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PSYCHOMETRIC PROPERTIES OF THE PSWQ-A IN A COMMUNITY SAMPLE OF OLDER ADULTS

A Thesis

Presented for the

Masters of Arts

Degree

The University of Tennessee, Knoxville

Julie A. Crittendon

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DEDICATION

I would like to dedicate this project to my mother, whose support and dedication to my life never wavered and who taught me to always pursue what made me happy. Also, it is dedicated to my sister Nicole, who paved the way for my going to college; she showed me via her success in educational pursuits that it was possible for my life as well. Finally, it is dedicated to the love of my life, Sam, who stood by me and was patient with me as I progressed through the stages of the project and who, in the low times, reminded me how I could accomplish not only this, but great things in my life.

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ABSTRACT

Among older adults, GAD is as prevalent as major depression (Blazer, George, & Hughes, 1991). As a result of scale development and norming that generally incorporates younger samples, psychometrically sound anxiety and worry instruments for older cohorts are limited. The Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Brokovec, 1990) is one instrument that may be useful for assessing worry in older adults, although limitations of this scale recently were highlighted that resulted in the development of a revised version that more effectively might assess worry in older adults, the Penn State Worry Questionnaire-Abbreviated (PSWQ-A; Hopko et. al., 2003). The present study addressed limitations of previous work by administering the scale to an independent sample of 115 community dwelling older adults. Analyses revealed that data fit moderately with the single factor model proposed by Hopko et al. (2003). However, internal consistency of the measure was good (α = .89), test-retest reliability of the scale at the two-week (r = .92) and six-week (r = .95) follow-up administrations was excellent, and there was some support for the convergent and disciminant validity of the PSWQ-A with contemporary measures of anxiety and depression. Implications of using the PSWQ-A in clinical and research settings are discussed, as are study limitations.

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CHAPTER 1

INTRODUCTION

Generalized anxiety disorder (GAD) is marked by chronic worries that are nonspecific, uncontrollable, and excessive, symptoms that occur more days than not over a period of six months (DSM-IV, APA, 1994). Additionally, three or more of the following psychosomatic symptoms must be present for a diagnosis: restlessness, fatigue, difficulties concentrating, irritability, muscle tension, and/or problems falling or staying asleep. The age at onset of GAD differs from other anxiety disorders, with prevalence rates low in adolescence and increasing into adulthood (Wittchen & Hoyer, 2001). In a retrospective study exploring age of onset and GAD, participants generally reported onset in early adulthood with a small proportion reporting the initiation of symptoms in middle adulthood (Campbell, Brown, & Grisham, 2003). The study also revealed that earlier onset GAD was associated with higher levels of disorder severity and co-existence with other psychiatric disorders. Taken together, the lifetime prevalence of GAD is approximately 5% in the general population, 8% in primary care settings, and 10% among women over the age of 40 (Wittchen & Hoyer, 2001).

Among older adults, research on epidemiological, etiological, assessment, and treatment factors has only recently commenced. It is an important area of investigation, however, given that GAD is one of the most common psychiatric illnesses among older adults and occurs at about the same rate as major depression (Flint, 1994; Matt, Dean, Wang & Wood, 1992). Diagnosis of anxiety disorders and symptoms in older adults can

be complicated due to multiple factors that include medical comorbidity, side effects from prescription and over-the-counter medications, as well as resistance to psychological evaluation (Lauderdale & Sheikh, 2003). In addition, older adults frequently present with significant concerns over physical, social, and financial issues, much of which is justified and rational. Thus, caution must be given in diagnosing older adults, as worries may not necessarily be pathological in nature (Wetherell, LeRoux, & Gatz, 2003).

