

Anxiety, Depression and Cognitive Self-Statements: A Factor Analytic Study

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Two important and closely related developments in psychological measurement over the past decade have involved the distinction between the *symptoms* of anxiety and of depression on the one hand, and the *cognitive elements* of anxiety and of depression on the other. The present study set out to provide a comparative psychometric evaluation of the construct validity of four frequently used, independent measures of these four variables. To provide the responses required for this evaluation, 267 subjects completed the following questionnaires - the Beck Depression Inventory (BDI), the Beck Anxiety Inventory (BAI), the Automatic Thoughts Questionnaire (ATQ) and the Anxious Self-Statements Questionnaire (ASSQ). Factor analysis showed that the BDI and the BAI measured two related but quite distinct constructs namely depression and anxiety. However the ATQ and ASSQ appeared to tap one construct rather than two. The separation of dysfunctional self-statements into anxiety and depression related categories appears premature.

The development of cognitive therapy in recent years has contributed greatly to the psychological treatment of anxiety and depression (e.g., Beck, 1976; Clark, 1986). Along with therapy has come the demand for improved assessment procedures (e.g., Kendall & Ingram, 1987). Such hoped for improvements in the assessment of dysfunctional cognitions would aid the clinician who targets such phenomena for change and would also be of value to researchers studying the outcomes of cognitive therapy.

Two recent developments in the assessment of cognitive self-statements have been the Automatic Thoughts Questionnaire (ATQ) (Hollon & Kendall, 1980) and the Anxious Self-Statements Questionnaire (ASSQ) (Kendall & Hollon, 1989). The ATQ is a 30-item self-report questionnaire which asks respondents to rate the frequency with which certain thoughts have occurred during the past week. The specific self-statements listed are considered to typify the content of depressed thinking (e.g., "I'm a loser"). The ASSQ is a very similar 32-item measure, with items that are intended to tap thoughts specifically related to anxiety, such as "I wish I could escape". While their authors have already presented some

good evidence for the psychometric properties of these two inventories, it remains unclear whether they measure two separate dimensions or just one.

In a comparative evaluation of the Beck Depression Inventory (BDI) (Beck & Steer, 1987) and the Beck Anxiety Inventory (BAI) (Beck, Epstein, Brown & Steer, 1988), the latter authors showed that those measures are moderately highly correlated, (0.48) suggesting the presence of a substantial underlying general factor. It would not be surprising therefore, if a similar general factor, which might be interpreted in clinical terms as "dysphoria" was also to be found underlying responses to inventories of anxious and depressed self-statements, such as the ATQ and the ASSQ. Specifically, it might be asked whether these two questionnaires are assessing two distinct cognitive styles, anxious and depressive thinking, or whether they both tap a common dimension of dysfunctional (or dysphoric) thinking.

A second question relates to the relationship between the *symptoms* of anxiety and depression measured by the BDI and the BAI, and the anxious and depressed *cognitions* that are tapped by the ATQ and the ASSQ. To be more specific, do the so-called anxious self-statements measured by the ASSQ re-

late more strongly to anxiety (as measured by the BAI) than depression (as measured by the BDI)? And is the reverse true for the depressive self statements measured by the ATQ? The question is one of discriminant validity.

Factor analysis would appear to be the logical method for answering this question. Moreover, in view of the long-running debate over the separability of anxiety and depression (e.g., Clark, Beck & Stewart, 1990), such fundamental measurement issues need to be clarified before these two new measures are widely applied. Accordingly, in the present study, the ATQ and ASSQ were administered along with the BDI and BAI to a large sample of undergraduate students, to clarify the relationships between anxiety, depression and cognitive self-statements as measured by these four questionnaires. The predictions with respect to these relationships were as follows:-

1. That the ATQ and the ASSQ measure two distinct categories of thoughts.
2. That a general factor, which may be referred to as Dysphoric Cognition, will be found to underlie responses to both the ATQ and the ASSQ.
3. That the BDI and the BAI measure two distinct categories of symptoms.
4. That a general factor of Dysphoria will be found to underlie responses to both the BDI and the BAI.
5. That scores on the ASSQ will be more strongly related to BAI than BDI scores.
6. That scores on the ATQ will be more strongly related to BDI than BAI scores.

