

THE STATE-TRAIT ANXIETY INVENTORY (C.H. Spielberger, 1968, 1977)

Purpose

This self-report measure indicates the intensity of feelings of anxiety; it distinguishes between state anxiety (a temporary condition experienced in specific situations) and trait anxiety (a general tendency to perceive situations as threatening). It was originally developed as a research instrument to study anxiety in normal adult population samples, but it can also be used to screen for anxiety disorders and can be used with patient samples (1), p3).

Conceptual Basis

Spielberger developed the STAI in the context of his experimental work on the links between anxiety and learning ability, and reflected limitations in existing measures of anxiety for use in such research (2). Early measures of anxiety such as Taylor's 1953 Manifest Anxiety Scale (TMAS) characterized anxiety as a trait or personality predisposition to react in a particular way to stressful situations (3). During the 1960s, Cattell used multivariate analyses to examine the structure of questionnaire items deemed to measure anxiety, and empirically distinguished between trait and state components (3), p9). Meanwhile, Spielberger reviewed Taylor's scale and concluded that it tapped a broad construct that should be differentiated into components such as stress, threat, state and trait anxiety (2), p139). He proposed an instrument with trait and state sub-scales that would represent Cattell's perspective, and that would also reflect Freud's theory of anxiety as a response to danger (3), p10).

State anxiety refers to transitory unpleasant feelings of apprehension, tension, nervousness or worry, often accompanied by activation of the autonomic nervous system; it reflects how threatening a person perceives his environment to be. Spielberger referred to it as "a temporal cross-section in the emotional stream-of-life of a person" (3), p10). Trait anxiety is a personality disposition that describes a person's tendency to perceive situations as threatening, and hence to experience state anxiety in stressful situations (4). Trait anxiety is not observed directly, but is expressed as state anxiety when stress is experienced (5), p204). Spielberger drew an analogy with energy: trait anxiety would be equivalent to potential energy, and state to kinetic energy (1), p3). As emotions play a crucial role in determining how patients react to a diagnosis and anxiety is central in this process, Spielberger argued that it is important to assess anxiety in routine clinical practice.

Description

Development of the STAI began in the early 1960s with research on high school and college students. Items for the scale were drawn from the TMAS and from Cattell's scale, and further items were written as the development progressed (1), p19; (6). The initial intent was to select items that could be used both for state and trait anxiety, but using a different time reference (e.g., feelings now, versus feelings in general). This proved infeasible, however, as some of the most suitable items for each scale could not be phrased to fit the other: "I feel upset" was a good state item, but did not fit on the trait scale (1), p9; (3), p11). For the original version (Form X), Spielberger selected 20 items for each scale, of which 5

were common to both. The trait scale was largely based on the TMAS, while state anxiety items were chosen as being sensitive to stressful situations (6). Copies of the Form X version are included in the 1970 manual (1), pp20-21), while the newer Form Y is included in the 1983 manual (7), pp36ff).

During the late 1970s, Form X was revised to discriminate more clearly between anxiety and depression and to improve psychometric properties, including the factor structure. Twelve of the original 40 items were replaced, including items that did not work well with less educated respondents and others that appeared to measure depression (7-10). This led to Form Y which, with recent minor modifications, remains in current use. However, Form X continued to be used in published studies well into the 1990s, and as much of the validity and reliability evidence for the STAI was derived from the Form X version, the following review combines information from both versions.

Items 1 - 20 measure situational or state anxiety (STAI-S), and items 21 - 40 measure underlying or trait anxiety (STAI-T). Both scales were intended to form unidimensional measures. For the state items, respondents are asked to indicate "How you feel right now, that is, at this moment." Responses indicate intensity of feeling on a 1 to 4 scale, from "not at all" through "somewhat", moderately so" to "very much so." For the trait items the question concerns "how you generally feel" and the response scale indicates frequency: "almost never", "sometimes", "often" and "almost always." After reversing scores for positively-worded items, total scores for state and trait are calculated, ranging from 20 - 80. Copyright prevents reproduction of the full scale here, but sample items are shown in Exhibit 6.9 and the content of the items is summarized in various publications (e.g., references (11); (12), Table 1; (13), Table 1). Copies of the STAI are available through the Mind Garden company (www.mindgarden.com).

