Screening for Generalized Anxiety Disorder Using a Self-Report Questionnaire: Validity

of the Worry and Anxiety Questionnaire II

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Abstract

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The Worry and Anxiety Questionnaire (WAQ) is an 11-item self-report screening

questionnaire developed to measure the DSM-IV diagnostic criteria for Generalized

Anxiety Disorder (GAD). The purpose of this research was to revise the WAQ and

conduct a preliminary investigation of the psychometric properties of the modified

questionnaire in an English-speaking, non-clinical sample. The modification process

included adding a definition for worry, simplifying the Likert scale qualifiers and

consulting with experts in the field of anxiety disorders. There was evidence of

sensitivity, specificity as well as convergent and discriminant validity; scores on the

WAQ-II were more strongly associated with scores on a measure of worry than with

scores on measures of other anxiety disorders, depression and hypochondriasis. In

addition, there was evidence of test-retest reliability over a three-week period. The WAQ-

II's usefulness in research and clinical practice is discussed.

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Introduction

Generalized Anxiety Disorder (GAD) is characterized by chronic, uncontrollable, and excessive worry about a variety of everyday subjects. It is among the most common anxiety disorders and the second most common mental health problem found in primary care facilities (Wittchen et al., 2002). In the general population, the 12-month prevalence of GAD is between 2% and 4%, and the lifetime prevalence is between 4% and 7% (Hunt, Issakidis, & Andrews, 2002; Kessler et al., 1997). People with GAD are more likely to report a decreased sense of well being, and dissatisfaction with their family life and with "main activities" such as employment (Stein & Heimberg, 2004). They often have difficulty concentrating at work, suffer from exhaustion, and have physical symptoms ranging from gastrointestinal upset to muscle tension and headaches (Dugas & Robichaud, 2007; Kessler & Wittchen, 2002).

Yet, despite its high frequency and impact, GAD is one of the most challenging mental health problems to properly diagnose. One reason that GAD is difficult to identify relates to the fact that worry and anxiety are universal experiences. Consequently, it can be difficult to determine when worry becomes "excessive" or "unrealistic" (Francis & Dugas, 2004). As a result, symptoms may be minimized, ignored or dismissed by family, friends and GAD sufferers. In addition, GAD does not have the obvious behavioural manifestations seen in other anxiety disorders. For example, people with GAD do not engage in the fear-driven compulsions seen in obsessive-compulsive disorder or the panic-driven avoidance of places and events observed in agoraphobia (Dugas & Robichaud, 2007). As a result, people with GAD often do not seek help from mental

health professionals for their worry and anxiety (Young, Klap, Sherbourne, & Wells, 2001).

GAD sufferers do, however, consult first-line medical professionals. According to recent research, people with GAD make twice as many visits to their primary care physician as do non-anxious individuals with similar physical conditions (Kessler & Wittchen, 2002). It is unusual for anxious or depressed individuals to consult a mental health professional without first seeing their primary care physician for advice and referral. Weiller, Bisserbe, Maier and Lecrubier (1998) found that only 1.9% of American adults with clinical levels of anxiety and/or depression consulted a mental health professional without first seeing a general medical practitioner.

Unfortunately, of the many clinically-anxious patients who are seen in primary care, the vast majority are not referred for specialized psychological services because their anxious symptoms go unrecognized. In a study of 539 primary care patients with at least one anxiety disorder, half of the patients remained untreated for anxiety (Weisberg, Dyck, Culpepper, & Keller, 2007). In addition, because GAD sufferers tend to attribute their symptoms to physical illness, they are often referred to specialists other than psychologists or psychiatrists. For example, one study found that twice as many people with GAD were treated by a gastroenterologist than by a psychiatrist (Kennedy & Schwab, 1997). In addition, a survey of 154 GAD patients revealed that 50% had consulted with a cardiologist (Logue, Thomas, Barbee, & Hoehn-Saric, 1993). Given that individuals with chronic forms of clinical anxiety such as GAD may be particularly at risk of being misdiagnosed in primary care, there is an urgent need to develop and

validate clinically-useful screening instruments that can be used by general practitioners to conduct a preliminary assessment of GAD.

Considering that self-report questionnaires can be brief, inexpensive, easily administered, simply scored, and highly informative, they are arguably the ideal choice for screening difficult to identify conditions such as GAD in primary care. Simply stated, the most clinically-useful way to screen for GAD may very well be to use a self-report questionnaire.

Several practical and theoretical issues must be considered when choosing or developing a screening measure for GAD. The measure should be simple and easy to understand, score and interpret. In addition, the measure should also have sound psychometric properties; in particular, it should show evidence of sensitivity and specificity in clinical populations. In addition, the measure should ideally use continuous rating scales, which are typically more reliable and informative than dichotomous rating scales.

Two self-report measures frequently used to assess GAD meet many of the aforementioned criteria. The Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990) is a commonly-used, brief self-report measure of chronic, excessive and uncontrollable worry. Although the PSWQ is a valid and well-established measure of worry, its usefulness as a screening device for GAD is questionable because it does not assess for other GAD criteria such as the six associated somatic symptoms (i.e., feeling keyed up, easily fatigued, difficulty concentrating, irritability, muscle tension, problems with sleep) listed in DSM-IV. Unlike the PSWQ, the Generalized Anxiety Disorder Questionnaire - IV (GAD-Q-IV; Newman et al., 2002) is a self-report measure

that assesses all DSM-IV criteria for GAD. However, the GAD-Q-IV has a somewhat complicated scoring system. In addition, five questions on the GAD-Q-IV are answered with a dichotomous (yes/no) scale rather than a continuous scale. As mentioned previously, dichotomous scales are less than ideal because they often produce unreliable scores and because they generally do not assess symptom frequency or intensity. The remaining GAD-Q-IV items use a Likert scale with qualifiers that ask the respondent to rate their symptoms in terms of *severity*. However, symptom severity can be difficult to quantify because it is ultimately based on the subjective evaluation of a combination of many symptom attributes (e.g., frequency, duration, intensity). As noted by Dugas and Robichaud (2007), GAD worry is typically distinguished from non-clinical worry by quantitative, rather than qualitative differences in worry. Therefore, using qualifiers that measure frequency may be a more effective way to measure symptoms because frequency is arguably less complex, more concrete and easier for patients to quantify.

Although many self-report GAD measures are theoretically sound, some are not used properly in clinical settings. In a review of screening measures for anxiety and depression, Balon (2005) notes that there are too many screening devices available for the same disorders, that clinicians use old and new screeners simultaneously, and that health professionals administer screening devices without proper training in their administration, scoring and interpretation. Furthermore, clinicians screening for GAD sometimes use measures that do not include all of the DSM-IV diagnostic criteria for the disorder. Therefore, there is a need for a standardized screening measure for GAD that can be quickly administered, and easily scored and interpreted.

The Worry and Anxiety Questionnaire (WAQ; Dugas et al., 2001) is an 11-item

self-report screening instrument that was developed for the rapid assessment of GAD.

Since its development, the WAQ has been used to screen for the presence of GAD, to

assess the severity of GAD symptoms, and to measure changes in GAD symptoms over

the course of psychotherapy. For example, the WAQ has been used to measured GAD

symptom change over the course of individual therapy (Ladouceur et al., 2000), group

therapy (Dugas et al., 2003), therapy for GAD-related insomnia (Bélanger, Morin,

Langlois, & Ladouceur, 2004), and drug tapering trials (Gosselin, Ladouceur, Morin,

Dugas, & Baillargeon, 2006). Overall, the WAQ has been shown to be sensitive to

treatment-related changes.

Taken together, the items on the WAQ measure the DSM-IV diagnostic criteria

for GAD. With the exception of the first question, all of the items on the WAQ measure

symptoms on a 9-point Likert scale with three qualifying statements (for the lowest,

middle and highest ratings on the scale). The qualifying statements vary depending on the

question. The first question on the WAQ asks respondents to list up to six worry themes

so that the clinician can obtain information about the nature (GAD or non-GAD) of the

respondent's worry. For example, if all worry topics listed by the respondent relate to

other psychological conditions (e.g., worry about social evaluation or about having a

panic attack), then GAD can be ruled out. The second item asks respondents to rate the

degree to which their worry is excessive (0 = *Not at all excessive*, 4 = *Moderately*

excessive, 8 = *Totally excessive)* and the third item asks respondents to rate the frequency

of their worry over the past 6 months (0 = *Never*, 4 = *1 day out of 2*, 8 = *Everyday*).