Method

Subjects

Subjects were 306 first-year psychology students who participated anonymously and on a voluntary basis. Subjects who score below 5 on both the BDI and the BAI were excluded from the statistical analysis. This was done to prevent any spuriously high correlations occurring simply as a result of administering clinical measures to a non-clinical group. It was considered that removing the relatively large pool of asymptomatic subjects from the analysis (i.e., those who just score low on both symptom measures) would prevent that possibility. This left a final total of 267 subjects in the group. It comprised 161 females and 106 males. Ages ranged from 17 to 55 with 90% of subjects less than 25 years of age.

Measures

Subjects completed the BDI, BAI, ATQ and ASSQ in a lecture theatre prior to a class. The measures were administered by the authors in booklet form and subjects received feedback on group results at a later date. The order of the four questionnaires within the booklet was

randomised.

Statistical Analyses

Responses to the four questionnaires were analyzed with the SAS package (SAS Institute Inc., 1985). The following statistical analyses were conducted:

1. Pearson correlation coefficients were calculated for the total scores on the four measures.

2. The items of the ATQ and ASSQ were included in a principal components analysis followed by Varimax rotation. In order to show the factorial discriminability of the two questionnaires, two factors were rotated on the basis of Walkey's (1983) argument that solutions based upon theoretical considerations are more likely to yield meaningful structures than the more complex solutions that frequently emerge when traditional mathematical criteria are applied in a cookbook fashion. This approach to factor analysis has proved useful in identifying the replicable factor structures of several widely used questionnaires (e.g., Siegert, Patten, & Taylor, 1988; Siegert, McCormick, Taylor, & Walkey, 1987).

3. The items of the BDI and BAI were included in a principal components analysis followed by Varimax rotation. Again, the rationale was that if these measures do index two distinct classes of symptoms then this should be most clearly revealed in the simplest (i.e., two-factor) solution.

4. On the basis of the results of the above, the items from all four questionnaires were included in two, three and four factor principal components analyses followed by Varimax rotation.

Table 1: *Coefficients of Correlation and Descriptive Statistics for BDI, BAI, ATQ and ASSQ Scores**

| Questionnaire | Questionnaire | | | |
|---------------|---------------|-------|--------|--------|
| | BDI | BAI | ATQ | ASSQ |
| BAI | 0.56 | | | |
| ATQ | 0.78 | 0.57 | | |
| ASSQ | 0.73 | 0.63 | 0.86 | |
| Mean | 10.48 | 11.79 | 54.29 | 62.04 |
| Std.Dev. | 7.03 | 8.33 | 18.61 | 20.89 |
| Range | 0-45 | 0-51 | 30-135 | 33-143 |

* Note n ranges from 254-264 due to missing data points. All correlations are significant at $p < .0001$.

Results

The correlations between scores on the four questionnaires are presented in Table 1, together with descriptive statistics for each measure. It should be noted that, as indicated above, subjects who were asymptomatic on both the BAI and BDI have been

omitted from these statistics.

Inspection of Table 1 reveals moderate to high positive correlations ($p < .01$) between all four measures. The BDI was found to have a correlation with the BAI of 0.56. It showed even higher correlations with both the ATQ ($r = 0.78$) and the ASSQ ($r = 0.73$). The ATQ and ASSQ were highly correlated with each other, ($r = 0.86$) and with the BAI ($r = 0.57$ and $r = 0.63$ respectively).

These findings raised questions related to the convergent and discriminant validity of the ATQ and ASSQ (where convergent and discriminant validity to the degree to which measures which purport to tap the same and dissimilar constructs respectively, are differentially correlated) and the factor analyses were completed to address these issues.