Include Exhibit 6.9 about here.

Text is below

Exhibit 6.9 Examples of items from the State-Trait Anxiety Inventory

The S-Anxiety scale consists of twenty statements that evaluate how respondents feel "right now, at this moment"

1 = NOT AT ALL 2 = SOMEWHAT 3 = MODERATELY SO 4 = VERY MUCH SO

- A. I feel at ease 1 2 3 4
B. I feel upset 1 2 3 4

The T-Anxiety scale consists of twenty statements that evaluate how respondents feel "generally"

1 = ALMOST NEVER 2 = SOMETIMES 3 = OFTEN 4 = ALMOST ALWAYS

- A. I am a steady person 1 2 3 4
B. I lack self-confidence 1 2 3 4
-

Reproduced with permission of Mind Garden Inc, 1690 Woodside Rd # 202, Redwood City, CA 94061 (650) 261-3500

Reliability

Numerous studies have reported alpha internal consistency, which is consistently high; selected results are shown in Table 6.6.

Table 6.6 Internal Consistency Coefficients (alpha or K-R20) for the STAI, Versions X and Y

Study sample	State scale	Trait scale	Reference
Students (Form X)	0.83 - 0.94	0.86 - 0.92	(4), p332)
Students (Form Y)	0.86 - 0.94	0.90 - 0.91	(7), Table 1)
Undergraduate male students	0.89	0.90	(1), Table 3)
Undergraduate female students	0.89	0.89	(1), Table 3)
Adult psychiatric outpatients	0.92	0.90	(14), p378)
General population	0.95	0.91	(15), p283)
Working adults (Form Y)	0.93	0.91	(7), Table 1)
Anxious older adults	0.94	0.88	(16), Table 2)
Students: low stress conditions	0.92	0.87	(17), Table 3)
Students: high stress conditions	0.81	0.67	(17), Table 3)
Students (2 samples); low stress	0.92; 0.90	0.92; 0.88	(6), p533)
Pain patients; different ethnic groups	0.93 - 0.95	0.92 - 0.95	(18), Table 3)
Parents of young children	0.87	0.81	(19), Table 1)
Surgical patients, cancer patients & medical students	0.93	0.91	(20), Table 4)

Internal consistency tends to be higher under conditions of stress, although this is not completely consistent. For example, low-stress testing conditions led to lower split-half correlations, but to higher K-R 20 correlations in the same sample (17), Tables 2, 3). Item-total correlations ranged from 0.49 to 0.64 for the state scale, and from 0.38 to 0.69 for the trait scale (14), p38).

As would be expected from the conceptual formulation of the STAI, trait scores are generally more stable than state scores. In studies over various time-delays, Spielberger reported retest figures for Form X that ranged from 0.73 to 0.86 for trait scores, while state results ranged from 0.16 to 0.54 (1), p9). Other findings included one-week retest correlations ranging from 0.78 to 0.83 for the trait scores, compared to 0.69 to 0.76 for state scores (21), Table 2); a mean of 0.86 for trait, compared to 0.52 for state has been reported (22), p197). The retest correlation after 11 days was 0.73 for the

trait score (23), p59). Two-week figures were 0.86 for trait and 0.40 for the state scale (24), p277), while seven-week retest correlations were 0.85 for the trait and 0.68 for the state scale (25), p480). Eight-month retest correlations for a sample of medical students were 0.54 for trait scores and 0.26 for state; 11-month figures were 0.29 for trait and 0.15 for state scores (26), p358). Higher figures have also been reported: state scale retest correlations after 11 months were 0.51 for high school students and 0.49 for adults (27), p586). A Dutch study suggested that while total trait scores may appear stable over time, this may mask considerable instability in responses to individual items (28), p381). For Form Y, 30-day retest values ranged from 0.71 to 0.75 for the trait scale, and 0.34 to 0.62 for the state score. Test-retest values were markedly lower for females than for males (7), Table 11).