Respondents are also asked to rate the difficulty they have controlling worry (0 = *No*

difficulty, 4 = *Moderate difficulty,* 8 = *Extreme difficulty)* and how much worry interferes with their life (0 = *Not at all,* 4 = *Moderately,* 8 = *Very severely).* The remaining six items measure how often the respondent experiences the six GAD somatic symptoms (i.e., including restlessness, fatigue, difficulty concentrating, irritability, muscle tension, and sleep disturbance). The qualifiers on this scale are: 0 = *Not at all,* 4 = *Moderately,* and 8 = *Very severely.*

The original French version of the WAQ has demonstrated both sensitivity and specificity. For example, the questionnaire identified 89.5% of a sample with GAD as diagnosed by the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; Di Nardo, Brown, & Barlow, 1994) and misclassified only 5.3% of a non-clinical comparison group (Dugas et al., 2001). In addition, Dugas and colleagues (2001) found that scores on the French WAQ were related to pathological worry: 78.1% of participants who scored in the fourth quartile of the PSWQ met GAD criteria according to the WAQ whereas no participants in the first quartile of the PSWQ met the criteria. The French WAQ has also been shown to be sensitive to changes over treatment. For example, Ladouceur and colleagues (2000) found that scores on the Somatic subscale of the French WAQ decreased significantly after cognitive-behavioural therapy for GAD while scores remained unchanged in a wait-list control condition. Finally, the French WAQ has also showed evidence of good test-retest reliability: in one study, 75% of participants who met GAD criteria according to the WAQ at Time 1 met the same criteria when retested 2.5 months later, whereas 82% of those who did not meet criteria at Time 1 also did not meet criteria at retest (Dugas et al., 2001).

Although the French version has been shown to have sound psychometric properties, the English translation of the WAQ has not yet been formally validated. In addition, previous experience with the WAQ suggests that the measure could be improved in a number of ways. Accordingly, the main goals of the current study were to revise the English version of the WAQ and conduct a preliminary investigation of the new measure's psychometric properties. Specifically, the original English version of the WAQ was revised based on a review of DSM-IV diagnostic criteria, a review of existing measures of GAD, consideration of the original measure's limitations, and consultation with experts in the area of GAD. Once the new measure was finalized, its psychometric properties were examined in an English-speaking undergraduate sample.

Method

Participants

Participants were 163 undergraduate females and 50 undergraduate males ranging in age from 18 to 48 ($M = 23.6$, $SD = 5.07$). The undergraduates were recruited from the Department of Psychology Participant Pool or from non-psychology undergraduate classes at Concordia University. Table 1 presents demographic characteristics concerning participants' age, university status (full or part time), field of study, year of study, and ethnic origin.

Table 1

Demographic Characteristics of Participants

Demographic Characteristic	Female ($n = 163$)		Male ($n = 50$)	
Age	M	SD	M	SD
	23.7	5.6	23.5	3.6
	%		%	
University Status				
Full Time	84.0		92.0	
Part Time	14.7		6.0	
Field of Study				
Psychology	53.4		28.0	
Other	46.0		70.0	
Year of Study				
1st year	29.4		30.0	
2nd year	32.5		26.0	
3rd year	27.6		26.0	
Other	10.4		18.0	
Ethnicity				
Aboriginal	0.6		0	
African/Black	4.9		6.0	
Asian	9.8		6.0	
Bi-Racial	6.7		4.0	
European/White	66.9		68.0	

Latino/a/Hispanic	1.2	0
Middle Eastern	3.7	10.0
Other	6.1	6.0

Measures

Worry and Anxiety Questionnaire II (WAQ-II). The WAQ-II is the measure that was developed for the current study. It is a 13-item self-report questionnaire that measures DSM-IV diagnostic criteria for GAD. The WAQ-II is a revised version of the 11-item Worry and Anxiety Questionnaire (WAQ; Dugas et al., 2001). For a detailed description of the changes that were made to the original WAQ, see Procedure section. (see Appendix A for a copy of the WAQ-II).

Penn State Worry Questionnaire (PSWQ; Meyer et al.,1990). The PSWQ is a 16-item self-report questionnaire that measures the trait-like tendency to worry on a 5-point Likert scale (where 1 = *not at all typical* and 5 = *very typical*). Examples include "My worries overwhelm me" and "As soon as I finish one task, I start to worry about everything else I have to do." The PSWQ has high internal consistency (α = .86 to .94; Brown, Antony, & Barlow, 1992), and excellent test-retest reliability after 8-10 weeks (*r* = .92; Meyer et al., 1990). The questionnaire shows evidence of convergent and discriminant validity (Brown et al.). For example, the PSWQ is correlated with other measures of worry such as the Student Worry Scale (*r* = .59) and the Worry Domains Questionnaire (*r* = .67), and it is more highly correlated with the Cognitive scale of the Cognitive Somatic Anxiety Questionnaire (*r* = .70) than with the Somatic scale (*r* = .55; Meyer et al., 1990) The internal consistency of the PSWQ in the current sample is α =.76 (see Appendix B for a copy of the PSWQ).

Padua Inventory – Washington State University Revision (PI-WSUR; Burns, Keortge, Formea, & Sternberger, 1996). The PI-WSUR is a 39-item self-report questionnaire designed to measure obsessions and compulsions on a 5-point Likert scale

(where 0 = *not at all* and 4 = *very much*). Example items include "When I read I have the impression that I have missed something important and I must go back and reread the passage at least two or three times" and "I think or worry at length about having hurt someone without knowing it." The PI-WSUR has a high internal consistency of α = .92 and test-retest reliability of r = .76 after a 6- to 7-month interval. There is some evidence of discriminant validity given that the PI-WSUR only shares 12% of its variance with the PSWQ (Burns et al., 1996). Although the PI-WSUR total score is correlated with the PSWQ total score, each PI-WSUR item is more highly correlated with its corresponding subscale than with the PSWQ. The internal consistency of the PI-WSUR in the current sample is α =.92 (see Appendix C for a copy of the PI-WSUR).

The Agoraphobic Cognitions Questionnaire (ACQ; Chambless, Caputo, Bright, & Gallagher, 1984). The ACQ is a 15-item self-report questionnaire that measures the frequency of specific cognitions when the respondent is anxious. The cognitions are measured on a 5-point Likert scale (where 1= *thought never occurs when I am nervous* and 5 = *thought always occurs when I am nervous*). Example items include "I am going to be paralyzed by fear" and "I am going to scream." The ACQ has high internal consistency (α =.80) and test-retest reliability (r = .86) in a clinical sample after a 31-day interval (Chambless et al.). The ACQ shows evidence of adequate convergent and discriminant validity as it can differentiate between individuals with panic and agoraphobia and those with other anxiety disorders (Chambless & Gracely, 1989) The internal consistency of the ACQ in the current sample is α =.87 (see Appendix D for a copy of the ACQ).

The Mobility Inventory (MI; Chambless, Caputo, Jasin, Gracely, & Williams, 1985). The MI is a 26-item questionnaire that measures self-reported avoidance of situations such as grocery stores and high places when alone and when accompanied. Avoidance is measured on a 5-point Likert scale (where 1 = *never avoid* and 5 = *always avoid*). The MI has a high internal consistency of $\alpha = .94$. The 8-day test-retest reliability of the Avoidance Alone subscale ranges from $r = .89$ to .90. There is also evidence that the MI can differentiate between agoraphobic respondents and non-clinical controls. Chambless et al. found that the Avoidance Alone subscale always significantly exceeded the Avoidance Accompanied scale in clinical respondents but not in the non-clinical sample. The MI is sensitive to change with treatment (Chambless et al.) The internal consistencies of the Avoidance Accompanied and Avoidance Alone scales in the current sample are $\alpha = .88$ and $\alpha = .89$, respectively (see Appendix E for a copy of the MI).

Social Phobia Scale (SPS; Mattick & Clark, 1998). The SPS is a 20-item self-report questionnaire that asks respondents to rate how they would react to specific social situations on a 5-point Likert scale ranging from 0 (*not at all characteristic of me*) to 4 (*extremely characteristic of me*). Example items include "It would make me feel self conscious to eat in front of a stranger at a restaurant" and "I am worried people will think my behaviour is odd." The SPS has high internal consistency ($\alpha = .87$ to .94 across clinical and community samples) and good to very good test-retest reliability over 4 to 12 weeks ($r = .66$ to .93). There is some evidence of convergent and discriminant validity as clients with social phobia scored higher on the SPS than those with agoraphobia and non-clinical individuals (Heimberg, Mueller, Holt, & Hope, 1992) The internal consistency of the SPS in the current sample is $\alpha = .92$ (see Appendix F for a copy of the SPS).

Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II

is a 21-item self-report questionnaire designed to measure depressive symptoms such as

sadness and pessimism. Each item consists of 4 response options reflecting different

degrees of depressive symptomology. For example, the four response options for sadness

are "0 = *I do not feel sad*, 1 = *I feel sad much of the time*, 2 = *I am sad most of the time*,

and 3 = *I am so sad or unhappy that I cannot stand it*." The BDI-II has a high internal

consistency of α = .93 and a 1-week test-retest reliability of r = .93. There is evidence of

convergent and discriminant validity (Steer & Clark, 1997). The internal consistency of

the BDI in the current sample is α =.91 (see Appendix G for a copy of the BDI).

Illness Worry Scale (IWS; Robbins & Kirmayer, 1996). The IWS, which was

derived from the Illness Behaviour Questionnaire (Pilowsky & Spence, 1983), is a 12-

item self-report questionnaire that measures the tendency to worry about being ill, to feel

particularly sensitive to pain, and to be vulnerable to illness. Example items include "Do

you think you worry about your health more than most people?" and "Do you get sick

easily?" Each item is rated on a dichotomous (yes / no) scale. The IWS has moderate

internal consistency (α = .70) and good 12-month test-retest reliability (r = .82) (Robbins

& Kirmayer). There is some evidence of convergent validity as an earlier 9-item version

of the IWS was correlated with the Whiteley Index of Hypochondriasis (Pilowsky, 1967).