Table 2 presents the rotated factor loadings for the two-factor solution for the ATQ and ASSQ items. Both measures had shown unanimously high loadings for all items on the first unrotated principal component, with the lowest loading observed for any single item at 0.45. These uniformly high loadings, which are effectively equivalent to item-to-total correlations, indicate the presence of a substantial general influence, which may be described as a General Factor, underlying both sets of items.

Inspection of Table 2 shows little evidence of distinct factors related to the two scales. Of the ATQ items 13 load most highly on Factor 1 and 17 load higher on Factor 2. Of the ASSQ items 24 load most highly on Factor 1 and 8 load higher on Factor 2. Such a failure to observe two clear factors could be

Table 2: Factor Loadings of all ATQ and ASSQ Items after Two Factor Analysis with Varimax Rotation*

| Rotated Factor Pattern | | | Rotated Factor Pattern (contd) | | |
|------------------------|------------|------------|--------------------------------|------------|------------|
| Item | Factor 1 | Factor 2 | Item | Factor 1 | Factor 2 |
| ATQ1 | .35 | <u>.42</u> | ASQ1 | <u>.43</u> | .30 |
| ATQ2 | .21 | <u>.61</u> | ASQ2 | .28 | <u>.63</u> |
| ATQ3 | .21 | <u>.65</u> | ASQ3 | <u>.35</u> | .31 |
| ATQ4 | <u>.49</u> | .37 | ASQ4 | <u>.56</u> | .15 |
| ATQ5 | .24 | <u>.53</u> | ASQ5 | .35 | <u>.53</u> |
| ATQ6 | <u>.57</u> | .36 | ASQ6 | <u>.71</u> | .26 |
| ATQ7 | .31 | <u>.52</u> | ASQ7 | <u>.66</u> | .24 |
| ATQ8 | <u>.41</u> | .33 | ASQ8 | <u>.60</u> | .27 |
| ATQ9 | <u>.56</u> | .41 | ASQ9 | <u>.62</u> | .14 |
| ATQ10 | .32 | <u>.69</u> | ASQ10 | <u>.56</u> | .26 |
| ATQ11 | <u>.53</u> | .36 | ASQ11 | <u>.48</u> | .23 |
| ATQ12 | <u>.64</u> | .24 | ASQ12 | <u>.41</u> | .31 |
| ATQ13 | .20 | <u>.46</u> | ASQ13 | <u>.59</u> | .21 |
| ATQ14 | <u>.53</u> | .44 | ASQ14 | <u>.55</u> | .36 |
| ATQ15 | <u>.42</u> | .20 | ASQ15 | .34 | <u>.59</u> |
| ATQ16 | <u>.43</u> | .42 | ASQ16 | <u>.46</u> | .17 |
| ATQ17 | .40 | <u>.45</u> | ASQ17 | .30 | <u>.47</u> |
| ATQ18 | .30 | <u>.60</u> | ASQ18 | .28 | <u>.56</u> |
| ATQ19 | <u>.54</u> | .24 | ASQ19 | <u>.46</u> | .30 |
| ATQ20 | .45 | <u>.54</u> | ASQ20 | <u>.42</u> | .42 |
| ATQ21 | .17 | <u>.72</u> | ASQ21 | <u>.60</u> | .31 |
| ATQ22 | <u>.58</u> | .44 | ASQ22 | .42 | <u>.54</u> |
| ATQ23 | .20 | <u>.78</u> | ASQ23 | <u>.73</u> | .24 |
| ATQ24 | .20 | <u>.71</u> | ASQ24 | <u>.72</u> | .23 |
| ATQ25 | <u>.64</u> | .32 | ASQ25 | <u>.64</u> | .30 |
| ATQ26 | <u>.63</u> | .27 | ASQ26 | <u>.73</u> | .30 |
| ATQ27 | .48 | <u>.50</u> | ASQ27 | <u>.50</u> | .31 |
| ATQ28 | .25 | <u>.70</u> | ASQ28 | .31 | <u>.47</u> |
| ATQ29 | .30 | <u>.51</u> | ASQ29 | <u>.66</u> | .28 |
| ATQ30 | .19 | <u>.65</u> | ASQ30 | <u>.52</u> | .21 |
| | | | ASQ31 | <u>.71</u> | .32 |
| | | | ASQ32 | .26 | <u>.58</u> |