Validity

Content validity was assessed by Okun et al., who noted that the STAI covered five of eight domains for generalized anxiety disorder in the DSM-IV (29).

Factorial validity. As state and trait are considered conceptually distinct but related constructs, numerous studies have commented on the empirical relationship between the two facets of the STAI. Correlations between state and trait scales typically fall in the range of 0.7 to 0.8 (6), p532), but appear to vary from sample to sample (30), for which there seems no clear explanation. In one study, for example, the correlation was 0.88 for a sample of 132 cancer patients following completion of chemotherapy, 0.73 for 121 medical students, and 0.52 for 194 surgical patients immediately before their operation (20), Table 5). A lower value of 0.43 was reported in a study of parents (19), Table 3). Trait anxiety may tend to predict state more strongly in males (range of correlations 0.51 to 0.67) than in females (0.44 to 0.55) (1), p12).

Early factorial studies of Form X investigated whether or not the state and trait items measured separate concepts. Some analyses reported a single factor (21; 31), while others produced a clear two-factor solution separating state and trait items (12), Table 1). Most studies, however, identified several factors, and a consistent finding was that the positively and negatively-worded items (anxiety present, versus anxiety absent) load on separate factors, especially for the state items. For example, in samples of university and of high school students under conditions of exam stress, Gaudry et al. extracted five and six factors, including a factor that merely distinguished the positively worded items (4), pp335-9). Positively and negatively worded items again loaded on separate factors in a study of psychiatric outpatients (14), p40), while a study of undergraduates grouped the trait items together, but separated positively and negatively worded state items (11), p407). Conversely, another study found the positively and negatively worded trait items to load on separate factors, but not the state items (32), Table 1). Spielberger found different factor structures for male and female respondents (9), Table 6-1). These inconsistencies contributed to the decision to develop the revised Form Y version of the STAI, as described in some detail by Spielberger et al. (9), pp101-6).

In 1980 Spielberger, Vagg and colleagues published two studies using Form Y (8), Table 2; (9), Table 6-4). The studies produced four factors that represented the distinction between state and trait, and that between positively- and negatively-worded items (state anxiety absent and present, and trait anxiety absent and present). This structure was later upheld in a confirmatory analysis (33), and in a study of geriatric patients (34), p449). As noted by Spielberger, the results for Form Y clearly support the state-trait distinction, while the anxiety present versus absent distinction reflects severity, whereby anxiety absent items are sensitive to low levels of anxiety, and anxiety present items are sensitive to higher levels (9), p107).

A factor analysis that included both the STAI and the Beck Anxiety Inventory (BAI) showed the two to load on separate factors, suggesting that they may represent separate concepts (25), Table 4).

A Rasch analysis showed that six of the 20 trait items did not meet the scaling criteria; it also identified redundancies among several of the items, and yet showed that there is inadequate coverage at

the low trait anxiety end of the continuum. Results for the state scale also showed six items that did not meet scale criteria, and that most of the items were grouped around the centre-point of the scale, making for a relatively inefficient measurement scale (35), Tables 1 and 2).

Convergent validity. Many studies have compared the STAI to other scales. Spielberger's original studies produced correlations between the trait scale and the TMAS ranging from 0.79 to 0.83 in three samples, while correlations with Cattell's IPAT scale ranged from 0.75 to 0.77 (1), Table 6). (Note that these correlations approach the reliabilities of the scales). However, as so often happens, subsequent authors have reported somewhat lower coefficients; a selection of results is included in Table 6.7.