Given these issues, it is important to distinguish older adults with pathological worries from those with normal and rational concerns. One mechanism to improve this process would be the development of valid and reliable assessment instruments that were empirically normed for older adults. As one alternative, Meyer et al. (1990) created the Penn State Worry Questionnaire (PSWQ) to measure the significance of worry symptoms. Over the past fourteen years, the PSWQ has become widely used in studies investigating anxiety and worry, and reliability and validity of the scale have been well established (Beck, et al., 2003, Brown, Antony, & Barlow, 1992, Gillis, Haaga, & Ford, 1995, Stanley, Novy, Bourland, Beck, & Averill, 2001). It must be noted, however, that the psychometric properties of the PSWQ initially were examined using a college sample. This procedure is not uncommon, with statistical analyses of anxiety scales traditionally investigated among younger adults (see Kogan, Edelstein, & McKee, 2000; Stanley & Beck, 2000 for reviews). Although this trend is understandable given that this demographic often is the most readily available and convenient to researchers, an

unfortunate consequence might involve questions of generalizability toward older adult samples.

Interestingly, it was not until recently that psychometric inconsistencies as a function of age cohort were noted (Brown, 2003, Hopko, et al., 2003, Stanley, et. al. 2003). One potential factor that has been implicated in these discrepant findings involves reversed items such as those found on the PSWQ (Brown, 2003; Gana, Martin, Canout, Troullet, & Meloni, 2002; Hopko et al., 2003; Marsh, 1996; Stanley et al., 2003). The structure of these items may require complex cognitive systems and greater attentional resources than nonreversed items, a situation that may be particularly problematic among older adults, particularly those with cognitive impairment. Indeed, method effects may account for the existence of more than one factor in instruments with positively and negatively worded items. Some of these method effects may include difficulty understanding items, carelessness when reading items, similarity of item phrasing, and high content overlap (Marsh 1996). For example, in an investigation of the psychometric properties of the PSWQ, Brown (2003) reported that method effects and systematic error more accurately depicted the covariance of negatively worded items rather than the presence of a second factor in what had initially been construed as a two factor model; namely the *presence* or *absence* of worry (Beck, Stanley & Zebb, 1999, van-Rijsoort, Emmelkamp & Vervaeke, 1999).

In exploring this issue, Hopko, et. al. (2003) investigated the psychometric properties of the PSWQ using treatment outcome data collected on independent samples of older adults with GAD. Given limitations with existing uni- and bi-dimensional

factorial models (i.e., poor goodness-of-fit indices), modification indices were used to create a more parsimonious, unidimensional scale that might better portray participants' experiences of worry. All five negatively worded items of the original scale and three of the positively worded items were excluded, resulting in the eight-item abbreviated Penn State Worry Questionnaire-Abbreviated (PSWQ-A). A major limitation of the study was the post-hoc development of the scale, necessitating further exploration of the psychometric properties of the scale among independent samples of older adults.

The present study addressed this limitation by administrating the PSWQ-A on an independent sample of community dwelling older adults. Contemporary anxiety and depression measures were used to establish convergent and disciminant validity. In addition, the test-retest reliability of the scale was examined at intervals of two- and six-weeks. To examine the convergent validity as the severity and breadth of worry were expected to positively associate with trait worry, the Generalized Anxiety Disorder Questionnaire – IV (GADQ-IV) and the Worry Domains Questionnaire (WDQ) were selected. The Intolerance of Uncertainty Scale was included as a measure of convergent validity because difficulty tolerating uncertainty has been theoretically and empirically linked to GAD (Dugas, Gagnon, Ladouceur, & Freeston, 1998). The State-Trait Anxiety Inventory – Trait (STAI-T) was included as a more global anxiety measurement to assess the relation between trait worry and trait anxiety, and the Beck Anxiety Inventory (BAI) was used to measure the more specific somatic symptoms of anxiety. The full length PSWQ was incorporated to examine the construct validity of the abbreviated version in an independent sample. Finally, considering the high comorbidity between depression

and GAD (Mineka, Watson, & Clark, 1998), associated difficulties in differential diagnosis (Clark, 1989), and poor discriminant validity between self-report ratings of these constructs (Clark & Watson, 1991), the Beck Depression Inventory (BDI) and was included to assess disciminant validity.

It was hypothesized that the PSWQ-A would be a more succinct, parsimonious scale than the full-length PSWQ and would have equivalent or stronger psychometric properties. Convergent and discriminant validity was expected to be supported via positive correlations of the abbreviated PSWQ to anxiety measures and a weaker association with a measure of depression symptom severity (BDI). In addition, PSWQ-A data were expected to support the unidimensional factor model recently proposed (Hopko, et al., 2003).

