Research on generalized anxiety disorder (GAD) has significantly increased since it was first introduced as a residual category in DMS-III (APA, 1980). Consistent with this progress, several self-report measures have been developed which assess symptomatology associated with GAD (e.g., Penn State Worry Questionnaire; Meyer, Miller, Metzger, & Borkovec, 1990).

The GAD-Q-IV (Newman, Zuellig, Kachin, Constantino, & Cashman, 2001) is a 9-item self-report measure designed to reflect the criteria of GAD as delineated in the DSM-IV (APA, 1994). Most items are dichotomous and measure excessiveness and uncontrollability of worry (e.g., “Do you experience excessive worry?”) and related physical symptoms (e.g., muscle tension). One item is open-ended and asks for a list of the most frequent worry topics. Two items are rated on a 0 (None) to 8 (Very Severe) scale and measure functional impairment and subjective distress. Thus, the measure assesses the DSM-IV criteria for GAD, with the exception of the exclusion criteria (criterion D & F; APA, 1994).

The GAD-Q-IV was designed to be used as an initial screening device for GAD. The diagnostic accuracy of the GAD-Q-IV relative to structured clinical interviews has been examined in an undergraduate sample. Compared to structured clinical interviews, the GAD-Q-IV yielded specificity of 97% and a sensitivity of 69%. Diagnoses made by the GAD-Q-IV showed a 17% false positive rate and a 7.6% false negative rate (Newman et al., 2001).

The GAD-Q-IV can also be scored dimensionally as a means of assessing the severity of GAD symptoms (Newman et al., 2001). The GAD-Q-IV dimensional score appears to have good psychometric properties. In an undergraduate sample, the GAD-Q-IV yielded good internal consistency (α = .84) and test-retest reliability (r = .81), as well as strong convergent and discriminant validity (Newman et al., 2001). The goal of the present study was to extend this research by examining the psychometric properties of the GAD-Q-IV among patients seeking treatment for worry and associated difficulties.

Method

Participants

The GAD group consisted of 29 treatment-seeking individuals with a primary diagnosis of GAD as defined by DSM-IV (APA, 1994). The control group consisted of 29 community control participants who had no current DSM-IV diagnosis. Within the GAD sample, 20 of the participants were female (69%), with a mean age of 34.10 (SD = 14.08). In regards to ethnicity, most of the participants were Caucasian (72.4%), while 20.7% were African Americans and 6.9% were of Hispanic origin. Within the control group, 13 of the participants were female (44.8%), with a mean age of 28.83 (SD = 11.57). Most of the participants in this sample were Caucasian (89.7%), while 10.3% were African American. The groups did not differ with regard to gender [χ² (1, N = 58) = 3.45, ns], age [t (56) = -1.56, ns], or ethnic background [χ² (2, N = 58) = 3.53, ns].

Materials

Interview

• The Anxiety Disorders Interview Schedule for DSM-IV - Lifetime Version (ADIS-IV-L; DiNardo, Brown & Barlow, 1994) is a semi-structured clinical interview that provides a thorough assessment for DSM-IV anxiety disorders but includes modules assessing mood disorders, substance abuse and dependence, and other disorders that overlap with anxiety disorders either conceptually or in terms of presenting symptoms (e.g., hypochondriasis).

Self-Report Measures

• The Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990) is a 16-item measure of the generality, uncontrollability, and pervasiveness of worry. The validity of the PSWQ has been supported by an analysis indicating that the measure distinguished individuals with GAD from individuals with other anxiety disorders (Brown, Antony, & Barlow, 1992).

• The Worry Domains Questionnaire (WDQ; Tallis, Eysenck, & Mathews, 1992) is a 25-item measure that assesses different content areas in which a person worries. The total score of the WDQ provides a general indication of worry frequency.

• The Intolerance of Uncertainty Scale (IU; Freeston, Rapee, Letarte, Dugas, & Ladouceur, 1994) is a 27-item measure of uncertainty, emotional and behavioral reactions to ambiguous situations, implications of being uncertain, and attempts to control the future.

• The Social Interaction Anxiety Inventory (SIAS; Mattick & Clark, 1998) is a 20-item self-report measure that assesses anxiety experienced in social interaction situations.

• The Social Phobia Scale (SPS; Mattick & Clark, 1998) is a 20-item self-report measure that assesses anxiety and distress experienced in situations where the person may be observed by others.

• The Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979) is a 21-item instrument that assesses the affective, cognitive, behavioral, somatic, and motivational components of depression.

• The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) is a 21-item instrument that assesses the severity of anxiety symptoms.

Procedure

A psychologist or doctoral level graduate student interviewed all participants with the ADIS-IV-L (DiNardo et al., 1994). Following the interview, participants were asked to complete a battery of self-report questionnaires, which
included the above measures and the GAD-Q-IV. The GAD-Q-IV was altered from its original version so that all participants were instructed to answer all of the nine items no matter whether question 6 was endorsed. (On the GAD-Q-IV, if question 6 is not endorsed, participants are asked to skip questions 7-9). Individuals with a diagnosis of GAD were offered open cognitive-behavioral treatment. Community control participants were paid $40 to complete the assessment.

**Results**

The dimensional score of the GAD-Q-IV was calculated to initially determine its psychometric properties with this sample. The GAD-Q-IV was highly internally consistent (α = .87). Participants with GAD, as measured by the ADIS-IV-L, (M = 24.34, SD = 4.34) achieved a significantly higher GAD-Q-IV dimensional score than non-anxious controls (M = 4.93, SD = 3.26), t(56) = -19.24, p < .001.

