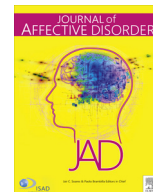




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Research paper

The Worry Behaviors Inventory: Assessing the behavioral avoidance associated with generalized anxiety disorder



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ABSTRACT

Background: Understanding behavioral avoidance associated with generalized anxiety disorder (GAD) has implications for the classification, theoretical conceptualization, and clinical management of the disorder. This study describes the development and preliminary psychometric evaluation of a self-report measure of avoidant behaviors associated with GAD: the Worry Behaviors Inventory (WBI).

Methods: The WBI was administered to treatment-seeking patients (N=1201). Convergent validity was assessed by correlating the WBI with measures of GAD symptom severity. Divergent validity was assessed by correlating the WBI with measures of general disability and measures of depression, social anxiety and panic disorder symptom severity.

Results: Exploratory and confirmatory factor analyses supported a two-factor structure (*Safety Behaviors* and *Avoidance*). Internal reliability was acceptable for the 10-item WBI scale ($\alpha=.86$), *Safety Behaviors* ($\alpha=.85$) and *Avoidance* subscales ($\alpha=.75$). Evidence of convergent, divergent, and discriminant validity is reported. WBI subscales demonstrated differential associations with measures of symptom severity. The *Safety Behaviors* subscale was more strongly associated with GAD symptoms than symptoms of other disorders, whereas the *Avoidance* subscale was as strongly correlated with GAD severity as it was with depression, social anxiety and panic disorder severity.

Limitations: Structured diagnostic interviews were not conducted therefore validity analyses are limited to probable diagnoses based on self-report. The cross-sectional design precluded examination of the WBI's temporal stability and treatment sensitivity.

Conclusions: Preliminary evidence supports the use of the WBI in research and clinical settings and may assist clinicians to identify behaviors that are theorized to maintain GAD and that can be targeted during psychological treatment.

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1. Introduction

Generalized anxiety disorder (GAD) is characterized by chronic, excessive anxiety and worry about everyday concerns and somatic symptoms (American Psychiatric Association [APA], 2013). Existing research has focussed on identifying the cognitive and somatic symptoms of GAD rather than its behavioral features. The triggers for worry in GAD tend to be diffuse and change over time. People with GAD worry about multiple aspects of their daily life; they fear

future disasters, uncertain situations, and worry about the worry itself (Dugas et al., 2001; Vasey and Borkovec, 1992; Wells and Carter, 2001). This may lead to more subtle and varied forms of avoidant behavior compared to the more overt avoidant behaviors observed in other anxiety disorders. Although previous investigations have not comprehensively assessed the avoidant behaviors that are associated with GAD, studies suggest that people with GAD engage in situational avoidance and safety behaviors such as excessive checking, reassurance-seeking, planning and other repetitive behaviors (Beesdo-Baum et al., 2012; Butler et al., 1987; Coleman et al., 2011; Schut et al., 2001; Talli and de Silva, 1992; Townsend et al., 1999).

Understanding the avoidant behaviors that are associated with GAD has diagnostic, theoretical, and clinical implications.

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Maladaptive avoidance behaviors are used to define all DSM-5 anxiety disorder classifications except GAD. Behavioral criteria were proposed for the DSM-5 GAD classification, and included marked (a) avoidance of potentially negative events or activities, (b) preparing for possible negative outcomes, (c) procrastination, and (d) reassurance-seeking (Andrews et al., 2010). These proposals were not incorporated into DSM-5. This may be partly due to the limited systematic investigation in this area and the lack of validated measures of the avoidant behaviors that are associated with GAD.

Contemporary cognitive theories of GAD implicate the central importance of cognitive avoidance in the maintenance of the disorder (Borkovec, et al., 2004; Dugas et al., 1998; Newman and Llera, 2011; Wells, 1999). Cognitive avoidance involves avoiding distressing internal experiences (e.g., thoughts and emotions) via mental strategies such as thought suppression and thought substitution (Sexton and Dugas, 2008). One of the seminal models in this area, the Avoidance Theory of Worry and GAD (Borkovec et al., 2004), contends that worry itself is a form of cognitive avoidance that inhibits adaptive processing of internal experiences like mental images, somatic arousal and emotions. Multiple measures have been developed to assess cognitive avoidance (e.g., Muris et al., 1996; Ottenbreit and Dobson, 2004; Sexton and Dugas, 2008; Wells and Davies, 1994). However, relatively little research has examined the importance and measurement of behavioral avoidance in GAD; that is, the use of observable behaviors to manage distress. It is possible that behavioral avoidance is related to cognitive avoidance, and may also contribute to the maintenance of GAD. For instance, in the Intolerance of Uncertainty Model of GAD (Dugas et al., 1998), behavioral avoidance is thought to prevent the disconfirmation of dysfunctional beliefs associated with uncertainty which are theorized to maintain GAD. Robichaud (2013) gives the example of an individual with GAD who avoids new restaurants and consequently fails to discover that his worries are unrealistic, uncertainty is not dangerous, and that he can cope with uncertainty. Psychological therapies, such as Metacognitive Therapy and Intolerance of Uncertainty Therapy aim to reduce avoidant behaviors (e.g., Andrews et al., 2016; Robichaud, 2013; Wells, 1995; 1999). Yet the comparative importance of behavioral avoidance in maintaining GAD is unclear and requires closer examination. For instance, Beesdo-Baum et al. (2012) found that avoidance and safety behaviors impact treatment response, with higher post-treatment avoidance predictive of greater worry at follow-up. Another study found that while cognitive avoidance predicted subsequent rumination, worry and sadness, behavioral avoidance was only predictive of subsequent anxiety (Dickson et al., 2012). The development of a measure of the behavioral avoidance in GAD could facilitate research and inform future diagnostic classifications, and current theoretical models and therapies for GAD.

Most existing measures of avoidant behaviors assess the behavioral features of other disorders, such as compulsive behaviors in obsessive compulsive disorder (OCD, Schut et al., 2001; Tallis and de Silva, 1992; Townsend et al., 1999), safety behaviors associated with social anxiety disorder (Cuming et al., 2009), and the avoidance of social situations and situations associated with potential failure in the context of depression (Ottenbreit and Dobson, 2004). Other measures assess a limited range of behaviors, like reassurance-seeking (Cougler et al., 2012; Kobori and Salkovskis, 2013; Rector et al., 2011; Speckens et al., 2000). Beesdo-Baum et al. (2012) provide the most comprehensive assessment of avoidant behaviors that are associated with GAD. This group compiled an item pool of avoidant behaviors based on a review of the literature and examined changes in these behaviors across two psychological treatments. Preliminary evidence of the internal consistency, temporal stability and construct validity of the measure was

reported. While providing a significant advance in the assessment of the behaviors associated with GAD, the study was limited in the following ways. The sample was relatively small (n=56 GAD patients, n=33 healthy controls) and factor analyses were not conducted. The breadth of avoidance symptoms was limited (e.g., checking behaviors were not measured) and almost half of the items indexed cognitive avoidance. Consistent with the RCT design of the study, avoidance symptoms were assessed as present during the “past week”. However, a measure that assessed individuals’ “typical” avoidant behaviors could complement the current gold standard measure of worry, the Penn State Worry Questionnaire (Meyer et al., 1990), which assesses typical or trait worry. A more comprehensive and psychometrically-sound measure of behavioral avoidance may also assist researchers and health professionals to address important questions regarding the diagnostic importance of such behaviors and how these behaviors contribute to the development and maintenance of GAD.