CHAPTER 2

METHOD

Participants

Participants were 115 East Tennessee community-dwelling older adults. The mean age of the participants was 71.6 years (*SD* = 10.9); 73% were women (*n* = 84) and 27% were men (*n*=30). The marital status of the sample was as follows: 45% Married (*n*= 52), 35.7% Widow/Widower (*n*= 41), 11.3% Divorced (*n*= 13), and 7% Single (*n*= 8). The ethnic distribution was as follows: 89% Caucasian (*n* = 102), 3% Asian American (*n* = 3), 3% American Indian or Alaskan Native (*n* = 3), and 2% African American (*n* = 2). For occupational status, 63% of the sample was retired (*n*= 72), 28% were retired + volunteer (*n*= 32), and 2% were employed Full-time (*n*= 2). Forty-five percent of the sample reported annual income less than $39,999.[1] All participants were recruited through senior citizen community centers in East Tennessee.

Assessment Instruments

Anxiety

The Penn State Worry Questionnaire-Abbreviated (PSWQ-A, Hopko et al., 2003) is an 8-item measure that was designed to measure an individual's level of worry independent of the topic of worry. The PSWQ-A was derived from the full-length PSWQ (Meyer et al., 1990) and the construct validity of these instruments is supported

via relatively equivalent correlations with alternate measures of negative affect (Hopko et al., 2003). The PSWQ-A items also have good internal consistency (α = .87), with discriminant validity supported via strong relationships with both self- and clinician-rated symptoms of depression and convergent validity revealed through moderate correlations of the PSWQ-A with various anxiety measures (Hopko et al., 20003).

The Penn State Worry Questionnaire (PSWQ; Meyer, et al., 1990) is a 16-item scale designed to assess a person's tendency to worry and associated ability to control worry (i.e., trait worry). The PSWQ can be considered a content-nonspecific measure in that it assesses an individual's tendency to worry independent of the topic of worry. Among patients with anxiety disorders, college students, and community samples, internal consistency of the PSWQ has been good (α's = .86 - 93, Brown, et al., 1992; Fresco, Heimberg, Mennin, & Turk, 2000; Molina & Borkovec, 1994). In addition, adequate test-retest reliability has been demonstrated across college samples (r = .74 - .93), but was poorer among older adults with GAD (r = .54; Stanley, et al., 2001). Among younger adults, correlations between the PSWQ and measures of anxiety and depression ranged between (r = .36) and (r = .74). The internal consistency of the PSWQ in the present study was adequate (α= .84**)**

The State-Trait Anxiety Inventory – Trait (STAI-T; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) is a 20-item scale used to measure trait anxiety. Good to excellent internal consistency has been reported for the scale (α's between .86 and .95) across adult, college, high school, and military recruit samples (Spielberger et al., 1983), as well as older adults (α = .88, Stanley, Beck, & Zebb, 1996a). Adequate 30-day test-

retest reliability with high school students (r = .75) and 20-day test-retest reliability with college students has been reported (r = .86; Spielberger et al., 1983). Convergent validity of the STAI-T and other trait measures of anxiety are evident among both normal and anxiety disorder samples (Bieling, Antony, & Swinson, 1998; Creamer, Foran & Bell, 1995). Internal consistency of the STAI-T in the present sample was good (α = .84).

The Beck Anxiety Inventory (Beck & Steer, 1993) is a 21-item questionnaire designed specifically to distinguish cognitive and somatic symptoms of anxiety from those of depression. Good psychometric properties have been demonstrated for the measure among older community, medical, and psychiatric outpatient samples (Morin et al., 1999; Steer, Willman, Kay, & Beck, 1994; Wetherell & Areán, 1997). Specifically, internal consistency of the measure was strong as assessed via data obtained from older medical patients, mixed psychiatric samples, and patients with anxiety disorders (α = .85-.92). Adequate to good test-retest reliability has been demonstrated for anxiety patients (r = .75 - .83, Beck, Steer, & Garbin, 1988; de Beurs, Wilson, Chambless, Goldstein, & Feske, 1997). The measure also was moderately correlated with anxiety (r = .36-.69) and depression measures (r = .25-.56) completed by psychiatric (Beck et al., 1988) and normative student samples (Osman, Kopper, Barrios, Osman & Wade, 1997). The BAI was highly correlated with depression in an older adult medical sample, although this finding may be an artifact of overlapping symptoms experienced by older adults who are both anxious and depressed (BDI; r = .56; Wetherell & Arean, 1997). Internal consistency of the BAI in the present sample was excellent (α = .90).