It can also differentiate between individuals with transient worries and those with more

persistent illness worry (Robbins & Kirmayer). The internal consistency of the IWS in

the current sample is α =.81 (See Appendix H for a copy of the IWS).

Procedure

Questionnaire Development. Although the original version of the WAQ has proven useful in terms of the assessment of GAD diagnostic criteria (in both research and clinical settings), previous experience with the WAQ suggested that the measure could be improved in a number of ways (see Appendix I for a copy of the WAQ). The experimenter (A.D.) reviewed the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; Di Nardo et al., 1994) to create a measure that would adhere more closely to established methods of assessing DSM-IV diagnostic criteria for GAD. Several other GAD-related questionnaires were also reviewed to evaluate how the authors were able to reflect the DSM-IV criteria. The questionnaires were short self-report measures that assess GAD diagnostic criteria, worry, or trait anxiety (GAD-Q-IV: Newman et al., 2002; PSWQ: Meyer et al., 1990; GAD-7: Spitzer, Krocnke, Williams, & Lowe, 2006; State-Trait Anxiety Inventory (STAI): Gaudry, Vagg, & Spielberger, 1975). Drafts of the questionnaire were presented to graduate students and clinical psychologists for feedback.

Three major changes to the original version of the WAQ were made. First, a definition for worry was added to the WAQ-II. Although many GAD measures use the term "worry", none to our knowledge provide a definition of the construct. Given that intrusive thoughts such as worry, obsessions and depressive rumination share some characteristics, a comprehensive review of the literature on GAD, obsessive-compulsive disorder and depression was conducted to create a simple definition of worry that would have minimal overlap with obsessive thoughts and depressive rumination. Second, a question about level of distress was added because the original WAQ did not have a

question about GAD-related distress. Lastly, the Likert scale qualifiers were modified to make them more simple and concrete. The "sensation" qualifiers were altered so that they would describe frequency rather than severity and the frequency qualifiers were altered to make them easier to conceptualize (e.g., "1 out of 2 days" was modified so that it would read "50% of days").

A number of minor changes were also made to terminology to make the questionnaire more straightforward. For example, the term "sensations" was changed to "signs of anxiety" and examples were provided for terms such as "irritability" and "muscle tension." In addition, because each item had only three qualifiers on a 9-point Likert scale, it was difficult for respondents to qualify the other six points on the scale. As a result, two qualifiers were added to the Likert scales of the WAQ-II.

Each question, with preliminary changes, was presented with the corresponding DSM-IV diagnostic criterion to a group of clinical psychology graduate students from the Anxiety Disorders Laboratory at Concordia University. The graduate students used their experience with the WAQ and other similar assessment tools to make pragmatic suggestions for revision. Next, the revised version of the questionnaire was sent to both graduate students and experts in the area of anxiety disorders. Specifically, the questionnaire was administered to five clinical psychology graduate students from outside the Anxiety Disorders Laboratory, for their revisions and comments. It was also sent to four external experts for their feedback. The external experts (Holly Hazlett-Stevens, Douglas Mennin, Lizabeth Roemer, and Maureen Whittal) were researchers with expertise in the area of GAD assessment who were not affiliated with our research group. The questionnaire was then finalized for use in the current study.

Validation. Participants were recruited in two ways: through the Department of Psychology Participant Pool and from non-psychology undergraduate classes at Concordia University. For students recruited through the Participant Pool, the procedure was the following. After reading a description of the study on the Psychology Department's website, interested Participant Pool volunteers emailed the experimenter to make an appointment to participate in the study. Volunteers were tested in groups of 2 to 10 participants in a testing room at Concordia University. At Time 1, participants were asked to sign a consent form outlining the procedure and the measures taken to ensure confidentiality of individual responses (see Appendix I). Participants completed a general information sheet and a test battery containing the eight questionnaires described previously. Approximately three weeks later, the same participants were contacted via email and asked to participate in the second part of the study. At Time 2, participants signed a second consent form and completed only one questionnaire, the WAQ-II. After completion, the experimenter explained the purpose of the research in greater detail and answered questions. All Participant Pool volunteers received course credit in a specified class for their participation in the study; those participating only at Time 1 received 0.5 course credits, and those participating at both times received 1 course credit.

For students recruited from non-psychology undergraduate classes, the following procedure was used. First, approximately 50 professors were sent formal letters requesting to have their class participate in the study. Four professors agreed to participate. The size of the participating classes ranged from 15 to approximately 100 students. At Time 1, students who agreed to participate were asked to sign a consent form outlining the study procedure and the measures taken to ensure confidentiality of

individual responses; they were also informed that the completion of the first

questionnaire package would take approximately 30 minutes. Participants then completed

the general information sheet and the test battery containing the eight previously-

described questionnaires. Four weeks later, the professors were contacted and the Time 2

testing was scheduled. At Time 2, participants signed a second consent form and

completed the WAQ-II. After completion, the experimenter explained the purpose of the

research in detail and answered any questions. Participants recruited in classes were not

compensated for their participation.

Results

Preliminary Analyses

All measures were screened for distribution skew and for the presence of

multivariate and univariate outliers. To identify univariate outliers, z-score distributions

were computed for each measure. Scores that fell 3.29 standard deviations above or

below the mean were considered outliers and were removed from the data set (see

Tabachnick & Fidell, 2007). Nine (9) univariate outliers were removed from the data set.

To identify multivariate outliers, all measures were entered into a multiple regression and

Mahalanobis distance was computed. Measures that did not meet the chi-square cut-off of

$p < .01$ were considered multivariate outliers. Sixteen (16) multivariate outliers were

removed from the data set. Finally, descriptive statistics were used to identify non-

normally distributed measures. The majority of the measures (i.e., the WAQ-II, BDI-II,

PI-WSUR, SPS, IWS and the ACQ) were positively skewed. This result was expected

because low scores are typically overrepresented in undergraduate samples when using

questionnaires designed to measure clinically significant psychopathology. Therefore, it was decided *not* to correct the positive skews on the aforementioned questionnaires.

Sensitivity and Specificity

To meet GAD criteria on the WAQ-II, respondents were required to endorse a response of at least 4 on the first three cognitive items (questions 2-4), on three of the six somatic items (questions 6a-e), and on the distress or the interference items (questions 7 and 8). These diagnostic criteria were designed to reflect those of the DSM-IV. Question 5 (i.e., difficulty controlling worry more days than not) was not included in the calculations because, although it is clinically useful, it does not reflect DSM-IV criteria. To examine the sensitivity and specificity of the WAQ-II in a non-clinical population, scores on the PSWQ were divided into quartiles and the proportion of participants meeting GAD criteria on the WAQ-II was assessed in each quartile. Overall, the WAQ-II showed evidence of specificity. For example, no participants in the first quartile of the PSWQ (M = 32.10, SD = 5.08) met criteria for GAD as measured by the WAQ-II. The WAQ-II diagnostic criteria also showed evidence of sensitivity; 37% of participants in the fourth quartile of the PSWQ (M = 63.35, SD = 5.71) met WAQ-II criteria for GAD. The results for the four PSWQ quartiles are presented in Figure 1. The WAQ-II had a high internal consistency (α = .93).

Convergent and Discriminant Validity

A continuous scoring system was also developed to reflect the severity of the different GAD symptom clusters. A total score on the WAQ-II was computed by dividing the total score of the somatic items (questions 6a-e) and the distress/interference items (questions 7 and 8) by 2 and adding those to the total score on the first three cognitive

items (questions 2-4). For example, if a respondent received a total score of 45 on the somatic items (e.g., restlessness, fatigue, difficulty concentrating) and a total score of 15 on questions 7 and 8, the two scores would be added together (45 + 15 = 60) and divided by two (60/2 = 30). That score would be added to the total cognitive score. For example, if the total cognitive score was 24, the overall WAQ-II score for the respondent would be 54 (30 + 24 = 54). This scoring system was chosen so that the cognitive and somatic symptoms would be given equal weight in the calculation of the overall score. Specifically, the maximum total score for the cognitive items (8 x 3 = 24) is equal to the maximum total score for the somatic items (8 x 6 / 2 = 48/2 = 24).

The convergent and discriminant validity of the WAQ-II continuous scores was initially evaluated using Pearson correlations. As anticipated, WAQ-II total scores were significantly correlated with scores on the measures of worry, depression, anxiety, and hypochondriasis (PSWQ, BDI-II, PI-WSUR, SPS, ACQ, MI, and IWS) (see Table 2). A series of comparisons of non-independent correlation coefficients using Fisher r-to-z transformations were conducted to measure the specificity of WAQ-II continuous scores with regards to scores on the PSWQ, which is the measure that is theoretically most closely linked to the WAQ-II. As expected, WAQ-II total scores were significantly more highly correlated with total scores on the PSWQ than with the total scores of any of the other measures.