Table 6.7 Convergent validity correlations for the STAI-Y

Compared to	S-Anxiety	T-Anxiety	Reference
Beck Anxiety Inventory (BAI)	0.52	0.44	(14), Table 3)
	0.47	0.58	(23), Table 1)
	0.56	0.57	(25), p482)
	0.64	0.68	(25), p482)
Depression Anxiety Stress Scales (42-item version; Anxiety scale)		0.44	(36), Table 3)
Depression Anxiety Stress Scales (21-item version; Anxiety scale)		0.55	(36), Table 3)
Anxiety diary	0.53	0.34	(23), Table 1)
Fear Questionnaire (2 samples)	0.16, 0.38	0.34, 0.43	(16), Tables 4, 8)
Worry Scale (2 samples)	0.22, 0.41	0.40, 0.57	(16), Tables 4, 8)
Test Anxiety Inventory		0.41 to 0.64	(3), p13)

Discriminant validity.

The Form Y manual provides mean scores for a variety of neuropsychiatric patient groups, and these are uniformly higher than scores for general population samples (7), Table 8). Likewise, state anxiety scores for military recruits tested under stressful training conditions were higher than those for college students of similar age; there was little difference between the trait scores (7), Table 1). In a study of mixed psychiatric outpatients, the state scale failed to discriminate significantly between those with an anxiety disorder and those without; the trait scale did discriminate significantly, although at a lower level than achieved by the Beck Anxiety Inventory (14), p38). State and trait scores for patients diagnosed with agoraphobia with panic attacks were significantly higher than those for patients with panic disorder alone (12), Table 2).

The question of discriminating anxiety from depression has led many studies to correlate scores on anxiety and depression scales. A study of undergraduate students found that the STAI correlated more

strongly with the Beck Depression Inventory (BDI) than did the Beck Anxiety Inventory. The coefficients were 0.71 for state, 0.78 for trait, compared to 0.63 for the BAI (25), p482). In a sample of outpatients with anxiety disorder, the Trait scale correlated 0.73 with the BDI, while the State scores correlated 0.59, compared to 0.50 for the BAI (23), Table 1). (Note that the correlation for the Trait scale matches its test-retest reliability correlation (23), p60). Similarly, in a comparison with the Depression Anxiety Stress Scales (DASS), the correlation for the STAI-T was higher with the DASS depression score than with the DASS Anxiety score (36), Table 3). A comparison with the Center for Epidemiologic Studies Depression scale (CES-D) again showed a higher correlation (0.71) for trait anxiety than for state (0.44) (19), Table 3). The impression is that the STAI scales are not specific for anxiety, and correlate with depression scores more highly than some of the other leading anxiety scales. This was confirmed by Bieling et al. who used hierarchical confirmatory factor analysis to show that all 20 trait items loaded on a single negative affect factor, but that distinct lower-order depression and anxiety factors also existed (13), Table 2). They derived sub-scores from the anxiety and depression items and showed that the anxiety items correlated more highly with the Beck Anxiety Inventory than did the depression items, whereas the depression items correlated more highly than the anxiety with the depression scale of the Depression Anxiety Stress Scale (13), Table 3).

Responsiveness

A consistent finding is that under stressful and non-stressful testing conditions, trait scores remain relatively stable, while state scores show a significant change in the expected direction (11; 17), p278; (24), p276; (31), pp578-9). Another consistent finding is that the positively worded state items are more sensitive to a range of levels of stress; the negatively worded items react to high levels of stress, so have a ceiling effect (4), pp335-9; (11), p409).

The question of whether trait scores do, indeed, predict change in state scores under conditions of stress is not fully clear. It is clear that state scores change following stress and that state and trait scores are correlated, but in most studies the pattern of change in state scores following stress is very comparable for high and low trait anxiety groups (see, for example, Figure 1 in reference (11). It may be, however, that trait scores do predict state responses to ego threats, but not threats of physical harm (11), p410).

The STAI was found to be uncontaminated by the presence of physical illness in a study of HIV patients (37), p363). Responses did not appear to vary according to racial group or gender (18).

