

Use of the Penn State Worry Questionnaire to Identify Individuals with Gad: An Indian Perspective

Abstract

Background and Objectives: The Penn State Worry Questionnaire (PSWQ) has been established as an efficacious tool to identify individuals with Generalized Anxiety Disorder (GAD) as against those with other anxiety disorders. We report on the use of the PSWQ in the Indian population to identify individuals with GAD.

Methods: 30 individuals with GAD and 60 with other anxiety disorders without GAD completed the PSWQ.

Results: Using the Receiver Operating Characteristic curve analysis, a score of 64, which optimized both sensitivity and specificity, was found to discriminate between individuals with GAD and those with other anxiety disorders without GAD.

Limitations: The study conducted on a small sample would benefit from further research to establish the PSWQ as an efficacious tool for identify individuals with GAD.

Conclusion: Results from the current study offer strong support for the use of the PSWQ for initial screening and identification of individuals with GAD who present for treatment for anxiety disorders.

Keywords: Worry; Generalized anxiety disorder; Penn State Worry Questionnaire; Receiver operating characteristic curve

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Abbreviations: PSWQ: Penn State Worry Questionnaire; GAD: Generalized Anxiety Disorder; DSM: Diagnostic and Statistical Manual

Introduction

Worry has consistently been shown to be associated with Generalized Anxiety Disorder (GAD). The Diagnostic and Statistical Manual (DSM) [1] states that GAD is excessive anxiety or worry about a variety of events or activities that predominates a person's day-to-day life. Individuals with GAD tend to thus have persistent, unrealistic and excessive worry about events and situations that is not warranted by the situation itself. Molina S, et al. [2], Ray and Stöber J [3] through their research have proposed that worry is not just a protective feature in anxiety. They propose that worry is in fact a response generated to protect the self, which due to its maladaptive element maintains anxiety instead. As a result, the individual is not able to break the cycle of the feared response that is associated with the situation that triggers the anxiety. According to Turner SM, et al. [4] worry themes are typically related to the daily experiences of normal everyday life and individuals are likely to be able to identify the internal or external triggers for it. Worry is characteristically a verbal thought that is not resisted very strongly internally by the individual as its content is not judged as being unacceptable. Worry thus contributes to faulty emotion regulation Mennin DS, et al. [5] and to experiential avoidance Roemer L, et al. [6].

The Penn State Worry Questionnaire Meyer TJ, et al. [7] has been a largely used instrument for the study of worry across

numerous researches. It has found significant applicability in terms of its usage for both clinical as well as non-clinical populations. Studies by Beck JG, et al. [8] and Meyer TJ, et al. [7] have indicated that the scale has good internal consistency. It also has good, established test-retest reliability [7]. There is evidence that also indicates towards a positive correlation with other established measures of worry [8,9,10]. There is strong evidence which has demonstrated the efficacy of the Penn State Worry Questionnaire in discriminating between patients with Generalized Anxiety Disorder from community controls and patients with other anxiety disorders [11]. However, as identified by Fresco DM, et al. [12], minimal research has been conducted to establish the utility of the Penn State Worry Questionnaire to identify individuals with self-reported GAD or to pre screen individuals likely to subsequently meet criteria for clinician-assessed GAD.

It is the sensitivity and the specificity of a test that determine its ability to classify individuals into groups [12,13]. Both Fresco DM, et al. [12] and Kraemer HC [13] have reported on the use of a receiver operating characteristic analysis (ROC) to evaluate the specificity and sensitivity of a test. In the ROC analysis, the sensitivity of the test is plotted against its specificity for each value and the area under the curve (AUC), which maps the overlap in distributions between cases and controls, giving values ranging between 0 to 1, is used to decide upon the value which can be selected as the cut off point for discriminating between groups of individuals. The ROC analysis is a robust test which can be used even when representation of cases and controls is unequal [14].