The Generalized Anxiety Disorder Questionnaire IV (GADQ-IV, Roemer, Borkovec, Posa, & Borkovec, 1995) provides a self-report diagnostic assessment of GAD. The scale is a 10-item measure that assesses "presence of worry, its excessiveness, uncontrollability, duration, presence of six associated symptoms, as well as degree of interference and distress associated with worry on a nine point Likert scale". It can be used as a dichotomous or a continuous measure, (Antony, Orsillo, & Roemer, 2001), with the continuous measure incorporated into the present study. Internal consistency of the GADQ-IV in the present sample was adequate (α = .76), although previous research on college samples found the scale to have a higher internal consistency (α = .84).

The Worry Domains Questionnaire (WDQ, Tallis, Eysenck, & Matthews, 1992) is a 25-item measure using a five-point Likert scale that was designed to assess domain specific nonpathological worries in a normative population. The five domains include relationships, confidence, aimless future, work, and financial concerns. The scale measures both negative and positive (constructive) manifestations of worry. The WDQ has excellent internal consistency for the total scale (α = .91) and good internal consistency for the subscales (α = .72 - .88), (Antony et. al., 2001). Excellent internal consistency for the instrument was evident in the present sample (α = .94). The reliability of the subscales were as follows: relationships, α = .90, lack of confidence, α = .87, aimless future, α = .65, work, α = .73, and financial, α = .73.

The Intolerance of Uncertainty Scale (IUS, Freeston, Rheaume, Letart, Dugas, & Ladouceur, 1994) is a 27-item measure that assesses how people react to the uncertainties of life. Participants respond on a five point Likert-type scale that reflects the following

aspects of uncertainty: expectation that the future will be predictable, frustration upon finding the future is not predictable, attempts at controlling the future, and all-or-nothing responses in uncertain situations (Antony, et al., 2001). The IUS has demonstrated excellent internal consistency (α = .95), (Burh & Dugas, 2000). The present sample was consistent with the literature and also indicated excellent internal consistency (α = .92).

"How much do you worry?" This one item was included at the end of the demographic page and was designed assess the participants level of worry. Responses ranged from 1 (almost never) to 4 (almost always).

Depression

The Beck Depression Inventory (BDI; Beck & Steer, 1987) consists of 21 items, each of which is rated on a 4-point Likert scale. There has been strong support for the reliability and validity of the measure with depressed younger adults (Beck & Steer, 1987; Beck et al., 1988; cf Nezu, Ronan, Meadows, & McClure, 2000). Among older adults with GAD (Snyder, Stanley, Novy, Averill, & Beck, 2000), there was good support for the internal consistency of the BDI (α = .82) and the measure correlated highly with the Geriatric Depression Scale (r = .78; Yesavage et al., 1983). Among older GAD patients, discriminant validity of the measure was supported via a weak correlation with the PSWQ (r = .15), a finding not evident among younger non-clinical adults (r = .45; Fresco et al., 2002).

Procedure

The principal investigator contacted the directors of five Senior Community Centers in the East Tennessee region to explain the study. After agreement to participate in the study was obtained, an appointment was scheduled to administer the assessment measures. On the scheduled date, the measures were given to qualifying senior citizens after an explanation of the voluntary nature, rationale, and importance of the study. Participants then completed the questionnaires and returned them to the researcher. Most of the centers followed busy activity schedules, and because of this it was only possible to collect test-retest data in two of the five centers**.** In one center, the follow-up PSWQ-A was completed two weeks from the initial administration; participants in the second center completed the measure six weeks after the initial administration.