Alternative Forms

Based on their Rasch analysis which showed considerable redundancy in the STAI, Tenenbaum et al. proposed an abbreviated version with 10 trait items and 9 state items that would have greater discriminational efficiency (35), p244). Based on item-total correlations, Marteau and Bekker selected six items from the state scale to form an abbreviated form that had an alpha of 0.82 and correlated 0.95 with the 20-item state scale. The six items are shown in their report (38), p306).

For use in studies requiring repeated measures, Van Knippenberg et al. proposed alternative forms of both state and trait scales, each with 8 items and each giving equivalent results. The internal consistency of the 8-item forms reduced the alpha reliability coefficients by .07 for both scales compared with the 20-item versions (20), p998).

A children's version (STAI-C) is used for children aged 5 to 12 (39). It uses a 3-point answer scale, provides more explicit instructions and includes different items. This version has also been tested for use with elderly respondents, on the basis of being easier for them to understand than the standard version (40). For the state scale, the results gave an alpha coefficient of 0.86, and a correlation with the Geriatric Depression Scale of 0.51 (40), Table 3).

The STAI has been translated into more than 40 languages (see www.qolid.org/).

Reference Standards

The Form X manual reports mean scores for various population samples, including working adults, college students, high school students, various patient groups, and even prison inmates (1), Tables 1 - 4 and 7 - 9; (7). It also reports percentile scores and t-scores for college and high school students (Tables 1, 2). Likewise, norms for Form Y are available from the 1983 manual (7), Tables 1-8). Version Y mean state scores for working men were 35.7 (SD 10.4), and mean trait scores of 34.9 (SD 9.2). Women had mean state scores of 35.2 SD 10.6), and trait scores of 34.8 (SD 9.2) (7), Table 1). Typical scores for people with diagnosed anxiety fall in the range 47 to 61 (41), p68).

Commentary

The STAI is one of the best-established anxiety measures, having been used in thousands of studies in many fields of health research; one literature review showed that it has been cited ten times more frequently than its nearest rival (42). As well as being used with a range of patients, it has been used with students, with adults in the community, with military personnel, and even prison inmates (14). The manuals are informative and provide clear instructions on administration.

Although it is used routinely in clinical settings, the STAI was developed largely with non-clinical undergraduate and high school students (43), p896). Discriminant validity was not specifically addressed in the development of the STAI, so it is not clear whether it actually measures anxiety or a mix of anxiety and depression. Thus, the Trait scale correlated 0.73 with the Beck Depression Inventory, and the State scale correlated 0.60 (43), p896). However, some of the criticisms of the STAI's limited ability to distinguish anxiety from depression refer to the original, Form X version (25), p478). This lack of specificity may be less of an issue with the revised version, although results such as its higher correlation with the DASS depression scale than the anxiety scale (36), Table 3) suggest that the STAI may still retain items that assess depression in addition to anxiety.

The distinction between state and trait scores is complex and a debate arose in the early 1980s over the relationship between them. As postulated, state scores change in reaction to threats while trait scores do not. However, the two scores correlate quite highly and may load on a single general factor. Furthermore, the extent to which trait scores (as postulated in the conceptual formulation) predict change in state scores under conditions of threat seems to vary. One interpretation is that the trait score primarily measures fear of failure or loss of self-esteem (11), p406). Ramanaiah et al. argued that some items in each scale are not specific to that scale, resulting in a spuriously high correlation between state and trait scores and complicating the interpretation of factor analyses (6). Spielberger et al. pointed out, however, that they had already addressed that concern in the transition from Form X to Form Y of the STAI in 1980 (10). While academic debates over details of the scales will likely continue, it is clear that the STAI represents one of the best measures of anxiety available.

Address

Mind Garden Inc, 1690 Woodside Rd # 202, Redwood City, CA 94061 (650) 261-3500
(www.mindgarden.com).

