Sensitivity Index [ASI; Peterson and Reiss, 1992], Barratt Impulsivity Scale [BIS-11; Patton et al., 1995], Connor–Davidson Resiliency Scale [CD-RISC; Connor and Davidson, 2003], Mini-Social Phobia Index [Mini-SPIN; Connor et al., 2001], and the Neuroticism, Openness, and Agreeableness subscales of the Neuroticism Extraversion Openness Five-Factor Inventory [NEO-FFI; Costa and McCrae, 1992].

**Statistical Analysis:** We computed an internal consistency coefficient for the OASIS on the full sample. The sample was then randomly split in two to cross-validate results. A  $5 \times 5$  matrix of correlations between the OASIS items was computed and subjected to a Varimax-rotated factor analysis. Interpretability and Cattell's [1966] scree test determined the number of factors.

We assessed convergent validity by correlating the OASIS with the BDI, BSI-18, the FQ, and the Spielberger Trait Anxiety Questionnaire. One-month test–retest reliability ( $\kappa$ ) was assessed on 75 subjects. Because these subjects completed additional measures, we further assessed validity. To test the convergent validity of the OASIS, we correlated the OASIS with the NEO-FFI Neuroticism subscale, the CD-RISC, the ASI, and the Mini-SPIN. To assess the discriminant validity of the OASIS, we correlated the measure with the NEO-FFI Openness and Agreeableness subscales, and the BIS.

## RESULTS

Cronbach's  $\alpha$  for the five items of the OASIS was .80. The mean score was 7.16 ( $SD = 3.05$ , range = 1–18). There were no significant differences scores by gender or socioeconomic scale (SES). There were significant differences by ethnicity [ $F = 3.20(5, 685)$ ,  $P < .01$ ] with Latinos ( $M = 6.39$ ,  $SD = 3.39$ ) scoring lower than Asians ( $M = 8.38$ ,  $SD = 2.69$ ).

**OASIS Factor Structure:** For the first half of the sample ( $n = 354$ ,  $\alpha = .79$ ), all items loaded on a single factor (eigenvalue = 2.73, loadings = .71–.77) and accounted for 55% of the variance. For the second half ( $n = 349$ ,  $\alpha = .80$ ), all items also loaded on a single factor (eigenvalue = 2.79, loadings = .70–.79) and accounted for 56% of the variance (Table 1).

**Validation of OASIS as a Measure of Anxiety Severity:** OASIS showed excellent convergent validity with the BSI-18 ( $r = .58$ ), the FQ ( $r = .41$ ), the Spielberger Trait Anxiety Questionnaire ( $r = .62$ ), and the BDI ( $r = .51$ ) (Table 2). One-month test–retest reliability was strong ( $\kappa = .82$ ). The OASIS was positively correlated with the NEO-FFI Neuroticism subscale ( $r = .70$ ), the ASI ( $r = .58$ ), and the Mini-SPIN ( $r = .54$ ), and negatively correlated with the CD-RISC ( $r = -.59$ ). Correlations with the NEO openness subscale ( $r = -.07$ ) and

**TABLE 1. Factor loadings showing single factor solution for OASIS items across two randomly split samples**

Item	Split half 1 ( $n = 354$ )	Split half 2 ( $n = 349$ )
1. How often do you feel anxious? (Never–Constantly)	.72	.71
2. When you feel anxious, how intense or severe is your anxiety? (None–Extreme)	.71	.71
3. How often do you avoid situations, places, objects, or activities because of anxiety or fear? (Never–All the time)	.72	.72
4. How much does anxiety or fear interfere with your ability to do the things you need to do at work, at school, or at home? (Not at all–Extreme)	.76	.79
5. How much does anxiety or fear interfere with your social life and relationships? (Not at all–Extreme)	.77	.70
% of variance accounted for	55%	56%