CHAPTER 3

RESULTS

Normative Data

Prior to conducting confirmatory factor analytic procedures, and considering the sensitivity of this analysis to the distributional characteristics of the dataset (n = 115), data were subjected to tests of multivariate normality (Hair, Anderson, Tatham, & Black, 1995). Both the symmetry (skewnesss = .96, *SE* = .23) and the "flatness" (kurtosis = .36, *SE* = .46) of the distribution were within acceptable limits (Hair et al., 1995). Descriptive statistics for the PSWQ-A and other clinical measures are presented in Table A-1. *T*-tests were conducted to examine differences in PSWQ-A scores based on gender, marital status (married vs. not married), occupational status (employed vs. not employee), and ethnicity (Caucasian vs. Non-Caucasian). Results of these analyses revealed a significant gender effect [t (108) = 2.34, $p < .05$] whereby females (M = 15.9, SD = 7.1) reported significantly more worry symptoms than males (M = 12.5, SD = 5.2). PSWQ-A scores did not differ as a function of marital, ethnic or occupational status variables. *Z*-score comparisons of means indicated that scores on the PSWQ-A were significantly lower (M = 14.9, SD = 6.8) than those reported in a sample of older adults with GAD (M = 30.9, SD = 6.6; z = 19.3, $p < .001$; Hopko et al., 2003). Scores on other clinical measures also were lower than that reported by a sample of older adults with GAD (Stanley et al., 2003). For example, somatic anxiety (as assessed on the BAI; M = 6.2, SD = 6.7) was

significantly lower than that reported by the clinical sample (M = 16.6, SD = 9.8; z = 20.4, $p < .001$; Wetherell et al., 2003). Depressive symptoms (BDI; M = 7.2, SD = 4.8) and trait anxiety (STAI-T; M = 37.1, SD = 9.8) also were lower than that reported by older adults with GAD [(BDI): M = 17.8, SD = 6.8; z =28.0, $p < .001$; (STAI-T): M = 49.0, SD = 6.8; z =21.6, $p < .001$; Stanley et al., 2003), as were scores on the full length PSWQ (community sample: M = 36.6, SD = 9.8 vs. clinical sample: M = 62.0, SD = 9.8; z =51.0, $p < .001$).

Internal Consistency

Internal consistency of the PSWQ-A was strong (α = .89) and was comparable to findings reported with the older adult GAD sample (α = .87; Hopko et al., 2003). In addition, internal consistency of the PSWQ-A was strong at both the two- (α = .92) and six-week intervals (α = .95). See Table A-2 for corrected inter-item correlations for the initial PSWQ-A administration.

Test-retest Reliability

Test-retest reliability was excellent as assessed at the two- (r = .92) and six-week follow up administrations (r = .95).

Convergent/Disciminant Validity

Table A-3 displays correlations of the PSWQ-A with the WDQ (total and specific domains of worry), BAI, BDI, STAI-T, IUS, PSWQ-full version, GADQ-IV, and the

question of “How much do you worry?” In general, convergence of the PSWQ-A with other anxiety and worry measures (total scores) was moderate (*r* = .46-.60) A moderate correlation also was found between the first (*r* = .65) and second (*r* = .67) administrations of the PSWQ-A and the full-length PSWQ. Interestingly, compared with other anxiety/worry measures, convergent validity of both the PSWQ-A and PSWQ measures were supported via stronger associations with the “how much do you worry” question (r = .70 and .65, respectively). The BDI was moderately associated with both the PSWQ-A (r = .56) and full-length PSWQ (r = .59), findings that are inconsistent with the Hopko et al. (2003) results in which the BDI correlated weakly with both worry measures (*r* = .16). Data collected from the present sample also revealed a significantly higher correlation between the PSWQ-A and the BAI (*r* = .60) compared with previous findings (*r* = .39; Hopko et al., 2003). Finally, compared with previous work (*r* =.42; Hopko, et al., 2003) a comparable relation was noted between the PSWQ-A and the STAI-T (*r* =.47). Cross-sample comparisons among the PSWQ-A and the WDQ, GADQ-IV, and IUS were not possible given the absence of the latter three measures in previous studies.