References

- (1) Spielberger CD, Gorsuch RL, Lushene RE. Test manual for the State Trait Anxiety Inventory. Palo Alto, California: Consulting Psychologists Press, 1970.
- (2) Spielberger CD. Anxiety: state-trait-process. In: Spielberger CD, Sarason IG, editors. Stress and anxiety, vol. I. Washington, DC: Hemisphere Publishers, 1975: 115-143.
- (3) Spielberger CD. Assessment of state and trait anxiety: conceptual and methodological issues. *Southern Psychologist* 1985; 2:6-16.
- (4) Gaudry E, Vagg P, Spielberger CD. Validation of the state-trait distinction in anxiety research. *Multivariate Behav Res* 1975; 10:331-341.
- (5) Reiss S. Trait anxiety: it's not what you think it is. *J Anx Disord* 1997; 11:201-214.
- (6) Ramanaiah NV, Franzen M, Schill T. A psychometric study of the State-Trait Anxiety Inventory. *J Pers Assess* 1983; 47:531-535.
- (7) Spielberger CD. Manual for the State-Trait Anxiety Inventory (Form Y). Palo Alto, CA: Consulting Psychologists Press, 1983.
- (8) Vagg PR, Spielberger CD, O'Hearn TP. Is the State-Trait Anxiety Inventory multidimensional? *Pers Individ Differ* 1980; 1:207-214.
- (9) Spielberger CD, Vagg PR, Barker LR, Donham GW, Westberry LG. The factor structure of the State-Trait Anxiety Inventory. In: Sarason IG, Spielberger CD, editors. Stress and anxiety (vol. 7). Washington, DC: Hemisphere Publishing, 1980: 95-109.
- (10) Spielberger CD, Vagg PR. Psychometric properties of the STAI: a reply to Ramanaiah, Franzen, and Schill. *J Pers Assess* 1984; 48:95-97.
- (11) Kendall PC, Finch AJ, Jr., Auerbach SM, Hooke JF, Mikulka PJ. The State-Trait Anxiety Inventory: a systematic evaluation. *J Consult Clin Psychol* 1976; 44:406-412.
- (12) Oei TPS, Evans L, Crook GM. Utility and validity of the STAI with anxiety disorder patients. *Br J Clin Psychol* 1990; 29:429-432.
- (13) Bieling PJ, Antony MM, Swinson RP. The State-Trait Anxiety Inventory, trait version: structure and content re-examined. *Behav Res Ther* 1998; 36:777-788.
- (14) Kabacoff RI, Segal DL, Hersen M, van Hasselt VB. Psychometric properties and diagnostic utility of the Beck Anxiety Inventory and the State-Trait Anxiety Inventory with older adult psychiatric outpatients. *J Anx Disord* 1997; 11:33-47.
- (15) Lisspers J, Nygren A, Söderman E. Hospital Anxiety and Depression Scale (HAD): some psychometric data for a Swedish sample. *Acta Psychiatr Scand* 1997; 96:281-286.
- (16) Stanley MA, Beck JG, Zebb BJ. Psychometric properties of four anxiety measures in older adults. *Behav Res Ther* 1996; 34:827-838.