* The highest loading for each item is underlined.

attributed to the low level of anxiety and depression related thoughts in a normal sample in spite of the fact that asymptomatic subjects were not included in the analysis. However, when responses to the anxiety (BAI) and depression (BDI) symptom measures were subsequently included in a similar two factor analysis, both the questionnaires also showed near unanimously high loading (>0.30) of all items on the first unrotated principal component, but were clearly discriminated when the two factors were rotated.

Results of this two-factor solution are presented in Table 3, which shows a quite different pattern from that observed in the preceding analysis. Of the 21 BDI items 19 load most highly on the same Factor, namely Factor 2. Of the 21 BAI items 15 load most highly on Factor 1. The results are clear then, with

Factor 1 representing anxiety and Factor 2 depression. The overall high loadings for both questionnaires on the first unrotated principal component suggests the presence of a large general factor of Dysphoria. In order to see whether the two cognitions questionnaires formed a separate factor or factors from the two symptoms questionnaires, two, three and four factor analyses were then conducted using all items from the four questionnaires.

Results of the two-factor analysis with Varimax rotation of all items from all four questionnaires are presented in Table 4. Of the 21 BDI items 19 loaded highest on Factor 1. For both the ATQ and ASSQ every single item, a total of 62 in all, loaded higher on Factor 1 than Factor 2. By contrast, 20 out of the 21 BAI items loaded most highly on Factor 2. Re-

*Table 3: Item-Factor Loadings of BDI and BAI Items after two Factor Analysis with Varimax Rotation**

| Rotated Factor Pattern | | | Rotated Factor Pattern (Contd) | | |
|------------------------|------------|------------|--------------------------------|------------|------------|
| Item | Factor 1 | Factor 2 | Item | Factor 1 | Factor 2 |
| BDI1 | .16 | <u>.58</u> | BAI1 | <u>.38</u> | .05 |
| BDI2 | .10 | <u>.60</u> | BAI2 | <u>.48</u> | .13 |
| BDI3 | .14 | <u>.58</u> | BAI3 | <u>.68</u> | .09 |
| BDI4 | .11 | <u>.58</u> | BAI4 | .29 | <u>.45</u> |
| BDI5 | .14 | <u>.43</u> | BAI5 | .31 | <u>.50</u> |
| BDI6 | .01 | <u>.38</u> | BAI6 | <u>.64</u> | .07 |
| BDI7 | .02 | <u>.49</u> | BAI7 | <u>.50</u> | .21 |
| BDI8 | .01 | <u>.52</u> | BAI8 | <u>.64</u> | .22 |
| BDI9 | .28 | <u>.54</u> | BAI9 | .41 | <u>.42</u> |
| BDI10 | .16 | <u>.43</u> | BAI10 | .35 | <u>.40</u> |
| BDI11 | .01 | <u>.33</u> | BAI11 | <u>.56</u> | .06 |
| BDI12 | .17 | <u>.37</u> | BAI12 | <u>.58</u> | .13 |
| BDI13 | .04 | <u>.59</u> | BAI13 | <u>.69</u> | .09 |
| BDI14 | .05 | <u>.45</u> | BAI14 | <u>.46</u> | .43 |
| BDI15 | .20 | <u>.45</u> | BAI15 | <u>.42</u> | .07 |
| BDI16 | .16 | <u>.33</u> | BAI16 | .20 | <u>.24</u> |
| BDI17 | .31 | <u>.33</u> | BAI17 | .28 | <u>.53</u> |
| BDI18 | <u>.31</u> | .29 | BAI18 | <u>.34</u> | .21 |
| BDI19 | <u>.18</u> | .18 | BAI19 | <u>.65</u> | .06 |
| BDI20 | .25 | <u>.37</u> | BAI20 | <u>.61</u> | .04 |
| BDI21 | .08 | <u>.44</u> | BAI21 | <u>.64</u> | .14 |

* The highest loading for each item is underlined.