Given the diagnostic, theoretical, and clinical importance of delineating the nature of behavioral avoidance in GAD, this study describes the development and initial psychometric evaluation of a self-report measure of the avoidant behaviors that are associated with GAD: the Worry Behaviors Inventory (WBI). To complement the extant research, we sought to develop a comprehensive measure of individuals’ typical of observable behaviors (both subtle safety behaviors and more overt avoidance). Cognitive avoidance was not considered, as multiple measures already exist. To extend the literature, items were developed in consultation with experienced clinicians and in reference to (i) current and previous DSM GAD classifications and behavioral criteria proposed for DSM-5 (Andrews et al., 2010); (ii) contemporary cognitive and behavioral theoretical models of GAD; and (iii) studies that have examined avoidant behaviors in GAD (e.g., reassurance-seeking and checking, Beesdo-Baum et al., 2012; Coleman et al., 2011; Schut et al., 2001). We evaluated the factor structure and convergent/divergent validity of the scale in a large treatment-seeking sample. We predicted that the structure of the WBI would reflect the four behavioral criteria proposed for DSM-5; demonstrate significant positive associations with GAD symptom severity; and discriminate between patients with and without a probable diagnosis of GAD. We also hypothesized that the WBI would be positively correlated with depressive, social phobia and panic symptom severity because of the risk factors and clinical correlates that are shared by these disorders (Goldberg et al., 2009), but that these associations would be weaker than the correlations between the WBI and GAD severity. In further support of divergent validity, we expected that the WBI would not simply be a measure of functional impairment, demonstrating modest correlations with a measure of general disability.

2. Methods

2.1. Item selection

The initial item pool for the WBI was developed in three steps. First, AM identified types of behavioral avoidance by reviewing the literature on the diagnostic, theoretical and clinical importance of these behaviors to GAD. This review identified 93 behaviors. Of these, 67 behaviors were deemed to be replicates. For example, ‘Do you find yourself often asking others whether everything will be alright?’ from Cougler et al. (2012), ‘Repeatedly seeking reassurance due to worries’ from Andrews et al. (2010), and ‘I often seek reassurance from my friends and/or romantic partners regarding their feelings for me’ from Coleman et al. (2011), were all deemed to assess reassurance-seeking. The 26 unique avoidant behaviors were selected as the base item pool for the WBI. During item

construction, references to general descriptions were favoured over specific descriptions in order to be inclusive of the diffuse worries that people with GAD experience. For example 'I repeatedly check things like doors, windows, drawers, etc., to make sure they are properly locked or shut' from Coleman et al. (2011), or 'Check the redness of your face in a mirror' from Cumming et al. (2009) relate to the construction of the WBI item 16 'I check to make sure nothing bad has happened or that everything is OK'.

Second, the item pool was reviewed by 6 researchers each of whom have postgraduate degrees in clinical psychology who provided feedback on the clarity, face and content validity of items. Third, items were pilot tested with patients from the Anxiety Disorders Clinic, St. Vincent's Hospital, Australia, who provided additional feedback regarding readability, administration time, and the relevance of items. This consultation process identified a further 6 redundant items. Replicates were either discarded or subsumed with remaining items (e.g., 'I avoid situations that worry me' and 'I avoid people that worry me' became 'I avoid situations or people that worry me'). Reading level analysis via Microsoft Word indicated a Flesch reading ease score of 61.3 and Flesch-Kincaid grade-level score of 8.5, suggesting that the measure is likely to be comprehensible to people reading at a 9th grade level.

The 20 items in the final item pool are shown in Table 1. The WBI instructions are 'People can worry about everyday things, like their family, finances, work, health, the future, or minor things like being on time. This questionnaire concerns the sorts of things people do to prevent, control, or avoid worrying. Please select the number that best describes what you do generally'. Each item is rated on a 5-point scale where 0=none of the time, 1=a little of the time, 2=some of the time, 3=most of the time, and 4=all of the time.

2.2. Participants

Between 1st August 2013 and 18th February 2015, 1201 consecutive patients who were referred for internet-delivered cognitive behavior therapy for their anxiety and/or depression by their

general practitioner or mental health professional completed the WBI as part of their standardized intake assessment (see Andrews and Williams (2015), for further details of the online clinic, ThisWayUpClinic.org.au). Patients were mostly female (63.6%) and in their late thirties ($M(SD)=39.16$ (13.83), range=18–85). The primary focus of patients' treatment was co-morbid anxiety and depression (37.22%), GAD (29.31%), depression (10.99%), panic disorder (10.16%), social phobia (8.91%) or OCD (3.41%).

2.3. Measures

2.3.1. Generalized Anxiety Disorder 7-item

The GAD-7 is a 7-item self-report measure that assesses GAD symptoms over the past two weeks (Spitzer et al., 2006). Each item is assessed on a 4-point scale and a total score ≥ 10 indicates a probable GAD diagnosis (sensitivity=89% and specificity=82%, Spitzer et al., 2006). Studies support a one-dimensional structure and provide evidence of sound internal consistency ($\alpha=.92$), temporal stability ($r=.83$), convergent/divergent validity (e.g., correlations with the measures of anxiety, depression, self-esteem and life satisfaction), criterion validity (e.g., sensitivity/specificity with respect to diagnosis via structured interview), and factorial invariance for age and gender (Löwe et al., 2008; Spitzer et al., 2006). Internal consistency in the current sample was $\alpha=.89$.

2.3.2. Penn State Worry Questionnaire

The PSWQ is a 16-item measure of trait worry that has good internal consistency ($\alpha=.93$) and temporal stability ($r=.92$ over 8–10 weeks, Meyer et al. (1990)). Factor analyses support a one-dimensional structure and evidence of convergent/divergent validity (via correlations with measures of worry, tension, anxiety, obsessive-compulsive behavior, depression) and discriminant validity (e.g., distinguishes between GAD and other anxiety disorders) has also been reported (Brown et al., 1992; van Rijsoort et al., 1999). Internal consistency in the current sample was $\alpha=.90$.