Table 2

Pearson Correlations Between All Study Measures (N = 213)

	WAQ-T1	PSWQ	BDI-II	PI-WSUR	SPS	ACQ	MI-ACC	MI-AL	IWS	WAQ-T2
WAQ-T1	--	.728**	.608**	.526**	.516**	.464**	.377**	.395**	.406**	.786**
PSWQ		--	.465**	.492**	.377**	.418**	.306**	.372**	.385**	.694**
BDI-II			--	.460**	.548**	.528**	.401**	.434**	.373**	.448**
PI-WSUR				--	.451**	.420**	.364***	.366**	.452***	.342**
SPS					--	.596**	.341**	.471**	.451**	.343**
ACQ						--	.356**	.447***	.379***	.413**
MI-ACC							--	.702**	.266**	.173
MI-AL								--	.266**	.195*
IWS									--	.293**
WAQ-T2										--

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Note: WAQ-II T1 = Worry and Anxiety Questionnaire II (Time 1); PSWQ = Penn State Worry Questionnaire; BDI-II = Beck

Depression Inventory II; PI-WSUR = Padua Inventory – Washing State University Revision; SPS = Social Phobia Scale; ACQ =

Agoraphobic Cognitions Questionnaire; MI-ACC = Mobility Inventory-Accompanied; MI-AL = Mobility Inventory-Alone; IWS =

Illness Worry Scale, WAQ-II T2 = Worry and Anxiety Questionnaire II (Time 2).

* Correlation is significant at the .05 level (2-tailed).

** Correlation is significant at the .01 level (2-tailed).

[a]N =114

To further examine the convergent and discriminant validity of the WAQ-II, a hierarchical regression was carried out using WAQ-II total scores as the dependent variable. In the first step, demographics (age and sex) were entered and made a significant contribution to WAQ-II total scores, $F(2, 200) = 5.28$, $p < .01$. However, neither variable on its own significantly predicted WAQ-II scores. In the second step, all measures but the PSWQ (i.e., BDI-II, PI-WSUR, SPS, ACQ, MI-ACC, MI-ALONE, IWS) were entered and explained an additional 49.5% variance in WAQ-II scores, $F(7, 193) = 28.88$, $p < .001$. BDI-II, PI-WSUR and SPS scores were significant predictors of WAQ-II scores in this step. Finally, the PSWQ was added in the third step and accounted for an additional 15% of the variance in WAQ-II scores $F(1, 192) = 91.60$, $p < .001$. Although the BDI-II and SPS scores remained significant predictors of WAQ-II total scores in this step, the PSWQ made the highest contribution to WAQ-II total scores in the final model as evidenced by the beta weights (see Table 3).

Test-Retest Reliability

Pearson correlations were also used to assess the test-retest reliability of the WAQ-II. Time 1 WAQ-II total scores were significantly correlated with Time 2 WAQ-II total scores, $r(112) = .79$, $p < .01$. Furthermore, comparisons of non-independent correlation coefficients using Fisher r-to-z transformations found that Time 1 WAQ-II total scores were significantly more highly correlated with WAQ-II Time 2 total scores than with the total scores of the other measures. To further examine the test-retest reliability of the WAQ-II, agreement of GAD diagnoses was assessed across the two time points. Forty-seven percent (47%) of people who met criteria on the WAQ-II at Time 1

continued to meet criteria at Time 2. Furthermore, 95% of people who did not meet

criteria on the WAQ-II at Time 1 continued to not meet criteria at Time 2.

Table 3

Summary of Hierarchical Multiple Regression Predicting Scores on the WAQ-II (N =

202)

Variables	R^2	B	SE B	β
Step 1	.05*			
Age		.028	0.135	0.014
Sex		-5.38	1.66	-0.223
Step 2	.536***			
Age		.071	0.100	0.036
Sex		-2.50	1.27	-0.104
BDI-II		.462	0.074	0.395***
PI-WSUR		.138	0.034	0.239***
SPS		.131	0.061	0.151*
ACQ		.048	0.079	0.039
MI-ACC		.082	0.081	0.076
MI-ALONE		-.025	0.056	-0.037
IWS		.233	0.257	0.055
Step 3	.686***			
Age		.036	0.082	0.018
Sex		-.578	1.07	-0.024
PSWQ		.396	0.041	0.499***
BDI-II		.340	0.062	0.291***

PI-WSUR	.056	0.030	0.096
SPS	.149	0.050	0.172*
ACQ	-.036	0.066	-0.030
MI-ACC	.077	0.067	0.070
MI-AL	-.051	0.046	-0.075
IWS	.022	0.213	0.005

Note: WAQ-II = Worry and Anxiety Questionnaire II (WAQ-II); BDI-II = Beck Depression Inventory-II; PI-WSUR = Padua Inventory – Washington State University Revision; SPS = Social Phobia Scale; ACQ = Agoraphobic Cognitions Questionnaire; MI-ACC = Mobility Inventory-Accompanied; MI-AL = Mobility Inventory Alone; IWS = Illness Worry Scale: PSWQ = Penn State Worry Questionnaire.

Gender coding: female = 0; male = 1.

* $p < .05$

*** $p < .001$

Discussion

The purpose of this research was to revise and validate an existing screening

questionnaire for Generalized Anxiety Disorder (GAD). Specifically, we revised the

Worry and Anxiety Questionnaire (WAQ) in order to make it more objective, easier to

understand and more consistent with the DSM-IV criteria for GAD. It was anticipated

that the WAQ-II would show evidence of sensitivity, specificity, convergent and

discriminant validity, and test-retest reliability.

Sensitivity and Specificity

There was evidence that the WAQ-II has potential as a sensitive and specific

measure of GAD. As anticipated, none of the participants scoring in the first quartile of

the PSWQ met criteria for GAD as assessed by the WAQ-II. On the other hand, 37% of

participants scoring in the fourth quartile of the PSWQ met criteria for GAD according to

the WAQ-II. Taken together, these results provide evidence that high worriers are more

likely to be diagnosed with GAD by the WAQ-II than low worriers. Given that excessive

worry is the main feature of GAD, these results provide preliminary evidence that the

WAQ-II may be a useful screening tool for GAD. The relationship between the WAQ-II

and worry was also evident when continuous WAQ-II scores were considered. WAQ-II

total scores and total PSWQ scores were highly correlated ($r = .73$). In fact, the

correlation obtained in the present study was as high as the correlation between the GAD-

Q-IV and the PSWQ ($r = .66$) obtained in a previous study (Newman et al., 2002). It

should be noted however, that although pathological worry is the hallmark of GAD, it is

not the only symptom of GAD. Therefore, it is not surprising that many high scorers on

the PSWQ were not diagnosed with GAD (63%).

Interestingly, 2% of individuals who scored in the second quartile and 19% of individuals who scored in the third quartile of the PSWQ met criteria for GAD according to the WAQ-II. Although these individuals were not high worriers according to the PSWQ (they could be considered moderate worriers), they met criteria for GAD on the WAQ-II. This result is consistent with those of Behar, Alcaine, Zuellig and Borkovec (2003), who found that the PSWQ has relatively low sensitivity and positive predictive power for GAD in a student sample. Obviously, given the complexity of GAD diagnostic criteria, the assessment of worry level is insufficient to accurately identify individuals with the disorder. The current findings suggest that some individuals who meet GAD criteria by the questionnaire may not have extreme levels of worry yet still consider that their worry and anxiety cause significant interference and distress.

Distinguishing GAD worry from normal worry has been a challenge since the DSM-III-R (American Psychiatric Association (APA), 1987) first included the notion of pathological worry in the definition of GAD. In their research on the diagnostic reliability of the anxiety disorders, Chorpita, Brown and Barlow (1998) found that specific behavioural markers increase the diagnostic reliability of anxiety disorders. They noted that GAD is particularly difficult to diagnose because worry is fundamentally an internal cognitive event that typically has few overt manifestations or consequences. Thus although excessive and uncontrollable worry is theoretically specific to GAD, it can be very difficult to assess given its covert nature. By measuring the frequency of worry (as opposed to exclusively focussing on the excessive and uncontrollable nature of worry), the WAQ-II may facilitate the assessment of GAD. Obviously, by also assessing the

somatic symptoms of GAD, the WAQ-II provides a more comprehensive assessment of GAD than measures of worry such as the PSWQ.

Convergent and Discriminant Validity

It was not surprising that WAQ-II scores were significantly correlated with scores on measures of OCD, panic, social anxiety, agoraphobia, and health anxiety given the well documented symptom overlap and comorbidity between these disorders and GAD (e.g., Brown, Campbell, Lehman, Grisham, & Mancill, 2001). Despite this overlap, however, WAQ-II scores were significantly more highly correlated with PSWQ scores than with scores on the other measures of anxiety and depression. Similarly, Newman et al. (2002) found that GAD-Q-IV scores were more highly correlated with PSWQ scores than with scores on measures of panic and social phobia. However, Newman et al. did not include measures of OCD, agoraphobia, health anxiety and depression in their study; therefore, it is not know if the GAD-Q-IV is more closely related to measures of worry than to measures of the aforementioned disorders. In the current study, the WAQ-II also showed evidence of discriminant validity in the hierarchical regression; the PSWQ made the strongest contribution to the prediction of WAQ-II total scores. These results suggest that the WAQ-II may be able to discriminate between worry and symptoms of other anxiety disorders and depression.