Studies which have attempted to establish the cut off scores using ROC analysis with the PSWQ include a study by Behar E, et al. [15] which looked at data obtained from 159 treatment-seeking participants with clinician-assessed GAD and 113 non-anxious controls. The study by the authors had concluded that a PSWQ cut-score of 45 provided the best balance of sensitivity (0.99) and specificity (0.98). In a second study by the same authors, Behar E, et al. [15] utilized a large sample of unselected college students (N=2449) who completed the PSWQ as well as the Generalized Anxiety Disorders Questionnaire for DSM-IV. This study reported that a PSWQ cut-score of 62 provided the best balance of sensitivity (0.86) and specificity (0.75).

Fresco DM, et al. [12] in their study which also used the ROC analyses on patients seeking treatment at an anxiety disorders clinic, suggested that a cut-off score of 65 was the most appropriate for distinguishing individuals with GAD. Webb SA, et al. [16] used the ROC analysis to establish the utility of the PSWQ for older medical patients who revealed a cut-off point of 50 as providing the best balance of sensitivity (0.76) and specificity (0.75). A study by Biglieri RR, et al. [17] indicated the use of 63 as a cut-off point for the use of a Spanish version of the PSWQ as a discriminating point for patients with GAD in a sample of Spanish patients (sensitivity-0.90; specificity-0.82). The Korean version of the PSWQ was evaluated by Park HJ, et al. [18] which established 53 as the most appropriate cut-off point. In a contrasting study by Salzer S, et al. [19] which was conducted on an in-patient sample comparing patients with GAD to those with depression and other anxiety disorder determined that the PSWQ was not an efficacious tool for discriminating between the various subgroups. The test was found to correctly identify only 54.4% of the patients showing low efficacy of the tool in discriminating between patients with GAD from others. However, they have suggested that the tool can be used for differentiating low worriers from high worriers instead. Modelling our study around the one conducted by Fresco DM, et al. [12], the present study used the ROC analysis to examine the ability of the PSWQ to distinguish between individuals diagnosed with GAD and those with other anxiety disorders without GAD in an Indian population.

Method

Participants

The sample comprising 90 participants consisted of 30 patients who met the criteria for GAD (without the presence of any other anxiety disorder) and 60 patients who met the criteria for anxiety disorders other than GAD (primarily Obsessive Compulsive Disorder and Panic Disorder with and without Agoraphobia) selected from the Mental Health department of a prominent hospital in New Delhi. The two groups did not differ significantly on demographic characteristics. The mean age for the final sample was 48.53 years (SD = 8.7).

Assessment

The identification of cases was done based on a referral by a psychiatrist on the basis of DSM-IV TR criteria, using the Structured Clinical Interview for DSM-IV TR Axis I Disorders (Research version). The PSWQ Meyer TJ, et al. [7] was chosen

to assess for pathological worry which is considered to be a primary component in GAD. The scale has 16 items and has a good, established internal consistency [8,11], as well as test-retest reliability [7]. Various studies have shown it to discriminate patients with GAD from controls and patients with other anxiety disorders [11,12,15].

Procedure

Patients seeking treatment for anxiety disorders in the out-patient unit of a mental health department were assessed initially by a psychiatrist for the presence of an anxiety disorder in accordance with DSM-IV TR criteria and using the Structured Clinical Interview for DSM-IV TR Axis I Disorders (Research version). These patients were then given a set of self-report questionnaires, which included the PSWQ.

ROC analysis procedure

ROC analysis in the study was conducted using Stats Direct (version 2.7.8). The ROC analysis was done using the ROC analysis tab which provided optimal cut-off points. For each value of the forecast variable the sensitivity, specificity and percentage of correctly classified individuals was obtained. The results provided give a cut-off score that optimizes both sensitivity and specificity providing an understanding of the score that can be used to discriminate patients with GAD.

Results

The ROC analysis assessed the ability of the PSWQ total score to correctly identify 30 patients with GAD from a sample that also included 60 patients with other anxiety disorders (namely, Obsessive Compulsive Disorder and Panic Disorder with and without Agoraphobia). The analysis revealed a strong ROC curve for the PSWQ total score (AUC=0.676, $p < 0.00001$) that was significantly better than chance in classifying individuals with GAD versus those with other anxiety disorders (Figure 1). The results of the analysis demonstrated that when both sensitivity and specificity are optimized, keeping the cut-off score as 64, 19 out of the 30 patients diagnosed with GAD (63.33%) were correctly classified. The sensitivity was found to be 0.63 and the specificity was 0.53.