Confirmatory Factor Analyses

To assess the factorial adequacy of the PSWQ-A, confirmatory factor analyses were conducted on the single factor model. Fit indices for the model were derived by the SAS CALIS procedure (Hatcher, 1994). Analyses used the maximum likelihood method of parameter estimation, and all analyses were performed on the variance-covariance matrix. As per the fit indices outlined as preferential in the reporting of confirmatory

procedures (Thompson & Daniel, 1996), the Root Mean Square Error of Approximation (RMSEA), chi-square (and associated degrees of freedom), and the Bentler's comparative (BCFI), goodness-of-fit (GFI), and adjusted goodness of fit (AGFI) indexes are presented. As for criteria establishing goodness-of-fit, there is some discrepancy in the literature (Marsh, Balla, & McDonald, 1988). Conventionally, a RMSEA value of .10 or lower has been suggested as indicating a good fit (Browne & Cudeck, 1993) whereas a BCFI and GFI of .90 (AGFI of .80) were generally considered acceptable (Bentler & Bonnett, 1980; Fabrigar, Wegener, MacCallum, & Strahan, 1999; Novy et al., 1994). More contemporary criteria recently have been adopted whereby a RMSEA of .06, a Chi-square fit ratio between 1.0 and 2.0, and a BCFI (and GFI) value of .95 are required before conclusions can be drawn that there is a good fit between the hypothesized model and the observed data (Hu & Bentler, 1999).

The single factor model outlined by Hopko et al. (2003) was associated with fit indices as follows: X^2 (20) = 27.3, Chi-square/df (fit ratio) = 1.37; *RMSEA* = .05; *GFI* = .96; *AGFI* = .92; *BCFI* = .98. In the present study, fit indices were substantially less supportive of the unidimensional model: X^2 (20)= 76.9, Chi-square/df (fit ratio) = 3.85; *RMSEA* = .16; *GFI* = .86; *AGFI* = .74; *BCFI* = .87. Standardized factor loadings ranged from .61 to .80 and are listed in Table A-4.

CHAPTER 4

DISCUSSION

The primary objective of this study was to assess the psychometric properties of the PSWQ-A, and in doing so address limitations of the original work in which the instrument was proposed (Hopko et al., 2003). In general, psychometric data strongly supported the reliability of the PSWQ-A as indexed via strong internal consistency and both 2- and 6-week test-retest reliability estimates. Importantly, the potential clinical (i.e., discriminant) utility of the PSWQ-A also was demonstrated in that the community sample reported significantly fewer worry symptoms than a sample of older adults diagnosed with GAD (Stanley et al, 2003). Analysis of demographic data indicated a gender difference on the PSWQ-A in which females reported a higher level of worry. This finding is consistent with the extant literature that suggests self-reported anxiety and worry generally is higher among females, as is the prevalence of anxiety disorders that include GAD (Wittchen & Hoyer, 2001). There were no significant marital, ethnic, or occupational differences as a function of self-reported worry, however the homogenous nature of the sample may have precluded the ability to examine the relation of these variables and content non-specific worry.

In an examination of the convergent validity of the PSWQ-A, it was hypothesized that all anxiety measures would correlate moderately with the PSWQ-A, a finding supported by the data. Attesting to the construct validity of the abbreviated measure, it was observed that the PSWQ and PSWQ-A correlated comparably with the anxiety and

worry measures. The moderate relationships indicated that the PSWQ and PSWQ-A may measure a facet of worry/anxiety slightly different from constructs assessed via other measures. Indeed, compared with other instruments, both measures correlated substantially higher with the question “How much do you worry?” On the other hand, and also relevant to the construct validity of the measure, the PSWQ was expected to correlate much stronger with the PSWQ-A, as was evident in the initial investigation (Hopko et al., 2003). In speculating on this finding, methodological differences should be acknowledged. In particular, in the Hopko et al (2003) investigation the PSWQ-A/PSWQ correlation was obtained through taking an 8-item composite score (PSWQ-A), with this subset of items drawn directly from the (16-item) PSWQ scores that were used in the correlational analysis. Given that this study was designed so that the two measures were administered independently, the present results likely yield a more valid (and non-inflated) index of the strength of association between the PSWQ-A and PSWQ. Alternatively, another factor that may have contributed to the decreased association in the present study might be a maturation effect. Because the PSWQ-A was the first instrument in the packet and the PSWQ was the last, the lengthy packet may have resulted in a fatigue effect whereby latter questionnaires may not have been answered with adequate attentional resources.