In addition to PSWQ scores, BDI-II and SPS scores also made significant contributions to the prediction of WAQ-II total scores in the final regression model. This result was not surprising given that GAD, depression and social anxiety have much in common in terms of their phenomenology and tend to co-occur in the same individuals (Dugas & Robichaud, 2007). For example, Kessler, Walters, and Wittchen (2004) have

reported that depression and GAD may share a common genetic predisposition, and that GAD may be more closely linked to depression than to other anxiety disorders – with the possible exception of social anxiety disorder (Kessler et al., 2004). Not surprisingly, depression is the most commonly diagnosed comorbid condition in individuals with GAD.

The close association between GAD and social anxiety found in this study has also been reported in previous studies. For example, Ladouceur, Freeston, Fournier, Dugas and Doucet (2002) investigated worry content by conducting a factor analysis on the Worry Domains Questionnaire (WDQ; Tallis, Eysenck, & Mathews, 1992) in high school, university and older adult samples. The first factor they extracted in high school and university samples reflected social-evaluative concerns. The social-evaluative factor accounted for the greatest amount of variance in the tendency to worry; i.e., it was the best predictor of the global tendency to worry. Similarly, when Lovibond and Rapee (1993) asked participants to rate their concern with certain negative outcomes on the Negative Outcomes Questionnaire, they extracted two factors labelled "physical concerns" and "social concerns." Only the social concerns factor was correlated with worry as measured by the PSWQ. Thus, given that GAD worry is ultimately characterized by social-evaluative issues and that GAD and depression may have a common genetic predisposition (as well as high comorbidity rates), the unique contributions of the SPS and BDI-II to the prediction of WAQ-II scores were not entirely unexpected.

Test-Retest Reliability

The findings of the current study also showed that WAQ-II categorical and continuous scores were relatively stable. Approximately half of the participants who met DSM-IV GAD criteria on the WAQ-II at Time 1 continued to meet criteria at Time 2 and 95% of participants who did not met criteria on the WAQ-II at Time 1 continued to not meet criteria at Time 2. In the original validation study of the WAQ, Dugas et al. (2001) found that 75% of the sample who met criteria on the WAQ at Time 1 also met criteria at Time 2 and 82% of the sample who did not meet criteria on the WAQ at Time 1 also did not meet criteria at Time 2. Thus, the WAQ and WAQ-II appear to have similar test-retest reliability (although both have not been tested in the same study). In the GAD-Q-IV validation study, Newman et al. (2002) found that 92% of their sample stayed in the same category from Time 1 to Time 2. Thus, the GAD-Q-IV may be more temporally stable than either the WAQ or the WAQ-II. However, it should be noted that in the Newman et al. study, participants could be classified as having "GAD" without meeting the DSM-IV criteria for the disorder (their GAD diagnostic cutoff on the GAD-Q-IV was numerically determined and not directly based on DSM-IV criteria).

In summary, the results of this research suggest: (1) that high worriers are more likely to be diagnosed with GAD on the WAQ-II than low worriers; (2) that although WAQ-II scores are associated with scores on measures of different anxiety disorders and depression, they are most highly related to scores on a measure of worry; (3) that measures of worry, social anxiety and depression all made unique contributions to the prediction of WAQ-II scores; and (4) that the WAQ-II shows evidence of temporal stability over three weeks, regardless of if it is scored continuously or categorically.

Clinical Implications

An important strength of the WAQ-II is that it can be scored either continuously or categorically. Continuous and categorical scoring systems can be used for different clinical purposes because they each have specific strengths and weaknesses. One advantage of a continuous scoring system is that it provides an assessment of symptom severity (and is not overly-dependent on DSM-IV diagnostic criteria). The WAQ-II continuous scoring system was designed to give equal weight to the cognitive and somatic symptoms in the overall score. This is an important strength of the WAQ-II because the clinician can directly compare the severity of the cognitive and somatic symptoms and use that information to help create a treatment plan. Another advantage of the continuous scoring system is that it allows both the patient and clinician to monitor change over time. For example, the WAQ-II can be administered weekly (e.g., the patient can complete the WAQ-II in the waiting room before his/her weekly session) and the course of change can be charted over therapy. Generally, a continuous scoring system is helpful when the clinician would like to assess symptom severity or monitor symptom change over the course of therapy. However, there are situations where a categorical classification may be more helpful.

A categorical classification system can be used to help clinicians make treatment decisions where resources are limited. To receive services or insurance coverage, patients are often required to receive a "diagnosis." The WAQ-II can be used as a preliminary way to categorize individuals as either "clinical" or "non-clinical." After the preliminary classification, the WAQ-II should of course be followed-up with a formal diagnostic assessment. Given that self-report screening measures such as the WAQ-II tend to

produce a fair amount of *false positives* (diagnosing GAD when it is in fact not present)

but very few *false negatives* (not recognizing GAD when it is in fact present), these

measures are ideal for screening because the vast majority of individuals will not be

screened out before a formal diagnostic assessment (i.e., few false negatives). In other

words, there is little chance that someone suffering from a clinically-significant disorder

(as defined by the DSM-IV) will not be properly assessed. However, it should be kept in

mind that if the categorical system is used alone, information about the patient is lost

because the system does not provide information about symptom severity. In addition,

individuals experiencing considerable distress or interference in only one or two areas

may not be identified as needing treatment because they would be classified as "non-

disordered" using the categorical system. Therefore, the obvious conclusion is that it is

often advantageous to use both systems; one to assess symptom severity and monitor

symptom change, and the other to map onto DSM-IV criteria, to communicate with third

parties and to make decisions about subsequent formal diagnostic assessments.

Study Limitations

One of the limitations of this research was the use of the PSWQ to assess the

sensitivity and specificity of the WAQ-II. Although the PSWQ is a well-established

measure of worry, its value as a GAD screener is limited because it does not assess the

somatic symptoms of anxiety or directly measure interference and functional impairment.

The close relationship between the WAQ-II and the PSWQ found in this study provides

evidence that the cognitive items of the WAQ-II (those that relate to worry) appear to be

valid; however, the validity of the somatic symptom items (and to a lesser extent, the

interference and distress items) cannot be determined from the current findings. Ideally, it

would have been preferable to compare the WAQ-II to a diagnostic interview such as the ADIS-IV (Di Nardo et al., 1994) to arrive at conclusions about the suitability of the WAQ-II as a GAD screener.

The conclusions that can be drawn from this research are also limited because the WAQ-II was not tested in a clinical population. If the WAQ-II is an effective screening tool for GAD, it should be able to reliably differentiate between patients with GAD, patients with other disorders and non-clinical controls. The sensitivity, specificity, convergent and discriminant validity, and test-retest reliability of the WAQ-II must also be evaluated in a clinical population before it can reliably be used as a screening tool. Relatedly, the generalizability of the current results is limited because the sample was not very diverse in terms of socio-demographic characteristics and psychopathology. The research was limited to undergraduate students whose symptoms of anxiety may have been very different from people formally diagnosed with GAD and from non-clinical community controls.

A third limitation of this study was that the impact of the revisions to the original version of the WAQ was not directly assessed. This research would have been more informative if the original version of the WAQ had been compared to the WAQ-II in the same sample. This would have allowed us to examine whether the WAQ modifications made a difference in terms of the sensitivity, specificity, validity and temporal stability of the GAD screening measure. Although the inclusion of the original version of the WAQ would not have allowed us to determine the impact of *individual* changes made to the WAQ-II, it would have nonetheless allowed us to assess the impact of the combination of all changes made to the questionnaire. Since one of the goals of the revisions was to

make the questionnaire easier to understand, future research should ask participants to rate the readability or "understandability" of the questionnaire items. Ideally, this study would have compared both the WAQ and WAQ-II to the ADIS-IV (Di Nardo et al., 1994) to determine if the modifications made to the WAQ-II rendered the questionnaire more reliable.

Future Directions

Although the results of this research are encouraging, more research is necessary to determine whether the WAQ-II is an effective screening device for GAD. First, as mentioned above, the WAQ-II should be validated in a clinical population by comparing it to a well-established GAD assessment tool such as the ADIS-IV (Di Nardo et al., 1994). By using a clinical population, investigators could determine whether WAQ-II scores relate to important clinical variables such as functional impairment and quality of life. In addition, Receiver Operating Characteristics analyses (ROC) could be conducted with the ADIS-IV to determine a WAQ-II cutoff score that provides an optimal balance between sensitivity and specificity. Second, the WAQ-II should be compared to other short, self-report GAD screening questionnaires to determine which questionnaires have the strongest relationship with the ADIS-IV and the highest test-retest reliability. Finally, treatment studies could be used to evaluate the extent to which the WAQ-II is sensitive to change over treatment.

Overall, the results of this research suggest that the WAQ-II shows promise as a screening measure for GAD. If the WAQ-II is found to be a reliable and valid measure in clinical populations, it is anticipated that it will be especially useful for identifying individuals whose symptoms of anxiety may have otherwise been overlooked in primary

care. Although GAD occurs frequently and has a tremendous personal and social impact, it is under diagnosed. A screening tool such as the WAQ-II may prove to be clinically useful if it facilitates the identification of GAD and ultimately helps GAD sufferers receive effective treatment.