Table 1
Rank ordered item-total correlations of the initial Worry Behaviors Inventory (WBI) item pool and correlations between WBI items and GAD-7 and PSWQ total scores.

Rank-order	Item number	WBI Item	Item-total <i>r</i>	<i>r</i> with GAD7	<i>r</i> with PSWQ
1	8	I keep a close watch for anything bad that could happen	0.73	0.46	0.38
2	16	I check to make sure nothing bad has happened or that everything is OK	0.73	0.39	0.41
3	19	I over-plan activities (e.g., prepare for all possible bad outcomes, have a plan B, plan every step of an activity)	0.71	0.35	0.4
4	7	I make plans 'just in case'	0.66	0.31	0.3
5	20	I repeatedly check that things have been done properly	0.65	0.32	0.35
6	9	I avoid situations or people that worry me	0.63	0.38	0.33
7	18	I avoid saying or doing things that worry me	0.62	0.35	0.32
8	15	I take control of every aspect of a situation (e.g., try to do everything myself, avoid delegating tasks, control money/finances, keep a close eye on what is happening)	0.57	0.28	0.26
9	11	I seek reassurance from sources of information (e.g., personal records, Internet, reviews, books)	0.57	0.31	0.31
10	5	I try to control what other people do or think (e.g., stop others doing things, tell others to be careful, give advice, over-protect others, do things for others)	0.57	0.3	0.31
11	17	I delay making decisions about things or get other people to make decisions for me	0.54	0.29	0.35
12	2	I try to avoid making any mistakes or try to do things perfectly	0.53	0.28	0.26
13	14	I act very carefully (e.g., arrive early, avoid rushing, leave more time than is needed, really think before I act)	0.51	0.21	0.1
14	10	I get others to do things for me (e.g., contact me so I know they are OK, keep me company, run errands)	0.5	0.28	0.29
15	6	I make lists to prepare for situations	0.48	0.18	0.18
16	12	I procrastinate or delay doing things	0.45	0.29	0.36
17	1	I seek reassurance from other people (e.g., family, friends, doctors, experts, authorities)	0.41	0.33	0.3
18	4	I distract myself or do things to take my mind off worrying (e.g., keep busy, exercise, tidy things, do pleasant activities)	0.29	0.15	0.11
19	3	I reassure myself (e.g., tell myself things will be OK)	0.28	0.12	0.05
20	13	I do nothing	0.26	0.18	0.16

2.3.3. Mini-Social Phobia Inventory

The 3-item Mini-SPIN indexes social anxiety disorder symptoms in the past week (Connor et al., 2001). Evidence of reliability ($\alpha=.81-.90$, r over 12 weeks $=.70$) and validity has been provided (e.g., convergent/divergent validity shown by correlations with measures of social anxiety, disability and depression; discriminates social anxiety disorder from depression and non-cases; treatment sensitivity) (Connor et al., 2001; Seeley-Wait et al., 2009; Weeks et al., 2007). Internal consistency in the current sample was $\alpha=.85$.

2.3.4. Panic Disorder Severity Scale Self-Report Version

The 7-item PDSS-SR measures symptoms of panic disorder in the past week (Shear et al., 1997). Evidence supports the reliability ($\alpha=.92$, ICC over 2 days $=.81$), validity (e.g., correlations with the interviewer-administered PDSS; treatment sensitivity), and single factor structure of the measure (Houck et al., 2002; Shear et al., 2001). Internal consistency in the current sample was $\alpha=.91$.

2.3.5. Patient Health Questionnaire-9

The PHQ-9 is a 9-item self-report screener for a probable diagnosis of depression in the past two weeks. Internal consistency ($\alpha=.86$) and temporal stability ($r=.84$ over 48 h) are sound (Kroenke et al., 2001). Factor analyses support a one or two-factor structure, and evidence of construct validity is extensive, including convergent/divergent validity (correlations with measures of depression, health, disability and substance use), criterion validity (e.g., sensitivity/specificity with respect to diagnosis via structured interview), and sensitivity to change (Beard et al., 2016; Dum et al., 2008; Hepner et al., 2009; Kroenke et al., 2001, 2010). Internal consistency in the current sample was $\alpha=.88$.

2.3.6. World Health Organization Disability Assessment Schedule 2.0

The 12-item WHODAS-II measures disability and functioning in the past 30 days (Rehm et al., 1999) that has a two-level hierarchical structure and robust psychometric properties, including reliability ($\alpha=.98$, r within 7 days $=.98$), concurrent validity (e.g., correlations with measures of handicap, health, functional independence, and quality of life), discriminant validity (discriminates well individuals from those with physical or mental disorders), and responsiveness to treatment (Andrews et al., 2009; Rehm et al., 1999; Üstün, et al., 2010). Internal consistency in the current sample was $\alpha=.88$.

2.4. Procedure

Prior to commencing their treatment at the ThisWayUp Clinic, patients completed an online self-report battery including the WBI, GAD-7, PSWQ, PHQ-9, MiniSPIN, PDSS-SR and WHODAS-II. Routine operating procedures for ThisWayUp Clinic only administer the PSWQ to individuals enrolling in the GAD treatment program. As routine procedures were not altered for the purposes of this study, only this subset of patients ($n=352$) completed the PSWQ. All individuals were informed that their data would be collected and their pooled data analysed and published in scientific journals. Patients could opt out of the use of their data for these purposes via email with no impact on their receipt of treatment. All patients provided electronic informed consent that their pooled data could be used for these purposes.

2.5. Analyses

Analyses were conducted to evaluate the relationship between WBI items and GAD symptom severity, and establish the traditional psychometric properties and factor structure of the WBI.

2.5.1. Item evaluation

First, item-total correlations were calculated. Based on the rank-order of these correlations, 20 ROC models were estimated, each of which included one less WBI item than the previous model. These models were used to examine the relative predictive contribution of each item to a probable GAD diagnosis (total GAD-7 score ≥ 10). Independent sample t -tests (with Cohen's d effect sizes) were then used to compare group differences between patients with and without a probable GAD diagnosis on each WBI item. Pearson correlation coefficients were also calculated between the WBI items and GAD-7 and PSWQ total scores to assess the relationship between the avoidant behaviors and GAD symptom severity.

2.5.2. Factor structure

Exploratory factor analyses were then conducted using an oblimin rotation method in the MPlus v5.12 software package estimating 1–6 factors (Muthén and Muthén, 1998–2009). Solutions with an eigenvalue > 1 that had at least three items with loadings $\geq .40$ were retained for confirmatory factor analysis (CFA, Tabachnick and Fidell, 2007). CFA models were conducted using a weighted least squares mean and variance estimator that is suitable for categorical/ordinal variables. The fit of the CFA models was assessed with reference to the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA). Hu and Bentler (1998) suggest that CFI and TLI $\geq .95$ and RMSEA < 0.05 indicate that the estimated model provides good fit to the observed data. MacCallum et al. (1996) advise that RMSEA values in the range of .08 to .10 indicate mediocre fit, and Browne and Cudeck (1993) propose that RMSEA values > 0.10 indicate poor fit. Modification indices were considered based on existing convention; that is, model modifications must be theoretically justified, few in number, and minor (Kline, 2005).