Discussion

The PSWQ total score was found to reliably distinguish GAD patients from individuals with other anxiety disorders with moderate effectiveness. Of the total patients 63.33% of the patients with GAD were correctly identified by the PSWQ. Results from the current study did provide only moderate support for the use of the PSWQ for initial screening and identification of individuals with GAD which is in contrast to the very strong results of other previous studies that have been conducted to establish the utility of the PSWQ for the discrimination of patients with GAD from those having other anxiety disorders.

Findings from our study, which was conducted on a sample of patients from India, found that the PSWQ discriminates with moderate effectiveness between individuals with GAD and those with other anxiety disorders. The test had a sensitivity of 0.63 and

a corresponding specificity of 0.53, when both were optimized. This is in contrast to the studies conducted by Behar E, et al. [15] and Fresco DM, et al. [12] which also used the ROC analyses and found the test as having higher specificity and sensitivity. A limitation of the initial research by Behar E, et al. [15] was its conduction on a sample of non-clinical college students. The research by Fresco DM, et al. [12] utilized a clinical sample which was selected from an anxiety disorders clinic. Their research too

revealed that the PSWQ was able to correctly identify 63.4% of the sample with GAD, however the test was found to have better sensitivity and specificity in contrast to the current study. A limitation of the current study was the small sample size. In order to generalize the results obtained and to further establish the PSWQ as an efficacious tool which can be used to discriminate individuals with GAD from those with other disorders further research with larger sample sizes would be required.

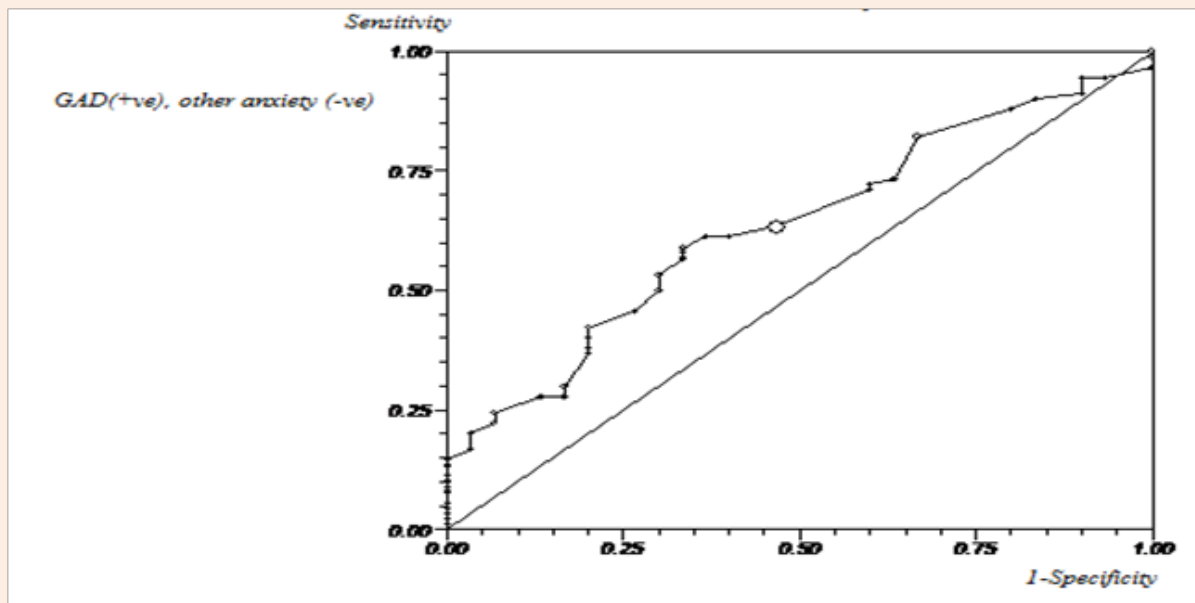


Figure 1: ROC curve analysis.

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