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Figure Caption

Figure 1. Percent of participants in each of the four quartiles of the PSWQ meeting criteria for GAD on the WAQ-II.

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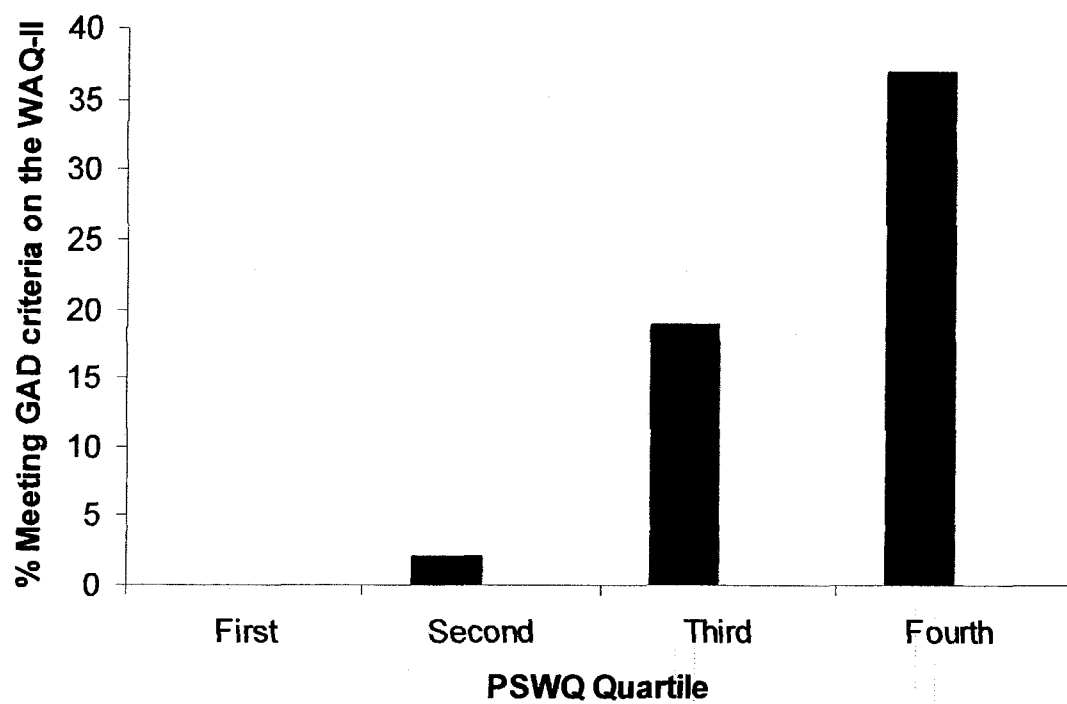
Appendix A

Worry and Anxiety Questionnaire-II (WAQ-II)

WAQ-II

Many people talk about worry. The following is a definition of worry:

"Worry is a chain of upsetting thoughts about something bad that could happen to you or to others."

Please keep this definition in mind when you answer the questions on this form.

---

1. **What do you worry about most often?**

    a) _____   e) _____

    b) _____   f) _____

    c) _____   g) _____

    d) _____   h) _____

2. **Do you think your worries are excessive? In other words, are they blown out of proportion?**

Not at all		Slightly		Moderately		Very Much		Extremely
....0....	....1....	....2....	....3....	....4....	....5....	....6....	....7....	....8.......

3. **Over the past 6 months, how often have you had excessive worries?**

Never		Some days		50% of days		Most days		Everyday
....0....	....1....	....2....	....3....	....4....	....5....	....6....	....7....	....8.......

4. **Do you think you have problems controlling your worry?**
   (For example, once you start to worry, you feel like you cannot stop.)

Not at all		Slightly		Moderately		Very Much		Extremely
....0....	....1....	....2....	....3....	....4....	....5....	....6....	....7....	....8.......

5. **How often do you have problems controlling your worry?**

Never		Some days		50% of days		Most days		Everyday
....0....	....1....	....2....	....3....	....4....	....5....	....6....	....7....	....8.......

6. **Over the last 6 months, how often did you experience the following signs of anxiety?**

a) *Restlessness or being "keyed up" or "on edge"*

Never		Some days		50% of days		Most days		Everyday
0	1	2	3	4	5	6	7	8

b) *Tiring easily*

Never		Some days		50% of days		Most days		Everyday
0	1	2	3	4	5	6	7	8

c) *Trouble concentrating*

Never		Some days		50% of days		Most days		Everyday
0	1	2	3	4	5	6	7	8

d) *Irritability (being easily annoyed or angered)*

Never		Some days		50% of days		Most days		Everyday
0	1	2	3	4	5	6	7	8

e) *Muscle tension (often pain or tightness in the face, neck, shoulders or back)*

Never		Some days		50% of days		Most days		Everyday
0	1	2	3	4	5	6	7	8

f) *Problems sleeping (problems falling asleep, problems staying asleep, having restless or unsatisfying sleep)*

Never		Some days		50% of days		Most days		Everyday
0	1	2	3	4	5	6	7	8

---

7. **To what extent do worries and/or the signs of anxiety listed in question 6 interfere with your life? (For example your job, daily routine, social life or family life.)**

Not at all		Slightly		Moderately		Very Much		Extremely
0	1	2	3	4	5	6	7	8

8. **To what extent do your worries and/or the signs of anxiety listed in question 6 upset you or bother you?**

Not at all		Slightly		Moderately		Very Much		Extremely
0	1	2	3	4	5	6	7	8

Appendix B

Penn State Worry Questionnaire (PSWQ)

PSWQ

Please circle a number (1 to 5) that best describes how typical or characteristic each item is of you.

	Not at all typical		Somewhat typical		Very Typical
1. If I don't have enough time to do everything, I don't worry about it .	1	2	3	4	5
2. My worries overwhelm me.	1	2	3	4	5
3. I don't tend to worry about things.	1	2	3	4	5
4. Many situations make me worry.	1	2	3	4	5
5. I know I shouldn't worry about things but I just can't help it.	1	2	3	4	5
6. When I'm under pressure, I worry a lot.	1	2	3	4	5
7. I am always worrying about something.	1	2	3	4	5
8. I find it easy to dismiss worrisome thoughts.	1	2	3	4	5
9. As soon as I finish one task, I start to worry about everything else I have to do.	1	2	3	4	5
10. I never worry about anything.	1	2	3	4	5
11. When there is nothing more that I can do about a concern, I don't worry about it anymore.	1	2	3	4	5
12. I've been a worrier all my life.	1	2	3	4	5
13. I notice that I have been worrying about things.	1	2	3	4	5
14. Once I start worrying, I can't stop.	1	2	3	4	5
15. I worry all the time.	1	2	3	4	5
16. I worry about projects until they are all done	1	2	3	4	5

Meyer, T. J. , Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990).

Appendix C

Padua Inventory - Washington State University Revision (PI-WSUR)

PI-WSUR

The following statements refer to thoughts and behaviours which may occur to everyone in everyday life. For each statement, choose the reply which best seems to fit you and the degree of disturbance which such thoughts or behaviours may create. Rate your replies as follows:

	Not at all	A little	Quite a lot	A lot	Very much
1. I feel my hands are dirty when I touch money.	0	1	2	3	4
2. I think even the slightest contact with bodily secretions (perspiration, saliva, urine, etc.) may contaminate my clothes or somehow harm me.	0	1	2	3	4
3. I Find it difficult to touch an object when I know it has been touched by strangers or by certain people.	0	1	2	3	4
4. I find it difficult to touch garbage or dirty things.	0	1	2	3	4
5. I avoid using public toilets because I am afraid of disease or contamination	0	1	2	3	4
6. I avoid using public telephones because I am afraid of contagion or disease.	0	1	2	3	4
7. I wash my hands more often and longer than necessary.	0	1	2	3	4
8. I sometimes have to wash or clean myself simply because I think I may be dirty or "contaminated."	0	1	2	3	4
9. If I touch something I think is contaminated I immediately have to wash or clean myself.	0	1	2	3	4
10. If an animal touches me, I feel dirty and immediately have to wash myself or change clothes.	0	1	2	3	4

	Not at all	A little	Quite a lot	A lot	Very much
11. I feel obligated to follow a particular order in dressing, undressing, and washing myself.	0	1	2	3	4
12. Before going to sleep, I have to do certain things in a certain order.	0	1	2	3	4
13. Before going to bed, I have to hang up or fold my clothes in a special way.	0	1	2	3	4
14. I have to do things several times before I think they are properly done.	0	1	2	3	4
15. I tend to keep checking things more often than necessary.	0	1	2	3	4
16. I check and recheck gas and water taps and light switches after turning them off.	0	1	2	3	4
17. I return home to check doors, windows, drawers, etc., in detail to make sure they are properly shut.	0	1	2	3	4
18. I keep checking forms, documents, checks, etc., in detail to make sure I have filled them in correctly.	0	1	2	3	4
19. I keep going back to see that matches, cigarettes, etc., are properly extinguished.	0	1	2	3	4
20. When I handle money, I count and recount it several times.	0	1	2	3	4
21. I check letters carefully many times before posting them.	0	1	2	3	4
22. Sometimes, I am not sure I have done things, which in fact I know I have done.	0	1	2	3	4

	Not at all	A little	Quite a lot	A lot	Very much

23. When I read, I have the impression I have missed something important and must go back and reread the passage at least two or three times. ....0....... ......1.............2.............3..............4........