2.5.3. Convergent, divergent and discriminant validity

Total and subscale scores were calculated and correlated with patients' GAD-7 and PSWQ total scores as indices of the convergent validity of the WBI. Correlations between WBI scores and measures of related but theoretically distinct constructs (MiniSPIN, PDSS-SR, PHQ-9, and WHODAS-II) provided indices of divergent validity. Steiger's z was used to examine differences between the magnitude of overlapping correlation coefficients to assess whether the WBI had stronger associations with measures of GAD than with depression, social phobia, panic and disability (Diedenhofen and Musch, 2015; Steiger, 1980). To evaluate discriminant validity, independent sample t -tests were used to compare WBI total scores between patients with and without a probable GAD diagnosis. The sensitivity and specificity of a range of WBI cut-scores were calculated for a probable GAD diagnosis.

3. Results

3.1. Disability and symptom severity of the sample

Measures of disability and symptom severity indicate that patients were characterized by high rates of probable disorder. Using established cut-scores, 61% of patients met criteria for probable GAD, 61% for probable major depressive disorder, 53% for social phobia, 58% for panic disorder, and 66% reported clinical levels of disability (Andrews et al., 2009; Shear et al., 2001; Spitzer et al., 2006; Weeks et al., 2007; Wittkamp et al., 2007).

3.2. Item evaluation

Rank order item-total correlations for the initial 20 WBI items are shown in Table 1. Items 13, 3, 4, 1 and 12 ranked poorly. Items 8, 16, 19, 7, and 20 ranked highly. ROC analyses compared the area under the curve (AUC) across varying numbers of items (1–20 items). The full 20 items yielded $AUC=.77$ (95% CI=.75–.80) while item 8 alone $AUC=.72$ (95% CI=.70–.75). There was no clear distinction between AUC estimates as the number of items reduced. Rather, a gradual decline was observed indicating that each item made a modest and comparable contribution to the ability of the WBI to discriminate between those with and without probable GAD. Independent sample *t*-tests for patients with and without a probable GAD diagnosis yielded significant differences for each WBI item ($p < 0.001$). However, between-group effect sizes suggested that the magnitude of these differences was relatively modest for items 13, 3, 4, 6, and 14 (d range=.21–.37). In contrast, effect size differences were medium to large for other items (d range=.52–.87).

Correlations between the WBI items and GAD symptom severity are also presented in Table 1. Consistently weak associations ($r < 0.30$) were found between GAD symptoms and items 13, 3, 4, 6, 10, 14, 2, and 15.¹ All item evaluation analyses were run separately in the male and female subsamples and replicated findings from the full sample. From the initial 20 candidate items, 10 items (items 5, 7–9, 11, and 16–20) had, on balance, the most robust support for inclusion in the final WBI. All subsequent analyses are based on these 10 items.

3.3. Factor analysis

Means for the selected WBI items ranged from 1.53 ($SD=1.23$) to 2.31 ($SD=1.11$). Item skewness ranged from $-.003$ to .41, with kurtosis ranging from $-.64$ to -1.03 . Rotated factor loadings from exploratory factor analyses are shown in Table 2. Given that two solutions had eigenvalues > 1 (4.83, 1.27 and .82), the relative ratio between the successive eigenvalues and the number of items with of dominant factor loadings $\geq .40$, a 2-factor solution was favoured. This solution was readily interpretable and explained 57.64% of the co-variance. Factor 1, labelled *Safety Behaviors*, was indexed by 7 items and explained 45.01% of the variance. Factor 2, labelled *Avoidance*, was indexed by 3 items and explained 12.63% of the variance. The moderate factor covariance of .52 ($p < 0.001$) indicated that these factors were assessing correlated but distinct constructs. Using confirmatory methods, a unidimensional baseline model was then estimated (CFI=.84; TLI=.91; RMSEA=.18), as well as the 2-factor model identified in the EFA. CFI and TLI indicated good fit, while RMSEA did not (CFI=.95, TLI=.97 and RMSEA=.10). Modification indices were inspected, however suggested modifications were not theoretically compelling and did not significantly improve fit. Results were replicated across sex.

3.4. WBI internal consistency

The 10-item WBI scale, *Safety Behaviors* and *Avoidance* subscales yielded α 's of .86, .85, and .75 respectively.

3.5. Convergent, divergent and discriminant validity

Descriptive statistics of, and correlations between the 10-item WBI, its subscales and measures of convergent and divergent

Table 2
Exploratory Factor Analysis of the Worry Behavior Inventory (WBI): Factor Loadings for the Two-Factor Solution.

Item Number	WBI Item	Factor 1: Safety Behaviors	Factor 2: Avoidance
5	I try to control what other people do or think (e.g., stop others doing things, tell others to be careful, give advice, over-protect others, do things for others)	0.54	0.34
7	I make plans 'just in case'	0.80	0.28
8	I keep a close watch for anything bad that could happen	0.82	0.50
9	I avoid situations or people that worry me	0.49	0.71
11	I seek reassurance from sources of information (e.g., personal records, Internet, reviews, books)	0.48	0.39
16	I check to make sure nothing bad has happened or that everything is OK	0.77	0.52
17	I delay making decisions about things or get other people to make decisions for me	0.35	0.63
18	I avoid saying or doing things that worry me	0.45	0.89
19	I over-plan activities (e.g., prepare for all possible bad outcomes, have a plan B, plan every step of an activity)	0.80	0.44
20	I repeatedly check that things have been done properly	0.68	0.43

Note. Dominant factor loadings are listed in boldface type.

¹ Note that when Spearman's rank-order correlations were computed, the strength of the associations matched the Pearson's correlations reported in Table 1.

Table 3
Descriptive characteristics of the 10-item Worry Behavior Inventory, Worry Behavior Inventory subscales and convergent and divergent symptom measures.