Addressing the discriminant validity of the measure, it was expected that the PSWQ-A would weakly correlate with the Beck Depression Inventory (BDI), a finding not supported by the data and inconsistent with the original work of Hopko et al. (2003). Notably, the BDI showed moderate correlations with all of the anxiety measures used in

the present investigation. Inspection of BDI items reveals issues pertaining to the future, ability to work, sleep patterns, fatigue, appetite, health concerns and decreased sexual interest, issues that may naturally concern older adults. So it may be that these concerns addressed within the BDI may overlap with worry symptoms measured by the PSWQ-A and other anxiety instruments used in this study. Further, rather than measuring significantly divergent concepts, the PSWQ-A and the BDI may be measuring *general negative affect*, which has been found to correlate positively with both anxiety and depression (Beck et al., 2003). In any case, given discrepant findings with the original work, further research is required to explore whether (psychometric) differences reflect valid phenomenological distinctions among clinical and non-clinical samples and whether similar findings would be evident using alternate clinician-based and self-report measures of depression.

Finally, in assessing the proposed unifactorial structure of the PSWQ-A, goodness-of-fit indices revealed a less than ideal model fit, with values falling below both the traditional and more contemporary standards for establishing compatibility between data and underlying paradigm. Consequently, further psychometric work and scale development may be necessary to evaluate the factorial structure and suitability of both the PSWQ-A and PSWQ for older adults. Qualitative feedback from older adults completing the instruments might be useful in this regard.

To conclude, several limitations of the present study should be noted. First, future psychometric work on the PSWQ-A may be enhanced by utilizing alternate measures of depression and negative affect (e.g., PANAS; Watson, Clark, & Tellegen, 1988) in order

to further investigate the discriminant validity of the PSWQ-A. An increase in measurement techniques may result in a more comprehensive understanding of the data and the stability of the relation among negative affective states and worry as assessed with the PSWQ-A. As mentioned previously, a clinical interview such as the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960) may provide useful supplemental data. Second, the homogenous nature of the present sample may limit generalizability. Three-fourths of the sample were female, and the majority of participants were Caucasian. Furthermore, the mean age of participants was relatively young and all were residing in East Tennessee. Future work may involve the recruitment of a larger sample and greater diversity in race, gender, location of residence, and age (e.g., young-old vs. old-old) to increase the power of the study design as well as the external validity of results. Third, although it is unknown if the present sample included participants with pathological anxiety, it is assumed that this population could be labeled "normal." Although initial findings are promising in regard to discriminate power of the measure, it would be beneficial to replicate the study using a group of well-diagnosed (through structured clinical interviews) clinical and control groups to psychometrically assess the PSWQ-A and the stability of the present findings. Also, within the clinical population it would be useful to examine whether the PSWQ-A is sensitive to improvement made during the course of psychotherapy and pharmacotherapy.

Despite these limitations, the implications of this study are important and the utility of a briefer and more parsimonious scale for older adults should be investigated further. Ongoing research on the psychometric properties of the PSWQ-A using a

younger cohort generally has revealed findings consistent with those presented, with the exception that fit indices have strongly supported interpretation of the PSWQ-A based on a unifactorial model. The abbreviated version of the PSWQ takes less time to complete and requires fewer cognitive resources given the elimination of reverse scored items, qualities that may be particularly supportive of its use with cognitively impaired or otherwise disabled individuals. These strengths also might promote use of the PSWQ-A in busy primary care settings, where efficiency and accuracy are essential.

