

USING THE PENN STATE WORRY QUESTIONNAIRE TO DISTINGUISH INDIVIDUALS WITH GENERALIZED ANXIETY DISORDER FROM INDIVIDUALS WITH SOCIAL ANXIETY DISORDER

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Worry has been described as a relatively uncontrollable, negatively valenced chain of thoughts and images that represent an attempt to engage in cognitive problem-solving on an issue that holds the potential for unfavorable consequences (Borkovec, Robinson, Pruzinsky, & DePree, 1983). Worry is associated with all of the anxiety disorders (Barlow, 1988) and is the central feature of DSM-IV generalized anxiety disorder (GAD). Probably the most widely used measure of worry is the Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990), which was designed to capture the generality, excessiveness, and uncontrollability characteristic of pathological worry.

Individuals with GAD score higher on the PSWQ than do individuals with other anxiety disorders (Brown, Antony, & Barlow, 1992). However, research has not yet addressed what score on the PSWQ is optimal for differentiating individuals with GAD from individuals with another anxiety disorder. Receiver operating characteristic (ROC) analysis allows researchers and clinicians to evaluate the ability of instruments to discriminate individuals with a characteristic from individuals without the characteristic (Kraemer, 1992). It is based on logistic regression with a continuous predictor variable and a dichotomous criterion variable. ROC analysis can be used to generate a graph that displays a plot of all possible sensitivity and false-positive (1 – specificity) values. Sensitivity represents the percentage of persons with “true GAD” identified by the scale as having the disorder, and specificity represents the percentage of persons “truly without GAD” identified by the scale as not having the disorder. The intersection of sensitivity and false-positive curves represents the score that maximizes both sensitivity and specificity. The overall utility of the scale in identifying cases of GAD can be obtained from the area-under-the-curve (AUC) statistic, which can range from .5 (no information or chance classification) to 1.0 (perfect classification). The current study sought to examine the overall utility of the PSWQ in detecting a diagnosis of GAD. Furthermore, PSWQ scores representing optimal sensitivity, optimal

specificity, and the best combination of sensitivity and specificity were determined.

Method

Participants

The sample consisted of 28 patients (19 women) who met criteria for GAD and 132 patients (61 women) who met criteria for social anxiety disorder by structured diagnostic interview. Eighteen patients with a principal diagnosis of social anxiety disorder (10 women) were excluded because they met criteria for an additional diagnosis of GAD. Thus, 114 patients with social anxiety disorder were used in subsequent analyses. The groups did not differ in terms of age or racial composition. The GAD group (68%) consisted of more women than the social anxiety group (41%), $\chi^2(1, N = 142) = 6.41, p < .05$.

Assessment

The Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990) is a 16-item measure that assesses the generality, excessiveness, and uncontrollability of worry without focusing on particular domains of worry. The reliability and validity of the PSWQ have been widely researched, and the instrument appears to have sound psychometric properties (Molina & Borkovec, 1994; Turk, Mennin, & Heimberg).

The Anxiety Disorders Interview Schedule for DSM-IV: Lifetime Version (ADIS-IV-L; DiNardo, Brown, & Barlow, 1994) assesses current and lifetime anxiety disorders, mood disorders, substance abuse and dependence, and disorders that are similar to the anxiety disorders either conceptually or in terms of presenting symptoms (e.g., hypochondriasis). In a sample of 362 patients, Brown, DiNardo, Lehman, and Campbell (2001) reported a kappa of .67 for a principal diagnosis of GAD and a kappa of .77 for a principal diagnosis of social anxiety disorder.

Procedure

Patients seeking treatment for worry or social anxiety reported to the clinic for assessment with the ADIS-IV-L. They were sent home with a packet of self-report instruments that included the PSWQ.

Results

GAD patients ($M = 68.1$; $SD = 7.3$) scored significantly higher than individuals with social anxiety disorder ($M = 56.2$; $SD = 14.8$) on the PSWQ, $t(140) = 4.11, p < .001$. The next set of analyses revealed a robust ROC curve for the PSWQ ($AUC = .74, p < .0001$) that was significantly better than chance in classifying individuals with and without GAD (see Figure 1). See Table 1 for scores which represent optimal sensitivity, optimal specificity, and the best combination of sensitivity and specificity in the detection of GAD.

Discussion

The high degree of overlap between the features, symptoms, and concerns of individuals with GAD and social anxiety disorder provided a rigorous test of the ability of the PSWQ to identify cases of GAD. Thus, it is impressive that the PSWQ was able to discriminate between the groups as well as it did.

These data suggest that the PSWQ, which is brief and easy to administer, may be a useful means of conducting an initial screening for GAD for both research and clinical purposes. The cut scores presented herein, which optimized sensitivity, specificity, or both, were selected so that a variety of screening scenarios could be satisfied. For example, if identifying everyone with GAD in a population is critical (as might be the case when screening to identify and treat GAD in an at-risk population), then a cut score with high sensitivity would be best. However, in a case where having a homogeneous sample of participants with GAD is needed and missing some true positives is acceptable, then a cut score with high specificity would be ideal. This might be the case in an fMRI or PET scan study, where false positives would result in great expense. In the absence of similar concerns, however, we recommend the use of cut scores that maximize both sensitivity and specificity.

A possible limitation of this study concerns the composition of the sample. Patients in the current study presented for treatment at a specialty clinic with programs that focus either on the treatment of GAD or social anxiety disorder. Thus, for both disorders, the base rates exceed those likely to occur in a generalist clinic or in epidemiological samples. One must be cautious in applying cut-off values where the base rate for the target characteristic is considerably over- or under-represented in the sample. Future research would benefit from replicating the current study in an epidemiological sample or in a clinical sample comprised of patients with a greater range of anxiety and mood disorders.

References

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Table 1. Cut-off scores on the PSWQ that represent optimal sensitivity, optimal specificity, and the best combination of sensitivity and specificity in the detection of GAD within a sample consisting of patients with GAD or social anxiety disorder

	Cut-off Value	% GAD Correctly Classified	% Social Anxiety Disorder Correctly Classified	% Total Sample Correctly Classified
Maximize Sensitivity	61	89.29%	55.26%	61.97%
Maximize Specificity	68	50.00%	76.32%	71.13%
Maximize Sensitivity & Specificity	65	67.86%	64.84%	64.79%

Figure 1. Receiver Operating Characteristic Analysis curve for the PSWQ Total Score in a sample consisting of patients with GAD or social anxiety disorder.

Area under ROC curve = 0.7400