TABLE 2. Intercorrelations for validity variables, entire sample

	OASIS	Trait Anxiety	Agoraphobia	Social Phobia	Bodily Injury	FQ	BDI	Somatization	Depression	Anxiety	BSI-18
OASIS	—										
Trait Anxiety		.62**	.30**	.46*	.22**	.41**	.51**	.35**	.54**	.57**	.58**
Agoraphobia			.27**	.47**	.23**	.40**	.64**	.36**	.66**	.56**	.63**
Social Phobia				.46**	.39**	.74**	.22**	.14**	.17**	.20**	.18**
Bodily Injury					.40**	.78**	.38**	.20**	.35**	.29**	.32**
FQ						.81**	.17**	.15**	.13**	.20**	.18**
BDI							.32**	.21**	.27**	.29**	.29**
Somatization								.39**	.68**	.53**	.61**
Depression									.44**	.54**	.72**
Anxiety										.66**	.82**
BSI-18											.81**

\*\* $p < .01$ .

Trait Anxiety = Spielberger Trait Anxiety Questionnaire, Agoraphobia, Social Phobia, and Bodily Injury = subscales of the FQ, Somatization, Depression, and Anxiety = subscales of the BSI-18, BSI-18 = BSI = 18 total t-scored.

agreeableness subscale ( $r = -.06$ ), and the BIS ( $r = .09$ ) were low (Table 3).

## DISCUSSION

Our goal was to develop and validate the OASIS, a short measure of anxiety severity and impairment. We found support for the construct validity and 1-month test-retest reliability of the OASIS. The OASIS had strong positive associations with general measures of anxiety. These measures target symptoms rather than severity and impairment specifically. However, one would expect a strong positive relationship, because anxiety impairment should not be present unless anxiety symptoms are present.

We were not surprised that measures of depression were positively correlated with the OASIS, because anxiety and depressive symptoms normally co-occur with great frequency [Kessler et al., 2005]. Our finding that the OASIS was positively correlated with the CD-RISC was also expected. Previous studies have shown that resiliency has an inverse relationship with anxiety symptoms [Campbell-Sills et al., 2006] and that resiliency increases as anxiety-related impairment decreases in response to treatment [Davidson et al., 2005]. OASIS had a strong positive relationship with neuroticism. Although neuroticism in itself is not a measure of anxiety, people with neuroticism are more vulnerable to emotional distress [Kling et al., 2003]. We found low correlations between OASIS and measures of impulsivity, agreeableness, and openness, which would not be expected to correlate with anxiety.

Although we had good distribution of ethnicity and gender, and a large sample size, our college student sample was limited in education and age range, which may limit the generalizability of our results. Furthermore, clinical samples of patients with anxiety disorders were not included. Though it would be expected that this measure would adequately capture anxiety-related impairment in such individuals, this remains to be shown in future studies.

Our study is an initial step in evaluating the psychometric properties of OASIS as a measure of anxiety-related severity and impairment. OASIS merits consideration as a very brief questionnaire, because it is suitable for the measure of severity within and across anxiety disorders, including multiple and subsyndromal disorders. It may have particular utility in epidemiological surveys in which time demands on participants often preclude including long measures. Its brevity may also make it useful for health care settings, where it can be completed and scored prior to a provider visit. Anxiety disorders are associated with disability and reduced quality of life in primary care patients [e.g., Stein et al., 2005], and severity and impairment are important determinants of who may benefit from anxiety treatment [e.g., Mathias et al., 1994; Nisenson et al., 1998]. Future research will be required to determine what various scores correspond to (e.g., what

TABLE 3. Intercorrelations for validity variables, experimental sample

	OASIS	Neuroticism	ASI	Mini-SPIN	Resiliency	Openness	Agreeableness	Impulsivity
OASIS	—	.70**	.58**	.54**	-.59**	.07	-.06	.09
Neuroticism		—	.56*	.60**	-.61**	-.22*	-.23*	.02
ASI			—	.50**	-.30**	-.02	-.05	.06
Mini-SPIN				—	-.41**	-.20	.06	-.09
Resiliency					—	.08	.21	-.21
Openness						—	.04	.06
Agreeableness							—	-.26
Impulsivity								—

\* $p < .01$ ; \*\* $p < .0001$ .