	Minimum	Maximum	Mean	(SD)
Convergent symptom measures				
GAD-7	0	21	11.45	(5.24)
PSWQ	25	80	62.07	(11.31)
Divergent symptom measures				
MiniSPIN	0	12	5.75	(3.34)
PDSSR	0	28	7.50	(5.80)
PHQ9	0	27	11.99	(6.33)
WHODAS-II	0	43	13.68	(8.11)
10-item WBI				
Total score	0	40	18.18	(7.89)
Safety Behaviors	0	28	11.97	(6.13)
Avoidant Behaviors	0	12	6.21	(2.71)

symptom measures are shown in Tables 3 and 4. All correlations were positive and significant ($p < 0.001$). As predicted, the 10-item WBI total score was more strongly correlated with the total scores of the GAD-7 than the PHQ-9 ($z = 6.75$, $p < 0.001$), MiniSPIN ($z = 3.15$, $p = .002$), PDSS-SR ($z = 6.28$, $p < 0.001$) and WHODAS-II ($z = 4.90$, $p < 0.001$). This was also the case for the *Safety Behaviors* subscale. However, results suggested that the *Avoidance* was as strongly correlated with the GAD-7 as it was with the PHQ-9 ($z = -0.45$, $p = .65$) and the WHODAS-II ($z = -1.11$, $p = 0.27$). Interestingly, the *Avoidance* subscale correlated more strongly with the MiniSPIN than the GAD-7 ($z = -4.22$, $p < 0.001$), but more strongly with the GAD-7 than the PDSS-SR ($z = 4.10$, $p < 0.001$). This pattern of results was identical when the PSWQ replaced the GAD-7 during significance testing with two exceptions; first, the correlation between the WBI total score and the PSWQ was as strong as the correlation between the WBI total score and the MiniSPIN ($z = 1.56$, $p = 0.12$), and second, the correlation between the *Avoidance* subscale and the PSWQ was as strong as the correlation between the *Avoidance* subscale and the PDSS-SR ($z = 1.56$, $p = 0.12$).

Independent sample t tests indicated that patients with a probable GAD diagnosis ($M(SD) = 20.96(7.08)$) had significantly higher average scores on the 10-item WBI scale compared to patients without a probable GAD diagnosis ($M(SD) = 13.81(7.07)$, $t(1199) = 17.06$, $p < 0.001$, $d = 1.01$). Similarly, probable GAD diagnosis was associated with significantly greater subscale total scores (*Safety Behaviors*: $M(SD) = 13.96(5.76)$ vs. $8.85(5.35)$, $t(1199) = 15.40$, $p < 0.001$, $d = .91$; *Avoidance*: $M(SD) = 7.00(2.44)$ vs. $4.96(2.66)$, $t(1199) = 13.62$, $p < 0.001$, $d = .81$).

Finally, ROC analyses were conducted to identify a WBI score indicative of a probable GAD diagnosis. Results suggested that the discrimination between patients with and without probable GAD was fair with reference to the total WBI score (AUC = .76, 95% CI = .73–.79) and subscale scores (*Safety Behaviors* AUC = .74, 95% CI = .71–.77; *Avoidance* AUC = .71, 95% CI = .68–.74). The operating characteristics of the 10-item WBI and subscales are shown in Table 5. Sensitivity and specificity for a probable GAD diagnosis were maximised at total scores of 17 for the 10-item WBI scale, and 11 and 7 for the *Safety Behaviors* and *Avoidance* subscales, respectively. Results were replicated across sex.

4. Discussion

This study describes the development and evaluation of a brief measure of avoidant behaviors associated with GAD: the Worry Behavior Inventory (WBI). Past, present and proposed criteria for the DSM GAD classification; contemporary cognitive models, and

the extant literature on avoidant behaviors associated with GAD informed scale development. Candidate items were evaluated and selected for further analysis based on (i) item-total correlations; (ii) ability to discriminate between patients with and without a probable diagnosis of GAD; and (iii) correlations with GAD symptom severity. Interestingly, the items that yielded the greatest support for inclusion in the WBI following initial item evaluation (items 8 and 16: 'I keep a close watch for anything bad that could happen' and 'I check to make sure nothing bad has happened or that everything is OK') are similar to the DSM-III vigilance and scanning criterion and had not been examined by Beesdo-Baum et al. (2012), the most comprehensive study of avoidant behaviors to date. The candidate items that garnered the least support may reflect more adaptive responses to worry (item 3- 'I reassure myself'; item 4- 'I distract myself'; item 13- 'I do nothing').² Indeed, previous research suggests that distraction and disengagement from worry may be helpful strategies for managing excessive worry (Coles and Heimberg, 2005; Wells, 2005).

Factor analyses supported a two-factor structure comprising *Safety Behaviors* (e.g., checking, planning, reassurance-seeking and controlling others) and *Avoidance* (e.g., avoidance of decision-making, worrying situations, people and activities). Internal consistency was satisfactory. The CFI and TLI indicated good fit, however, RMSEA was on the threshold of the a-priori cut point of .10. Consequently, some caution is needed when interpreting the two-factor model of the WBI. Like any preliminary scale development, further work is required to replicate and examine alternate models in both clinical and community samples. Testing in such samples would also confirm if the current clinical sample (with its relative lack of low-scoring patients) has resulted in lower item-total correlations than if a greater range of responses were analysed.

The WBI correlated positively with GAD symptom severity which supports the convergent validity of the scale, but is unsurprising given the method used to select items. The WBI also significantly correlated with measures of disability and symptoms of depression, panic disorder and social phobia. However, the relationships between GAD symptom severity and the 10-item WBI scale were consistently stronger than the relationships between the 10-item WBI scale and measures of disability and symptoms of depression, social phobia, and panic disorder severity, thereby providing evidence of divergent validity. This was also the case for the *Safety Behaviors* subscale, but not for the *Avoidance* subscale. The *Avoidance* subscale was as strongly related to symptoms of GAD as it was related to disability and symptoms of depression, panic disorder and social phobia. These findings are consistent with the transdiagnostic conceptualization of avoidant behaviors. Moreover, these data are coherent with the transdiagnostic and dimensional nature of worry and GAD (Hobbs et al., 2014; McEvoy et al., 2013; Olatunji et al., 2010), the high degree of comorbidity between GAD, depression, and the other anxiety disorders (Brawman-Mintzer et al., 1993; Brown and Barlow, 1992), and the inclusion of avoidance behaviors in the DSM-5 social phobia and panic disorder classifications (APA, 2013). Additional research is needed to confirm and clarify which avoidant behaviors are most characteristic of GAD, and which, if any, are specific to GAD.

The ability of the WBI to discriminate between patients with and without a probable GAD diagnosis was fair. Sensitivity and specificity were maximised at cut-scores of 17, 11, and 7 for the 10-item WBI scale, *Safety Behaviors* and *Avoidance* subscales, respectively. Due to the clinical nature of this study, the proportion of

² Note that reverse scoring these items did not result in improved item characteristics; items continued to demonstrate weak (i) item-total correlations; (ii) ability to discriminate individuals with probable GAD from those without; and (iii) correlations with the GAD-7 and PSWQ.

Table 4
Correlations between Total Scores for the Worry Behavior Inventory (WBI), WBI Subscales and Measures of Convergent and Divergent Validity.