Table 4: Factor Loadings of all BDI, BAI, ATQ and ASSQ Items after Two Factor Analysis with Varimax Rotation*

| Rotated Factor Pattern | | | Rotated Factor Pattern (contd) | | |
|------------------------|------------|------------|--------------------------------|------------|------------|
| Item | Factor 1 | Factor 2 | Item | Factor 1 | Factor 2J |
| BDI1 | <u>.53</u> | .25 | BAI1 | .03 | <u>.35</u> |
| BDI2 | <u>.51</u> | .17 | BAI2 | .12 | <u>.42</u> |
| BDI3 | <u>.55</u> | .17 | BAI3 | .03 | <u>.65</u> |
| BDI4 | <u>.49</u> | .22 | BAI4 | .36 | <u>.39</u> |
| BDI5 | <u>.38</u> | .18 | BAI5 | <u>.46</u> | <u>.39</u> |
| BDI6 | <u>.24</u> | .12 | BAI6 | .05 | <u>.62</u> |
| BDI7 | <u>.45</u> | .02 | BAI7 | .10 | <u>.54</u> |
| BDI8 | <u>.40</u> | .05 | BAI8 | .11 | <u>.60</u> |
| BDI9 | <u>.50</u> | .35 | BAI9 | .31 | <u>.50</u> |
| BDI10 | <u>.32</u> | .26 | BAI10 | .28 | <u>.45</u> |
| BDI11 | <u>.23</u> | .09 | BAI11 | .03 | <u>.53</u> |
| BDI12 | <u>.28</u> | .23 | BAI12 | .08 | <u>.54</u> |
| BDI13 | <u>.43</u> | .18 | BAI13 | .02 | <u>.65</u> |
| BDI14 | <u>.41</u> | -.03 | BAI14 | .37 | <u>.52</u> |
| BDI15 | <u>.31</u> | .26 | BAI15 | .09 | <u>.42</u> |
| BDI16 | <u>.26</u> | .21 | BAI16 | .14 | <u>.26</u> |
| BDI17 | .30 | <u>.32</u> | BAI17 | .34 | <u>.44</u> |
| BDI18 | .21 | <u>.35</u> | BAI18 | .14 | <u>.38</u> |
| BDI19 | <u>.17</u> | .16 | BAI19 | .06 | <u>.60</u> |
| BDI20 | <u>.30</u> | .27 | BAI20 | .08 | <u>.56</u> |
| BDI21 | <u>.37</u> | .14 | BAI21 | .14 | <u>.60</u> |
| ATQ1 | <u>.50</u> | .19 | ASQ1 | <u>.44</u> | .28 |
| ATQ2 | <u>.62</u> | .05 | ASQ2 | <u>.63</u> | .14 |
| ATQ3 | <u>.66</u> | .02 | ASQ3 | <u>.47</u> | .07 |
| ATQ4 | <u>.59</u> | .19 | ASQ4 | <u>.42</u> | .31 |
| ATQ5 | <u>.55</u> | .11 | ASQ5 | <u>.53</u> | .28 |
| ATQ6 | <u>.58</u> | .31 | ASQ6 | <u>.57</u> | .43 |
| ATQ7 | <u>.64</u> | .02 | ASQ7 | <u>.54</u> | .39 |
| ATQ8 | <u>.50</u> | .17 | ASQ8 | <u>.51</u> | .41 |
| ATQ9 | <u>.64</u> | .27 | ASQ9 | <u>.47</u> | .29 |
| ATQ10 | <u>.77</u> | .06 | ASQ10 | <u>.54</u> | .26 |
| ATQ11 | <u>.57</u> | .32 | ASQ11 | <u>.44</u> | .26 |
| ATQ12 | <u>.53</u> | .35 | ASQ12 | <u>.44</u> | .23 |
| ATQ13 | <u>.44</u> | .16 | ASQ13 | <u>.46</u> | .41 |
| ATQ14 | <u>.64</u> | .25 | ASQ14 | <u>.54</u> | .36 |
| ATQ15 | <u>.38</u> | .23 | ASQ15 | <u>.63</u> | .16 |
| ATQ16 | <u>.57</u> | .19 | ASQ16 | <u>.36</u> | .28 |
| ATQ17 | <u>.62</u> | .15 | ASQ17 | <u>.52</u> | .12 |
| ATQ18 | <u>.66</u> | .06 | ASQ18 | <u>.57</u> | .14 |
| ATQ19 | <u>.46</u> | .35 | ASQ19 | <u>.53</u> | .16 |
| ATQ20 | <u>.70</u> | .14 | ASQ20 | <u>.56</u> | .20 |
| ATQ21 | <u>.65</u> | .07 | ASQ21 | <u>.59</u> | .29 |
| ATQ22 | <u>.65</u> | .34 | ASQ22 | <u>.64</u> | .23 |
| ATQ23 | <u>.73</u> | .05 | ASQ23 | <u>.60</u> | .36 |
| ATQ24 | <u>.64</u> | .12 | ASQ24 | <u>.57</u> | .40 |
| ATQ25 | <u>.61</u> | .34 | ASQ25 | <u>.55</u> | .46 |
| ATQ26 | <u>.57</u> | .29 | ASQ26 | <u>.63</u> | .42 |
| ATQ27 | <u>.66</u> | .24 | ASQ27 | <u>.52</u> | .30 |
| ATQ28 | <u>.66</u> | .17 | ASQ28 | <u>.53</u> | .15 |
| ATQ29 | <u>.55</u> | .17 | ASQ29 | <u>.62</u> | .25 |
| ATQ30 | <u>.59</u> | .13 | ASQ30 | <u>.44</u> | .32 |
| | | | ASQ31 | <u>.65</u> | .39 |
| | | | ASQ32 | <u>.55</u> | .19 |