24. I imagine catastrophic consequences as a result of absent mindedness or minor errors, which I make. ....0....... ......1.............2.............3..............4........

25. I think or worry at length about having hurt someone without knowing it. ....0....... ......1.............2.............3..............4........

26. When I hear about disaster, I think it is somehow my fault. ....0....... ......1.............2.............3..............4........

27. I sometimes worry at length for no reason that I have hurt myself or have some disease. ....0....... ......1.............2.............3..............4........

28. I get upset and worried at the sight of knives, daggers, and other pointed objects. ....0....... ......1.............2.............3..............4........

29. When I hear about suicide or crime, I am upset for a long time and find it difficult to stop thinking about it. ....0....... ......1.............2.............3..............4........

30. I invent useless worries about germs and disease. ....0....... ......1.............2.............3..............4........

31. When I look down from a bridge or a very high window, I feel the impulse to throw myself into space. ....0....... ......1.............2.............3..............4........

32. When I see a train approaching, I sometimes think I could throw myself under its wheels. ....0....... ......1.............2.............3..............4........

	Not at all	A little	Quite a lot	A lot	Very much

33. At certain moments, I am tempted
    to tear off my clothes in public.   0........ ......1........ ....2..............3..............4........

34. While I am driving, I sometimes
    feel an impulse to drive the car
    into someone or something.   0........ ......1........ ....2..............3..............4........

35. Seeing weapons excites me and makes
    me think violent thoughts.   0........ ......1........ ....2..............3..............4........

36. I sometimes feel the need to break or
    damage things for no reason.   0........ ......1........ ....2..............3..............4........

37. I sometimes have an impulse to steal
    other people's belongings, even if they
    are of no use to me.   0........ ......1........ ....2..............3..............4........

38. I am sometimes almost irresistibly
    tempted to steal something from the
    supermarket.   0........ ......1........ ....2..............3..............4........

39. I sometimes have an impulse to hurt
    defenseless children or animals.   0........ ......1........ ....2..............3..............4........

Appendix D

Agoraphobic Cognitions Questionnaire (ACQ)

ACQ

Below are some thoughts or ideas that may pass through your mind when you are nervous or frightened. Please indicate how often each thought occurs when you are nervous. Rate from 1-5 using the scale below. Please rate all items.

	Thought **never** occurs when I am nervous	Thought **rarely** occurs when I am nervous	Thought occurs **during half of the time** when I am nervous	Thought **usually** occurs when I am nervous	Thought **always** occurs when I am nervous
1. I am going to throw up.	1	2	3	4	5
2. I am going to pass out.	1	2	3	4	5
3. I must have a brain tumor.	1	2	3	4	5
4. I will have a heart attack.	1	2	3	4	5
5. I will choke to death.	1	2	3	4	5
6. I am going to act foolish.	1	2	3	4	5
7. I am going blind.	1	2	3	4	5
8. I will not be able to control myself.	1	2	3	4	5
9. I will hurt someone.	1	2	3	4	5
10. I am going to have a stroke.	1	2	3	4	5

	Thought **never** occurs when I am nervous	Thought **rarely** occurs when I am nervous	Thought occurs **during half of the times** when I am nervous	Thought **usually** occurs when I am nervous	Thought **always** occurs when I am nervous
11. I am going crazy.	1	2	3	4	5
12. I am going to scream.	1	2	3	4	5
13. I am going to babble or talk funny.	1	2	3	4	5
14. I am going to be paralyzed by fear.	1	2	3	4	5
15. Other ideas not listed (please describe and rate them)	1	2	3	4	5

_____
_____
_____

Appendix E

Mobility Inventory (MI)

MI

1. Please indicate the degree to which you avoid the following places or situations because of discomfort or anxiety. Rate your amount of avoidance when you are with a trusted companion and when you are alone. Leave blank situations that do not apply to you.

When accompanied

Places	Never avoid	Rarely avoid	Avoid about half of the time	Avoid most of the time	Always avoid
Theaters	1	2	3	4	5
Supermarkets	1	2	3	4	5
Shopping malls	1	2	3	4	5
Classrooms	1	2	3	4	5
Department stores	1	2	3	4	5
Restaurants	1	2	3	4	5
Museums	1	2	3	4	5
Elevators	1	2	3	4	5
Auditoriums or stadiums	1	2	3	4	5
Garages	1	2	3	4	5
High places	1	2	3	4	5
Please tell how high [ ]					
Enclosed places	1	2	3	4	5

When alone

Places	Never avoid	Rarely avoid	Avoid about half of the time	Avoid most of the time	Always avoid
Theaters	1	2	3	4	5
Supermarkets	1	2	3	4	5
Shopping malls	1	2	3	4	5
Classrooms	1	2	3	4	5
Department stores	1	2	3	4	5
Restaurants	1	2	3	4	5
Museums	1	2	3	4	5
Elevators	1	2	3	4	5
Auditoriums or stadiums	1	2	3	4	5
Garages	1	2	3	4	5
High places	1	2	3	4	5
Please tell how high [ ]					
Enclosed places	1	2	3	4	5

	When accompanied					When alone				
	Never avoid	Rarely avoid	Avoid about half of the time	Avoid most of the time	Always avoid	Never avoid	Rarely avoid	Avoid about half of the time	Avoid most of the time	Always avoid
Open spaces										
Outside (for example: fields, wide streets, courtyards)	1	2	3	4	5	1	2	3	4	5
Inside (for example: large rooms, lobbies)	1	2	3	4	5	1	2	3	4	5
Riding in										
Buses	1	2	3	4	5	1	2	3	4	5
Trains	1	2	3	4	5	1	2	3	4	5
Subways	1	2	3	4	5	1	2	3	4	5
Airplanes	1	2	3	4	5	1	2	3	4	5
Boats	1	2	3	4	5	1	2	3	4	5
Driving or riding in car										
A. at anytime	1	2	3	4	5	1	2	3	4	5
B. on expressways	1	2	3	4	5	1	2	3	4	5
Situations										
Standing in lines	1	2	3	4	5	1	2	3	4	5
Crossing bridges	1	2	3	4	5	1	2	3	4	5

Situations (continued)

	When **accompanied**					When **alone**				
	Never avoid	Rarely avoid	Avoid about half of the time	Avoid most of the time	Always avoid	Never avoid	Rarely avoid	Avoid about half of the time	Avoid most of the time	Always avoid
Parties or social gatherings	1	2	3	4	5	1	2	3	4	5
Walking on the street	1	2	3	4	5	1	2	3	4	5
Staying at home alone	1	2	3	4	5	1	2	3	4	5
Being far away from home	1	2	3	4	5	1	2	3	4	5
Other (specify): _____	1	2	3	4	5	1	2	3	4	5

2. After completing the first step, go back and circle the five items with which you are most concerned. Of the items listed, these are the five situ places where avoidance/anxiety most affects your life in a negative way.

3. We define a panic attack as:

Panic Attacks

A high level of anxiety accompanied by...

1. strong body reactions (heart palpitations, sweating, muscle tremors, dizziness, nausea) with...
2. the temporary loss of the ability to plan, think, or reason and...
3. the intense desire to escape or flee the situation.
(Note: This is different from high anxiety or fear alone.

Please indicate the total number of panic attacks you have had in the last 7 days:

In the last 3 weeks:

How severe or intense have the panic attacks been? (Place an X on the line below:

Very mild	Mild	Moderately severe	Very severe	Extremely severe

............1.................2....................3.......................4..........................5...........

Safety Zone

4. Many people are able to travel alone freely in an area (usually around their home) called their safety zone. Do you have a safety zone? If yes, please describe:

a. as its location:

b. its size (e.g. radius from home):

Appendix F

Social Phobia Scale (SPS)

SPS

For each question, please circle a number to indicate the degree to which you feel the statement is characteristic or true of you. The rating scale is as follows:

	Not at all	Slightly	Moderately	Very	Extremely
1. I become anxious if I have to write in front of other people.	0	1	2	3	4
2. I become self-concious when using public toilets.	0	1	2	3	4
3. I can suddenly become aware of my own voice and of others listening to me.	0	1	2	3	4
4. I get nervous that people are staring at me as I walk down the street.	0	1	2	3	4
5. I fear I may blush when I am with others.	0	1	2	3	4
6. I feel self concious if I have to enter a room where others are already seated.	0	1	2	3	4
7. I worry about shaking or trembling when I'm watched by other people.	0	1	2	3	4
8. I would get tense if I had to sit facing other people on a bus or a train.	0	1	2	3	4
9. I get panicky that others might see me to be faint, sick, or ill.	0	1	2	3	4
10. I would find it difficult to drink something if in a group of people.	0	1	2	3	4

SPS

	Not at all	Slightly	Moderately	Very	Extremely
11. It would make me feel self-conscious to eat in front of a stranger at a restaurant.	0	1	2	3	4
12. I am worried people will think my behaviour odd.	0	1	2	3	4
13. I would get tense if I had to carry a tray across a crowded cafeteria.	0	1	2	3	4
14. I worry I'll lose control of myself in front of other people.	0	1	2	3	4
15. I worry I might do something to attract the attention of others.	0	1	2	3	4
16. When in an elevator I am tense if people look at me.	0	1	2	3	4
17. I can feel conspicuous standing in a queue.	0	1	2	3	4
18. I get tense when I speak in front of other people.	0	1	2	3	4
19. I worry my head will shake or nod in front of others.	0	1	2	3	4
20. I feel awkward and tense if I know people are watching me.	0	1	2	3	4

Mattick, R.P., & Clark, J.C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behavior Research and Therapy, 36*, 455-470.