	WBI	Safety Behaviors	Avoidant Behaviors	GAD-7	PSWQ	MiniSPIN	PDSSR	PHQ9	WHODAS-II
WBI	1.00								
Safety Behaviors	0.96	1.00							
Avoidant Behaviors	0.75	0.52	1.00						
Convergent validity									
GAD-7	0.52	0.48	0.42	1.00					
PSWQ	0.51	0.48	0.40	0.57	1.00				
Divergent validity									
MiniSPIN	0.43	0.31	0.54	0.32	0.35	1.00			
PDSSR	0.36	0.32	0.31	0.50	0.30	0.31	1.00		
PHQ9	0.37	0.29	0.43	0.61	0.47	0.41	0.38	1.00	
WHODAS-II	0.39	0.30	0.45	0.42	0.36	0.47	0.48	0.63	1.00

Note. All correlations significant at $p < 0.001$. GAD-7=Generalized Anxiety Disorder 7-item Scale; PSWQ=Penn State Worry Questionnaire; PHQ9=Patient Health Questionnaire-9; MiniSPIN=Mini-Social Phobia Inventory; PDSS=Panic Disorder Severity Scale; WHODAS=World Health Organization Disability Assessment Schedule.

Table 5
Operating Characteristics of the Worry Behavior Inventory (WBI) (Total and Subscales) at Different Cut-Scores.

Total WBI		Safety Behaviors			Avoidance			
Cut score ^a	Sensitivity (%)	Specificity (%)	Cut score ^a	Sensitivity (%)	Specificity (%)	Cut score ^a	Sensitivity (%)	Specificity (%)
14	84	52	9	80	51	4	91	33
15	81	57	10	80	51	5	84	45
16	77	62	11	72	67	6	74	59
17	72	66	12	66	69	7	60	70
18	69	71	13	61	73	8	45	81
19	65	75	14	55	80	9	31	88

^a Cut score = the actual score is greater than or equal to the cut score shown.

patients with a probable diagnosis of GAD is considerably higher than in the general population (e.g., proportion in this study = 61% vs. 1.5–3.6% population prevalence, Carter et al., 2001; Hunt et al., 2002; Kessler et al., 2005). It is likely that future studies that include a higher proportion of non-GAD cases would yield higher sensitivity and specificity estimates.

The 10-item WBI scales and its two subscales overlap with the behavioral criteria proposed for DSM-5 (Andrews et al., 2010). Some have argued that these proposals are not specific to a GAD diagnosis and that a lack of specific features is the primary issue for the GAD DSM classification (Starcevic et al., 2012). Our findings suggest that some avoidant behaviors (e.g., the *Safety Behaviors* subscale) may be more strongly related to GAD symptoms than symptoms of depression and other anxiety disorders. However, other avoidant behaviors (e.g., the *Avoidance* subscale) are as strongly associated to GAD symptoms as they are to symptoms of depression and other anxiety disorders. Clearly, further research is needed to elucidate the relationships that exist between different types of avoidant behaviors, GAD, and other disorders in order to inform future diagnostic classifications.

Consistent with prominent theoretical models of GAD, we found that avoidant behaviors correlated significantly with GAD symptom severity and were more prevalent amongst individuals with a probable GAD diagnosis. It remains to be seen how behavioral avoidance contributes to the maintenance of GAD compared to more established maintaining factors such as cognitive and experiential avoidance, meta-cognitive beliefs and intolerance of uncertainty. Nevertheless, the WBI may offer a formative step in filling this gap by providing a brief and easy-to-use measure of behavioral avoidance associated with GAD.

This measure also provides a promising clinical tool to be used in assessment, case formulation, and treatment of individuals with GAD. In clinical practice, the WBI can be used to assess how frequently a patient engages in avoidance behaviors common to GAD, which will inform both the case conceptualisation and the

selection of techniques to target and reduce these behaviors in treatment. For example, if an individual endorsed the threat-hypervigilance item (assessed with the item “I keep a close watch for anything bad that could happen”), treatment could focus on educating the individual about the role of hypervigilance in maintaining worry and anxiety, and using specific treatment techniques to reduce hypervigilance, such as behavioral experiments, mindfulness or attention retraining, and challenging meta-cognitive beliefs linked to hypervigilance (e.g., “If I don’t watch out for dangers, bad things will happen”).

4.1. Limitations

The development of the WBI and its psychometric properties were conducted in a large sample of treatment-seeking patients, the very population that could benefit from the use of the WBI to identify maladaptive avoidant behaviors that can be targeted during psychotherapy. However, structured diagnostic assessments were not administered and this limited validity analyses to probable diagnoses. Some measures used in this study were designed as brief screeners (e.g., the Mini SPIN for social anxiety); this study now needs to be replicated using more comprehensive measures of symptom severity. The cross-sectional design meant that the temporal stability and treatment sensitivity of the WBI were not assessed. It will also be useful to assess the convergent and incremental validity of the WBI compared to existing measures of avoidant behaviors in the context of depression and other anxiety disorders.

5. Conclusion

This study developed the Worry Behaviors Inventory and yielded initial evidence of the reliability and validity of the scale. Further use and examination in clinical and research settings is

warranted. Such research has the potential to inform future diagnostic classifications and delineate the importance of avoidant behavior in the development, maintenance and treatment of GAD.