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APPENDICES

Table A-1

Means and Standard Deviations of the PSWQ-A and Other Clinical Measures

Instrument	Mean	Standard Deviation
PSWQ-A	14.92	6.76
PSWQ	36.59	9.84
BAI	6.27	6.74
STAI-T	37.08	9.79
IUS	41.61	13.19
GADQ-IV	6.39	5.45
WDQ	10.18	11.32
WDQ-Relationships	1.67	2.93
WDQ-Lack of confidence	2.35	3.00
WDQ-Aimless future	1.57	2.28
WDQ-Work	1.80	2.11
WDQ-Finances	2.80	2.62
Worry Question	2.12	.86

Table A-2

Inter-item Correlations of the PSWQ-A

Item Number	One	Two	Three	Four	Five	Six	Seven	Eight	Corrected Item Total
One	---	.46*	.53*	.69*	.49*	.39*	.45*	.47*	.70
Two		---	.58*	.53*	.49*	.51*	.35*	.64*	.72
Three			---	.61*	.62*	.39*	.51*	.60*	.78
Four				---	.44*	.38*	.38*	.53*	.73
Five					---	.51*	.69*	.59*	.76
Six						---	.32*	.57*	.61
Seven							---	.57*	.65
Eight								---	.79
Corrected Item Total									---

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

Table A-3

Scale Correlations for Convergent/Discriminant Validity

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. PSWQ-A	--	.56**	.47**	.46**	.46**	.65*	.55**	.60**	.47**	.24*	.46**	.45**	.35**	.70**
2. BDI		---	.54**	.46**	.54**	.59**	.53**	.65**	.45**	.33**	.62**	.52**	.40**	.47**
3. STAI-T			---	.51**	.55**	.55**	.45**	.59**	.49**	.37**	.67**	.61**	.26*	.37**
4. IUS				---	.82**	.60**	.68**	.60**	.77**	.73**	.77**	.81**	.52**	.46**
5. WDQ					---	.52**	.70**	.59**	.92**	.82**	.90**	.95**	.77**	.47**
6. PSWQ						---	.57**	.51**	.48**	.36**	.58**	.54**	.29*	.65**
7. GAD-IV							---	.63**	.61**	.50**	.68**	.63**	.65**	.57**
8. BAI								---	.52**	.37**	.66**	.58**	.44**	.43**
9. Relationships									---	.71**	.80**	.87**	.58**	.44**
10. Work										---	.64**	.73**	.55**	.29*
11. Future											---	.86**	.61**	.48**
12. Confidence												---	.63**	.45**
13. Finances													---	.38**
14. Worry														---

*Correlation is significant at the 0.05 level (2-tailed).
*Correlation is significant at the 0.01 level (2-tailed).

Note: PSWQ-A = Penn State Worry Questionnaire – Abbreviated, BDI = Beck Depression Inventory, STAI-T = State-Trait Anxiety Inventory (Trait), IUS = Intolerance of Uncertainty Scale, WDQ = Worry Domains Questionnaire, PSWQ = Penn State Worry Questionnaire, GADQ-IV = Generalized Anxiety Disorder Questionnaire, IV, BAI = Beck Anxiety Inventory, "Relationships" = Worry Domains Questionnaire "relationships" subscale, "Work" = Worry Domains Questionnaire "Work" subscale, "Future" = Worry Domains Questionnaire "future" subscale, "Confidence" = Worry Domains Questionnaire "confidence" subscale, "Finances" = Worry Domains Questionnaire "finances" subscale, "Worry" = "How much do you worry?" on demographics page.

Table A-4

Standardized Factor Loadings for PSWQ-A Items

Item	Factor Loading
1. My situations make me worry.	.68
2. Many situations make me worry.	.72
3. I know I should not worry about things, but I just can't help it.	.78
4. When I am under pressure, I worry a lot.	.71
5. I am always worrying about something.	.76
6. As soon as I finish one task, I start to worry about everything else I must do.	.61
7. I have been a worrier all my life.	.66
8. I have been worrying about things.	.80

Footnote

[1] In some cases, ‘n’ was less than 115 as a result of missing responses.

VITA

As a high school student I started getting interested in psychology. This interest blossomed and I soon found myself enrolled at Tennessee Technological University majoring in psychology. As the undergraduate years quickly passed I learned a great deal more not only about psychology itself, but also career opportunities in the field. Upon completion of my Bachelor's of Science in 2001, I entered graduate school at the University of Tennessee majoring in experimental psychology. This Master's thesis is the culmination of my post secondary education at present. It is now that I turn to the next phase in my academic career as I embark upon a doctoral program in clinical psychology at the University of Mississippi.