Neuroticism, Openness, Agreeableness, and Impulsivity are subscales of the NEO-FFI.

is “mild” anxiety-related impairment, what is “moderate,” etc.), and to determine cut scores for purposes of screening.

## APPENDIX

### OVERALL ANXIETY SEVERITY AND IMPAIRMENT SCALE (OASIS)

The following items ask about anxiety and fear. For each item, circle the number for the answer that best describes your experience *over the past week*.

1. In the past week, how often have you felt anxious?

- *No* anxiety in the past week.
- *Infrequent* anxiety. Felt anxious a few times.
- *Occasional* anxiety. Felt anxious as much of the time as not. It was hard to relax.
- *Frequent* anxiety. Felt anxious most of the time. It was very difficult to relax.
- *Constant* anxiety. Felt anxious all of the time and never really relaxed.

2. In the past week, when you have felt anxious, how intense or severe was your anxiety?

- *Little* or *None*: Anxiety was absent or barely noticeable.
- *Mild*: Anxiety was at a low level. It was possible to relax when I tried. Physical symptoms were only slightly uncomfortable.
- *Moderate*: Anxiety was distressing at times. It was hard to relax or concentrate, but I could do it if I tried. Physical symptoms were uncomfortable.
- *Severe*: Anxiety was intense much of the time. It was very difficult to relax or focus on anything else. Physical symptoms were extremely uncomfortable.
- *Extreme*: Anxiety was overwhelming. It was impossible to relax at all. Physical symptoms were unbearable.

3. In the past week, how often did you avoid situations, places, objects, or activities because of anxiety or fear?

- *None*: I do not avoid places, situations, activities, or things because of fear.
- *Infrequent*: I avoid something once in a while, but will usually face the situation or confront the object. My lifestyle is not affected.
- *Occasional*: I have some fear of certain situations, places, or objects, but it is still manageable. My lifestyle has only changed in minor ways. I always or almost always avoid the things I fear when I'm alone, but can handle them if someone comes with me.
- *Frequent*: I have considerable fear and really try to avoid the things that frighten me. I have made significant changes in my life style to avoid the object, situation, activity, or place.
- *All the Time*: Avoiding objects, situations, activities, or places has taken over my life. My lifestyle has been extensively affected and I no longer do things that I used to enjoy.

4. In the past week, how much did your anxiety interfere with your ability to do the things you needed to do at work, at school, or at home?

- *None*: No interference at work/home/school from anxiety
- *Mild*: My anxiety has caused some interference at work/home/school. Things are more difficult, but everything that needs to be done is still getting done.
- *Moderate*: My anxiety definitely interferes with tasks. Most things are still getting done, but few things are being done as well as in the past.
- *Severe*: My anxiety has really changed my ability to get things done. Some tasks are still being done, but many things are not. My performance has definitely suffered.
- *Extreme*: My anxiety has become incapacitating. I am unable to complete tasks and have had to leave

school, have quit or been fired from my job, or have been unable to complete tasks at home and have faced consequences like bill collectors, eviction, etc.

**5. In the past week, how much has anxiety interfered with your social life and relationships?**

0 = *None*: My anxiety doesn't affect my relationships.

1 = *Mild*: My anxiety slightly interferes with my relationships. Some of my friendships and other relationships have suffered, but, overall, my social life is still fulfilling.

2 = *Moderate*: I have experienced some interference with my social life, but I still have a few close relationships. I don't spend as much time with others as in the past, but I still socialize sometimes.

3 = *Severe*: My friendships and other relationships have suffered a lot because of anxiety. I do not enjoy social activities. I socialize very little.

4 = *Extreme*: My anxiety has completely disrupted my social activities. All of my relationships have suffered or ended. My family life is extremely strained.

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