- (17) Metzger RL. A reliability and validity study of the State-Trait Anxiety Inventory. *J Clin Psychol* 1976; 32:276-278.
- (18) Novy DM, Nelson DV, Goodwin J, Rowzee RD. Psychometric comparability of the State-Trait Anxiety Inventory for different ethnic subpopulations. *Psychol Assess* 1993; 5:343-349.
- (19) Orme JG, Reis J, Herz EJ. Factorial and discriminant validity of the Center for Epidemiological Studies Depression (CES-D) scale. *J Clin Psychol* 1986; 42:28-33.
- (20) van Knippenberg FCE, Duivenvoorden HJ, Bonke B, Passchier J. Shortening the State-Trait Anxiety Inventory. *J Clin Epidemiol* 1990; 43:995-1000.
- (21) Barker HR, Jr., Wadsworth AP, Jr., Wilson W. Factor structure of the State-Trait Anxiety Inventory in a nonstressful situation. *J Clin Psychol* 1976; 32:595-598.
- (22) Newmark CS. Stability of state and trait anxiety. *Psychol Rep* 1972; 30:196-198.
- (23) Fydrich T, Dowdall D, Chambless DL. Reliability and validity of the Beck Anxiety Inventory. *J Anx Disord* 1992; 6:55-61.
- (24) Rule WR, Traver MD. Test-retest reliabilities of State-Trait Anxiety Inventory in a stressful social analogue situation. *J Pers Assess* 1983; 47:276-277.
- (25) Creamer M, Foran J, Bell R. The Beck Anxiety Inventory in a non-clinical sample. *Behav Res Ther* 1995; 33:477-485.
- (26) Nixon GF, Steffek JC. Reliability of the State-Trait Anxiety Inventory. *Psychol Rep* 1977; 40:357-358.
- (27) Layton C. Test-retest characteristics of State-Trait Anxiety Inventory, A-state scale. *Percept Mot Skills* 1986; 62:586.
- (28) van der Ent CK, Smorenburg JM, Bonke B. The stability of the A-trait subscale of the STAI for stress and passage of time. *J Clin Psychol* 1987; 43:379-385.
- (29) Okun A, Stein RE, Bauman LJ, Silver EJ. Content validity of the Psychiatric Symptom Index, CES- depression Scale, and State-Trait Anxiety Inventory from the perspective of DSM-IV. *Psychol Rep* 1996; 79:1059-1069.
- (30) Kennedy BL, Schwab JJ, Morris RL, Beldia G. Assessment of state and trait anxiety in subjects with anxiety and depressive disorders. *Psychiatr Q* 2001; 72:263-276.
- (31) Wadsworth AP, Jr., Barker HR, Barker BM. Factor structure of the State-Trait Anxiety Inventory under conditions of variable stress. *J Clin Psychol* 1976; 32:576-579.
- (32) Barker BM, Barker HR, Jr., Wadsworth AP, Jr. Factor analysis of the items of the State-Trait Anxiety Inventory. *J Clin Psychol* 1977; 33:450-455.
- (33) Bernstein IH, Eveland DC. State vs trait anxiety: a case study in confirmatory factor analysis.

Pers Individ Differ 1982; 3:361-372.

(34) Bouchard S, Ivers H, Gauthier JG, Pelletier M-H, Savard J. Psychometric properties of the French version of the State-Trait Anxiety Inventory (form Y) adapted for older adults. *Can J Aging* 1998; 17:440-453.

(35) Tenenbaum G, Furst D, Weingarten G. A statistical reevaluation of the STAI anxiety questionnaire. *J Clin Psychol* 1985; 41(2):239-244.

(36) Antony MM, Bieling PJ, Cox BJ, Enns MW, Swinson RP. Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress scales in clinical groups and a community sample. *Psychol Assess* 1998; 10:176-181.

(37) Savard J, Laberge B, Gauthier JG, Ivers H, Bergeron MG. Evaluating anxiety and depression in HIV-infected patients. *J Pers Assess* 1998; 71:349-367.

(38) Marteau TM, Bekker H. The development of a six-item short-form of the state scale of the Spielberger State-Trait Anxiety Inventory (STAI). *Br J Clin Psychol* 1992; 31:301-306.

(39) Spielberger CD, Edwards CD, Lushene RE, Montouri J, Platzek D. Preliminary manual for the State-Trait Anxiety Inventory for children. Palo Alto, CA: Consulting Psychologists Press, 1973.

(40) Rankin EJ, Gfeller JD, Gilner FH. Measuring anxiety states in the elderly using the State-trait Anxiety Inventory for Children. *J Psychiatr Res* 1993; 27:111-117.

(41) Antony MM, Orsillo SM, Roemer L. Practitioner's guide to empirically based measures of anxiety. New York: Kluwer Academic, 2001.

(42) Piotrowski C. The status of the Beck Anxiety Inventory in contemporary research. *Psychol Rep* 1999; 85:261-262.

(43) Beck AT, Epstein N, Brown G, Steer RA. An inventory for measuring clinical anxiety: psychometric properties. *J Consult Clin Psychol* 1988; 56:893-897.