References

- Andrews, G., Hobbs, M.J., Borkovec, T.D., Beesdo, K., Craske, M.G., Heimberg, R.G., Stanley, M., 2010. Generalized worry disorder: a review of DSM-IV generalized anxiety disorder and options for DSM-V. *Depress Anxiety* 27, 134–147.
- Andrews, G., Kemp, A., Sunderland, M., Von Korff, M., Ustun, T.B., 2009. Normative data for the 12 item WHO Disability Assessment Schedule 2.0. *PLoS One* 4, e8343.
- Andrews, G., Mahoney, A.E.J., Hobbs, M.J., Genderson, M., 2016. *Treatment of Generalized Anxiety Disorder: Therapist Guides and Patient Manual*. Oxford University Press, Oxford.
- Andrews, G., Williams, A.D., 2015. Up-scaling internet-based cognitive behavioral therapy (iCBT) for depression: A model for dissemination into primary care. *Clin. Psychol. Rev.* 41, 40–48.
- American Psychiatric Association, 2013. *Diagnostic and Statistical Manual for Mental Disorders: DSM 5*, DSM Library. American Psychiatric Association, Washington, DC.
- Beard, C., Hsu, K.J., Rifkin, L.S., Busch, A.B., Björgvinsson, T., 2016. Validation of the PHQ-9 in a psychiatric sample. *J. Affect. Disord.* 193, 267–273.
- Beesdo-Baum, K., Jenjahn, E., Hofler, M., Lueken, U., Becker, E.S., Hoyer, J., 2012. Avoidance, safety behavior, and reassurance-seeking in generalized anxiety disorder. *Depress Anxiety* 29, 948–957.
- Borkovec, T.D., Alcaine, O.M., Behar, E., 2004. Avoidance theory of worry and generalized anxiety disorder. In: Heimberg, R.G., Turk, C.L., Mennin, D. (Eds.), *Generalized Anxiety Disorder: Advances in Research and Practice*. Guilford Press, New York, pp. 77–108.
- Brawman-Mintzer, O., Lydiard, R.B., Emmanuel, N., Payeur, R., Johnson, M., Roberts, J., Ballenger, J.C., 1993. Psychiatric comorbidity in patients with generalized anxiety disorder. *Am. J. Psychiatry* 150, 1216–1218.
- Brown, T.A., Antony, M.M., Barlow, D.H., 1992. Psychometric properties of the Penn State Worry Questionnaire in a clinical anxiety disorders sample. *Behav. Res. Ther.* 30, 33–37.
- Brown, T.A., Barlow, D.H., 1992. Comorbidity among anxiety disorders: implications for treatment and DSM-IV. *J. Consult. Clin. Psychol.* 60, 835–844.
- Browne, M.W., Cudeck, R., 1993. Alternative ways of assessing model fit. In: Bollen, K.A., Long, J.S. (Eds.), *Testing Structural Equation Models*. Sage, Beverly Hills, CA, pp. 136–162.
- Butler, G., Gelder, M., Hibbert, G., Cullington, A., Klimes, I., 1987. Anxiety management: Developing effective strategies. *Behav. Res. Ther.* 25, 517–522.
- Carter, R.M., Wittchen, H.-U., Pfister, H., Kessler, R.C., 2001. One-year prevalence of subthreshold and threshold DSM-IV generalized anxiety disorder in a nationally representative sample. *Depress Anxiety* 13, 78–88.
- Coleman, S.L., Pieterfesa, A.S., Holaway, R.M., Coles, M.E., Heimberg, R.G., 2011. Content and correlates of checking related to symptoms of obsessive compulsive disorder and generalized anxiety disorder. *J. Anxiety Disord.* 25, 293–301.
- Coles, M.E., Heimberg, R.G., 2005. Thought control strategies in generalized anxiety disorder. *Cogn. Ther. Res.* 29, 47–56.
- Connor, K.M., Kobak, K.A., Churchill, L.E., Katzelnick, D., Davidson, J.R., 2001. Min-iSPIN: a brief screening assessment for generalized social anxiety disorder. *Depress. Anxiety* 14, pp. 137–140.
- Cogle, J.R., Fitch, K.E., Finchman, F.D., Riccardi, C.J., Keough, M.E., Timpano, K.R., 2012. Excessive reassurance-seeking and anxiety pathology: tests of incremental associations and directionality. *J. Anxiety Disord.* 26, 117–125.
- Cuming, S., Rapee, R.M., Kemp, N., Abbott, M.J., Peters, L., Gaston, J.E., 2009. A self-report measure of subtle avoidance and safety behaviors relevant to social anxiety: development and psychometric properties. *J. Anxiety Disord.* 23, 879–883.
- Dickson, K.S., Ciesla, J.A., Reilly, L.C., 2012. Rumination, worry, cognitive avoidance, and behavioral avoidance: examination of temporal effects. *Behav. Ther.* 43, 629–640.
- Diedenhofen, B., Musch, J., 2015. cocor: a comprehensive solution for the statistical comparison of correlations. *PLoS One* 10, e0121945.
- Dugas, M.J., Gagnon, F., Ladouceur, R., Freeston, M.H., 1998. Generalized anxiety disorder: a preliminary test of a conceptual model. *Behav. Res. Ther.* 36, 215–226.
- Dugas, M.J., Gosselin, P., Ladouceur, R., 2001. Intolerance of uncertainty and worry: investigating specificity in a nonclinical sample. *Cogn. Ther. Res.* 25, 551–558.
- Dum, M., Pickren, J., Sobell, L.C., Sobell, M.B., 2008. Comparing the BDI-II and the PHQ-9 with outpatient substance abusers. *Addict. Behav.* 33, 381–387.
- Goldberg, D.P., Andrews, G., Krueger, R.F., Hobbs, M.J., 2009. Emotional disorders: cluster 4 of the proposed meta-structure for DSM-V. *Psychol. Med.* 39, 2043–2059.
- Hepner, K.A., Hunter, S.B., Edelen, M.O., Zhou, A.J., Watkins, K., 2009. A comparison of two depressive symptomatology measures in residential substance abuse treatment clients. *J. Subst. Abuse. Treat.* 37, 318–325.
- Hobbs, M.J., Anderson, T.M., Slade, T., Andrews, G., 2014. Structure of the DSM-5 generalized anxiety disorder criteria in a large community sample of worriers. *J. Affect. Disord.* 157, 18–24.
- Houck, P.R., Spiegel, D.A., Shear, M.K., Rucci, P., 2002. Reliability of the self-report version of the panic disorder severity scale. *Depress Anxiety* 15, 183–185.
- Hu, L.T., Bentler, P.M., 1998. Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychol. Methods* 3, 424–453.
- Hunt, C., Issakidis, C., Andrews, G., 2002. DSM-IV generalized anxiety disorder in the Australian National Survey of Mental Health and Well-Being. *Psychol. Med.* 32, 649–659.
- Kessler, R.C., Wai, T.C., Demler, O.V., Merikangas, K.R., Walters, E.E., 2005. Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Survey Replication. *Arch. Gen. Psychiatr.* 62, 617–627.
- Kline, R.B., 2005. *Principles and Practice of Structural Equation Modelling*, 2nd ed. Guilford Press, New York.
- Kobori, O., Salkovskis, P., 2013. Patterns of reassurance-related behaviors in OCD and anxiety disorders. *Behav. Cogn. Psychother.* 41, 1–13.
- Kroenke, K., Spitzer, R., Williams, J.B., 2001. The PHQ-9: validity of a brief depression severity measure. *J. Gen. Int. Med.* 16, 606–613.
- Kroenke, K., Spitzer, R., Williams, J.B., Löwe, B., 2010. The Patient Health Questionnaire Somatic Anxiety Depression Symptom Scales: Syst. Rev. *Gen. Hosp. Psychiatr.* 32, 345–359.
- Löwe, B., Decker, O., Müller, S., Brähler, E., Schellberg, D., Herzog, W., Herzberg, P.Y., 2008. Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. *Med. Care* 46, 266–274.
- MacCallum, R.C., Browne, M.W., Sugawara, H.M., 1996. Power analysis and determination of sample size for covariance structure modeling. *Psychol. Methods* 1, 130–149.
- McEvoy, P.M., Watson, H., Watkins, E.R., Nathan, P., 2013. The relationship between worry, rumination, and comorbidity: evidence for repetitive negative thinking as a transdiagnostic construct. *J. Affect. Disord.* 151, 313–320.
- Meyer, T.J., Miller, M.L., Metzger, R.L., Borkovec, T.D., 1990. Development and validation of the Penn State Worry Questionnaire. *Behav. Res. Ther.* 28, 487–495.
- Muris, P., Merckelbach, H., Horselenberg, R., 1996. Individual differences in thought suppression. The White Bear Suppression Inventory: factor structure, reliability, validity and correlates. *Behav. Res. Ther.* 34, 501–513.
- Muthén, L.K., Muthén, B.O., 1998–2009. *Mplus User's Guide*. Muthén & Muthén, Los Angeles, CA.
- Newman, M.G., Llera, S.J., 2011. A novel theory of experiential avoidance in generalized anxiety disorder: a review and synthesis of research supporting a contrast avoidance model of worry. *Clin. Psychol. Rev.* 31, 371–382.
- Olatunji, B.O., Broman-Fulks, J.J., Bergman, S.M., Green, B.A., Zlomke, K.R., 2010. A taxometric investigation of the latent structure of worry: dimensionality and associations with depression, anxiety, and stress. *Behav. Ther.* 41, 212–228.
- Ottenbreit, N.D., Dobson, K.S., 2004. Avoidance and depression: the construction of the cognitive-behavioral avoidance scale. *Behav. Res. Ther.* 42, 293–313.
- Rector, N.A., Kamkar, K., Cassin, S.E., Ayearst, L.E., Laposa, J.M., 2011. Assessing excessive reassurance-seeking in the anxiety disorders. *J. Anxiety Disord.* 25, 911–917.
- Rehm, J., Üstün, B.T., Saxena, S., Nelson, C.B., Chatterji, S., Ivis, F., Adlaf, E.D., 1999. On the development and psychometric testing of the WHO screening instrument to assess disablement in the general population. *Int. J. Methods Psychiatr. Res.* 8, 110–122.
- Robichaud, M., 2013. Cognitive behavior therapy targeting intolerance of uncertainty: application to a clinical case of generalized anxiety disorder. *Cogn. Behav. Pract.* 20, 251–263.
- van Rijsoort, S., Emmelkamp, P., Vervaeke, G., 1999. The Penn State Worry Questionnaire and the Worry Domains Questionnaire: structure, reliability and validity. *Clin. Psychol. Psychother.* 6, 297–307.
- Seeley-Wait, E., Abbott, M.J., Rapee, R.M., 2009. Psychometric properties of the Mini-Social Phobia Inventory. *Prim care companion. J. Clin. Psychiatry* 11, 231–236.
- Sexton, K.A., Dugas, M.J., 2008. The Cognitive Avoidance Questionnaire: validation of the English translation. *J. Anxiety Disord.* 22, 355–370.
- Schut, A.J., Castonguay, L.G., Borkovec, T.D., 2001. Compulsive checking behaviors in generalized anxiety disorder. *J. Clin. Psychol.* 57, 705–715.
- Shear, M.K., Brown, T.A., Barlow, D.H., Money, R., Sholomka, D.E., Woods, S.W., Gorman, J.M., Papp, L.A., 1997. Multicenter collaborative Panic Disorder Severity Scale. *Am. J. Psychiatry* 154, 1571–1575.
- Shear, M.K., Rucci, P., Williams, J., Frank, E., Grochocinski, V., Vander Bilt, J., Houck, P., Wang, T., 2001. Reliability and validity of the Panic Disorder Severity Scale: replication and extension. *J. Psychiatr. Res.* 35, 293–296.
- Speckens, A.E.M., Spinhoven, P., van Hemert, A.M., Bolk, J.H., 2000. The reassurance questionnaire (RQ): psychometric properties of a self-report questionnaire to assess reassurability. *Psychol. Med.* 30, 841–847.
- Spitzer, R.L., Kroenke, K., Williams, J.B., Löwe, B., 2006. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch. Intern. Med.* 166, 1092–1097.
- Starcevic, V., Portman, M.E., Beck, A.T., 2012. Generalized anxiety disorder: between neglect and an epidemic. *J. Nerv. Ment. Dis.* 200, 664–667.
- Steiger, J.H., 1980. Tests for comparing elements of a correlation matrix. *Psychol. Bull.* 87, 245–251.
- Tabachnick, B.G., Fidell, L.S., 2007. *Using Multivariate Statistics*, Fifth ed. Pearson, Sydney.
- Tallis, F., de Silva, P., 1992. Worry and obsessional symptoms: a correlational analysis. *Behav. Res. Ther.* 30, 103–105.
- Townsend, M.H., Weissbecker, K.A., Barbee, J.G., Peña, J.M., Snider, L.M., Tynes, L.L., Tynes, S.F., Boudoin, C., Green-Leibovitz, M.I., Winstead, D., 1999. Compulsive behaviors in generalized anxiety disorder and obsessive compulsive disorder. *J. Nerv. Ment. Dis.* 187, 697–699.
- Üstün, T.B., Kostanjsek, N., Chatterji, S., Rehm, J., 2010. *Measuring Health and*