The dimensional score of the GAD-Q-IV was utilized to assess its convergent and discriminant validity. Correlations between the GAD-Q-IV dimensional score and the above self-report measures are presented in Table 1. As hypothesized, the GAD-Q-IV dimensional score was highly correlated with both worry measures (PSWQ, r = .94; WDQ, r = .79). Further, tests of dependent correlations revealed that the GAD-Q-IV was more highly correlated with constructs associated with worry and GAD than with measures of social anxiety (see Table 2). Specifically, the GAD-Q-IV was more highly correlated with the PSWQ than with the SPS (r = .59, t(55) = 8.36, p < .001) and the SIAS (r = .67, t(55) = 7.48, p < .001). The GAD-Q-IV was also more correlated with the WDQ and the IU (r = .79), than with the SPS (t(55) = 2.68, p < .01; t(55) = 2.72, p < .01, respectively) and the SIAS (t(55) = 2.03, p < .05; t(55) = 1.97, p < .05 respectively). Further, it was highly correlated with the BAI (r = .81) and BDI (r = .78).

The categorical scoring system proposed by Newman et al. (2001) was utilized to compare the GAD-Q-IV to the ADIS-IV-L. These results revealed that all of the non-anxious community participants were correctly classified as not having a diagnosis of GAD with the GAD-Q-IV. Within the GAD sample, 22 of 29 participants were correctly classified as having GAD based on the GAD-Q-IV. These classifications correspond with a specificity of 100% and a sensitivity of 75.9%.

In order to utilize the GAD-Q-IV as an initial screening device for detecting GAD, we altered the categorical scoring system in hopes of increasing sensitivity of the GAD-Q-IV in detecting GAD by making the scoring criteria more liberal. These alterations are listed below.

- The first alteration involves requiring a participant list at least two events or activities as topics of worry (question 5). The original scoring criteria requires at least three worry topics. This change was made as the GAD criteria in the DSM-IV specifies that an individual experience “excessive anxiety and worry”…”about a number of events or activities” (APA, 1994). We interpreted this to indicate more than one worry topic.
- The next alteration involved requiring participants to report experiencing at least two of the six physical symptoms more days than not during the past six months (question 7). The original scoring criteria requires a participant endorse at least three physical symptoms. This change was made as the DSM-IV (APA, 1994) criteria for GAD requires individuals experience at least “some” of the physical symptoms more days than not for at least six months.
- The final alteration involved changing the degree to which the symptoms caused distress or impairment from moderate (4 or more) to mild (2 or more; question 8 and 9).

With the above modifications to the scoring criteria for classifying GAD, 25 out of 29 of the GAD participants (86.2%) were correctly classified as having GAD by the GAD-Q-IV. All 29 participants (100%) in the control group were correctly classified as not having GAD. These results correspond to 100% specificity and 82.6% sensitivity.

**Table 1. Convergent and Divergent Validity with the GAD-Q-IV**

<table>
<thead>
<tr>
<th>Measures</th>
<th>1</th>
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<th>4</th>
<th>5</th>
<th>6</th>
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<tbody>
<tr>
<td>1. GAD-Q-IV</td>
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<td>2. PSWQ</td>
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<td>.55**</td>
<td>.57**</td>
<td>.83**</td>
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<td>7. BDI</td>
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<td>.72**</td>
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<td>.74**</td>
<td>.50**</td>
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<tr>
<td>8. BAI</td>
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<td>.71**</td>
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<td>.70**</td>
<td>.72**</td>
<td>.70**</td>
<td>.78**</td>
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* p < .05 (two-tailed)  ** p < .001 (two-tailed)
Table 2. Dependent Correlations with the GAD-Q-IV between measures of worry and measures of social anxiety.

<table>
<thead>
<tr>
<th></th>
<th>PSWQ vs. SPS</th>
<th>PSWQ vs. SIAS</th>
<th>WDQ vs. SPS</th>
<th>WDQ vs. SIAS</th>
<th>IU vs. SPS</th>
<th>IU vs. SIAS</th>
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<tr>
<td></td>
<td>$t(55)$</td>
<td>$d$</td>
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<tr>
<td>GAD-Q-IV</td>
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<td>7.48**</td>
<td>2.02</td>
<td>2.68*</td>
<td>.72</td>
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<td></td>
<td>1.97*</td>
<td>.53</td>
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</table>

Note: ** p < .001 (two-tailed), *p < .05 (two-tailed). $d$: Cohen’s (1977) $d$ effect size conventions, small = .20, medium = .50, large = .80.

Discussion

The findings from this study suggest that the GAD-Q-IV can be an effective way of detecting the presence or absence of GAD in a quick and low-cost manner. In this clinical sample, the GAD-Q-IV dimensional score was internally consistent and had excellent convergent and divergent validity. The GAD-Q-IV was more correlated with measures of worry and associated constructs than with measures of social anxiety. Further, the dimensional score significantly distinguished GAD participants from community control participants.

The categorical scoring system suggested by Newman et al. (2001) was fairly accurate in determining GAD, with a sensitivity of 75.9% and 100% specificity. This scoring system seems particularly useful when the goal is to obtain a low number of false positives. The alternative categorical scoring system, proposed in this study, had a sensitivity of 86.2% and a specificity of 100% for detecting the presence of GAD against a diagnostic interview.

Thus, this more liberal scoring system was found to be more sensitive, without compromising specificity. However, this may be an artifact of the sample utilized in this study, especially since participants in the community control sample had no current Axis I diagnoses as measured by the ADIS-IV-L. Future studies are needed that include samples with other Axis I diagnoses (particularly anxiety disorders) to determine whether this scoring system compromises specificity.

In conclusion, the results of this study suggest that the GAD-Q-IV can be utilized with confidence as an initial screener for detecting GAD.

References