*The highest loading for each item is underlined.

sponses to the four inventories therefore resolved themselves almost perfectly into two factors, with symptoms of anxiety (the BAI) loading on one and all the remaining items, (symptoms of depression, and anxious and depressed cognitions), loading on the second.

Results of the three factor analysis were less clear, and for economy of space will not be presented in full, but summarized briefly. (Full results of all factor analyses are available on request to the senior author). Of the 21 BDI items 14 loaded highest on Factor 2 with the remaining items spread across Factors 1 and 3. Of the 30 ATQ items, 20 loaded mostly highly on Factor 2 and 10 on Factor 1. For the ASSQ, 22 items loaded highest on Factor 1 and 10 on Factor 2. Of the 21 BAI items, 14 loaded highest on Factor 3 and 7 on Factor 1. To summarise, Factor 1 seemed to represent a general construct of dysphoria centred largely upon items from the ASSQ, Factor 2 represented depression mostly comprised of the BDI and ATQ items, and Factor 3 represented anxiety comprised almost solely of BAI items. The picture was much less clear however than for the two factor solution, with the apparently arbitrary splitting of factor structures previously found to be integrated, which is suggestive of over-factoring.

The four factor solution was similar to the three factor solution though with even greater fragmentation of factors and consequently even further reduced interpretability.

Discussion

The present research set out to examine the convergent and discriminant validity of two promising new measures of cognitive self-statements. The results can best be interpreted in relation to the predictions made in the introduction.

The first prediction, that the ATQ and the ASSQ measure two distinct categories of thoughts was rejected, while the second, that a general factor will be found to underlie responses to both questionnaires, was supported. The ATQ and ASSQ were found to have a high positive correlation. Moreover when factor analyzed they did not conform to a simple two factor structure as theory would predict, but showed considerable overlap. Because the ATQ and ASSQ both appear to tap a similar dimension of dysfunctional thinking, it is therefore incorrect to regard them as two distinct classes of depressive and anxiety-eliciting thoughts.