- Disability: Manual for WHO Disability Assessment Schedule. World Health Organisation, Malta.
- Vasey, M.W., Borkovec, T.D., 1992. A catastrophizing assessment of worrisome thoughts. *Cogn. Ther. Res.* 16, 505–520.
- Weeks, J.W., Spokas, M.E., Heimberg, R.G., 2007. Psychometric evaluation of the mini-social phobia inventory (Mini-SPIN) in a treatment-seeking sample. *Depress. Anxiety* 24, 382–391.
- Wells, A., 1995. Meta-cognition and worry: a cognitive model of generalized anxiety disorder. *Behav. Cogn. Psychother.* 23, 301–320.
- Wells, A., 1999. A metacognitive model and therapy for generalized anxiety disorder. *Clin. Psychol. Psychother.* 6, 86–95.
- Wells, A., 2005. Detached mindfulness in cognitive therapy: a metacognitive analysis and ten techniques. *J. Rational Emotive Cogn. Behav. Ther.* 23, 337–355.
- Wells, A., Carter, K., 2001. Further tests of a cognitive model of generalized anxiety disorder: metacognitions and worry in GAD, panic disorder, social phobia, depression, and non-patients. *Behav. Ther.* 32, 85–102.
- Wells, A., Davies, M.I., 1994. The thought control questionnaire: a measure of individual differences in the control of unwanted thoughts. *Behav. Res. Ther.* 32, 871–878.
- Wittkamp, K.A., Naeije, L., Schene, A.H., Huyser, J., van Weert, H.C., 2007. Diagnostic accuracy of the mood module of the Patient Health Questionnaire: a systematic review. *Gen. Hosp. Psychiatry* 29, 388–395.