Appendix G

Beck Depression Inventory II (BDI-II)

BDI-II

This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for each group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1) Sadness

    0 I do not feel sad.
    1 I feel sad much of the time.
    2 I am sad all the time.
    3 I am so sad or unhappy that I can't stand it.

2) Pessimism

    0 I am not discouraged about my future.
    1 I feel more discouraged about my future than I used to be.
    2 I do not expect things to work out for me.
    3 I feel my future is hopeless and will only get worse.

3) Past Failure

    0 I do not feel like a failure.
    1 I have failed more than I should have.
    2 As I look back, I see a lot of failures.
    3 I feel I am a total failure as a person.

4) Loss of Pleasure

    0 I get as much pleasure as I ever did from the things I enjoy.
    1 I don't enjoy things as much as I used to.
    2 I get very little pleasure from the things I used to enjoy.
    3 I can't get any pleasure from the things I used to enjoy.

5) Guilty Feelings

    0 I don't feel particularly guilty.
    1 I feel guilty over many things I have done or should have done.
    2 I feel quite guilty most of the time.
    3 I feel guilty all of the time.

6) Punishment Feelings

    0 I don't feel I am being punished.

    1 I feel I may be punished.

    2 I expect to be punished.

    3 I feel I am being punished.

7) Self-Dislike

    0 I feel the same about myself as ever.

    1 I have lost confidence in myself.

    2 I am disappointed in myself.

    3 I dislike myself.

8) Self-Criticalness

    0 I don't criticize or blame myself more than usual.

    1 I am more critical of myself than I used to be.

    2 I criticize myself for all my faults.

    3 I blame myself for everything bad that happens.

9) Suicidal Thoughts or Wishes

    0 I don't have any thoughts of killing myself.

    1 I have thoughts of killing myself, but I would not carry them out.

    2 I would like to kill myself.

    3 I would kill myself if I had the chance.

10) Crying

    0 I don't cry any more than I used to.

    1 I cry more now than I used to.

    2 I cry over every little thing.

    3 I feel like crying but I can't.

11) Agitation

    0 I am no more restless or wound up than usual.

    1 I feel more restless or wound up than usual.

    2 I am so restless or agitated that it's hard to stay still.

    3 I am so restless or agitated that I have to keep moving or doing something.

12) Loss of Interest

    0 I have not lost interest in people or activities.

    1 I am less interested in other people or things than before.

    2 I have lost most of my interest in other people or things.

    3 It's hard to get interested in anything.

13) Indecisiveness
    0 I make decisions about as well as ever.
    1 I find it more difficult to make decisions than usual.
    2 I have much greater difficulty in making decisions than I used to.
    3 I have trouble making any decision.

14) Worthlessness
    0 I do not feel I am worthless.
    1 I don't consider myself as worthwhile and useful as I used to.
    2 I feel more worthless as compared to other people.
    3 I feel utterly worthless.

15) Loss of Energy
    0 I have as much energy as ever.
    1 I have less energy than I used to have.
    2 I don't have enough energy to do very much.
    3 I don't have enough energy to do anything.

16) Changes in Sleeping Pattern
    0 I have not experienced any changes in my sleeping pattern.
    1a I sleep somewhat more than usual.
    1b I sleep somewhat less than usual.
    2a I sleep a lot more than usual.
    2b I sleep a lot less than usual.
    3a I sleep most of the day.
    3b I wake up 1-2 hours early and can't get back to sleep.

17) Irritability
    0 I am no more irritable than usual.
    1 I am more irritable than usual.
    2 I am much more irritable than usual.
    3 I am irritable all the time.

18) Changes in Appetite
    0 I have not experienced any changes in my appetite.
    1a My appetite is somewhat less than usual.
    1b My appetite is somewhat greater than usual.
    2a My appetite is much less than before.
    2b My appetite is much greater than usual.
    3a I have no appetite at all.
    3b I crave food all the time.

19) Concentration Difficulty
>   0   I can concentrate as well as usual.
>   1   I can't concentrate as well as usual.
>   2   It's hard to keep my mind on anything for very long.
>   3   I find I can't concentrate on anything.

20) Tiredness or Fatigue
>   0   I am no more tired or fatigued than usual.
>   1   I get more tired or fatigued more easily than usual.
>   2   I am too tired or fatigued to do a lot of the things I used to do.
>   3   I am too tired or fatigued to do most of the things I used to do.

21) Loss of Interest in Sex
>   0   I have not noticed any recent change in my interest in sex.
>   1   I am less interested in sex than I used to be.
>   2   I am much less interested in sex now.
>   3   I have lost interest in sex completely.

Appendix H

Illness Worry Scale (IWS)

IWS

Need to find correct instructions for this measure

1. Do you think you are more
    liable to illness than other people? ....Yes....... ....No........

2. Do you think you worry about your
    health more than most people? ....Yes....... ....No........

3. If a disease is brought to your attention (through the
    radio, television, newspapers or someone you
    know) do you worry about getting it yourself? ....Yes....... ....No........

4. Do you think there is something
    seriously wrong with your body? ....Yes....... ....No........

5. Are you more sensitive to pain than other people? ....Yes....... ....No........

6. Do you get sick easily? ....Yes....... ....No........

7. Do you often think you might suddenly fall ill? ....Yes....... ....No........

8. Do you get the feeling people are not
    taking your illness seriously enough? ....Yes....... ....No........

9. Do you often worry about the possibilty
    that you have got a serious illness? ....Yes....... ....No........

Robbins, J. M., & Kirmayer, L. J. (1996). Transient and persistent hypochondriacal worry in primary care.
Psychological Medicine, 26, 575-589.

Appendix I

Worry and Anxiety Questionnaire (WAQ)

WAQ

1. What subjects do you worry about most often?

a) _____   d) _____

b) _____   e) _____

c) _____   f) _____

For the following items, please circle the corresponding number (0-8).

2. Do your worries seem excessive or exaggerated?

Not at all   Moderately   Totally
excessive   excessive   excessive

......0...... ......1...... ......2...... ......3...... ......4...... ......5...... ......6...... ......7...... ......8......

3. Over the past six months, how many days have you been bothered by excessive worry?

                              1 day
Never   out of 2   Everyday

......0...... ......1...... ......2...... ......3...... ......4...... ......5...... ......6...... ......7...... ......8......

4. Do you have difficulty controlling your worries? For example, when you start worrying about something, do you have difficulty stopping?

No   Moderate   Extreme
difficulty   difficulty   difficulty

......0...... ......1...... ......2...... ......3...... ......4...... ......5...... ......6...... ......7...... ......8......

5. Over the past six months, to what extent have you been disturbed by the following sensations when you were worried or anxious? Rate each sensation by circling a number (0-8).

a) Restlessness or feeling keyed up or on edge.

Not at all   Moderately   Very severely

......0...... ......1...... ......2...... ......3...... ......4...... ......5...... ......6...... ......7...... ......8......

b) Being easily fatigued.

Not at all   Moderately   Very severely

......0...... ......1...... ......2...... ......3...... ......4...... ......5...... ......6...... ......7...... ......8......

c) Difficulty concentrating or mind going blank.

Not at all   Moderately   Very severely

......0...... ......1...... ......2...... ......3...... ......4...... ......5...... ......6...... ......7...... ......8......

d) Irritability.

Not at all   Moderately   Very severely

......0...... ......1...... ......2...... ......3...... ......4...... ......5...... ......6...... ......7...... ......8......

e) Muscle tension.

Not at all   Moderately   Very severely

......0...... ......1...... ......2...... ......3...... ......4...... ......5...... ......6...... ......7...... ......8......

f) Sleep disturbance (difficulty falling or staying asleep, or restless unsatisfying sleep).

Not at all   Moderately   Very severely

......0...... ......1...... ......2...... ......3...... ......4...... ......5...... ......6...... ......7...... ......8......

6. To what extent does worry or anxiety interfere with your life? For example, your work, social activities, family life, etc.?

Not at all   Moderately   Very severely

......0...... ......1...... ......2...... ......3...... ......4...... ......5...... ......6...... ......7...... ......8......

Dugas, M. J., Freeston, M. H., Provencher, M. D., Lachance, S., Ladouceur, R., & Gosselin, P. (2001). Journa Comportementale et Cognitive, 11(1), 31-36.