Both the third prediction, that the BDI and the BAI measure two distinct categories of symptoms, and

the fourth, that a general factor of Dysphoria will be found to underlie responses to both inventories, were supported. The BDI and BAI are positively correlated but the items of each questionnaire nevertheless possess sufficient common variance to form two distinct factors. Hence they do indeed appear to measure separate categories of pathology.

The fifth prediction, that scores on the ASSQ will be more strongly related to BAI than BDI scores was not supported. However the sixth, that scores on the ATQ will be more strongly related to BDI than BAI scores, was supported. The ATQ was clearly more closely related to the BDI than the BAI as was predicted, but the ASSQ was also more highly correlated with the BDI than the BAI. Thus good support was found for both the convergent and discriminant validity of the ATQ as a measure of depressing self statements. This was not so for the ASSQ. Although designed to gauge anxiety arousing self-statements, it correlated more highly with a measure of depression than with a measure of anxiety. In summary then, the ATQ and ASSQ were both found to relate strongly to two standard measures of anxiety and depression, particularly the latter. However, while the ATQ, as expected, appears to be measuring a style of thinking that is strongly related to depression, the ASSQ appears to be measuring a similar style of thinking, rather than one related more specifically to anxiety. At the same time, they both appear to assess the general tendency towards dysfunctional thinking that may be related to the general factor of dysphoria, underlying the symptom based scales developed by Beck.

One possible limitation of the present study is that it did not involve clinical subjects, so one would not expect high enough levels of the kind of thoughts assessed. Any correlations could therefore be misleading. There are three counters to this. First, subjects scoring low on both symptom measures were excluded to avoid spuriously high correlations. In fact this procedure resulted in a mean score on the BDI for the remaining subjects of 10 which is above cut-off score for mild depression suggested in the BDI manual (Beck & Steer, 1987). Second, the items of the ATQ and ASSQ were generated by student groups and so should be relevant to a further student group. Third, both the results of the BDI and BAI item factor analyses and total score correlation showed quite clear separation of these variables. If these two measures showed discriminant validity then it should be possible for the ATQ and ASSQ to do so as well.

It may be noted that although the ATQ and ASSQ did not fall neatly into two factors, clearly some items

did load highly on one factor and very low on the other. It is possible that further item selection may enable the development of scales that clearly distinguish between anxious and depressive self-statements. In the meantime, whilst heeding the call to "get specific" in cognitive-behavioural assessment (Kendall & Ingram, 1987), clinicians and researchers must first ensure that their instruments do in fact tap into the variables they seek to measure.

References

- Beck, A.T. (1976). *Cognitive therapy and the emotional disorders*. New York: New American Library.
- Beck, A.T., Epstein, N., Brown, G., & Steer, R. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*, 893-897.
- Beck, A.T., & Steer, R.A. (1987). *Beck Depression Inventory Manual*. San Antonio: Harcourt Brace Jovanovich, Inc.
- Clark, D.M. (1986). Cognitive therapy for anxiety. *Behavioural Psychotherapy, 14*, 283-294.
- Clark, D.A., Beck, A.T., & Stewart, B. (1990). Cognitive specificity and positive-negative affectivity: Complementary or contradictory views on anxiety and depression? *Journal of Abnormal Psychology, 99*, 148-155.
- Hollon, S.D., & Kendall, P.C. (1980). Cognitive self-statements in depression: Development of an Automatic Thoughts Questionnaire. *Cognitive Therapy and Research, 4*, 384-395.
- Kendall, P.C., & Hollon, S.D. (1989). Anxious self-talk: Development of the anxious self-statements questionnaire (ASSQ). *Cognitive therapy and Research, 13*, 81-93.
- Kendall, P.C., & Ingram. (1987). The future for cognitive assessment of anxiety: Let's get specific. In L. Michelson & M. Ascher (Eds.), *Stress and Anxiety: Cognitive-behavioural Assessment and Therapy*. New York: Guilford Press.
- SAS Institute Inc., (1985). *SAS User's Guide*. Cary, N.C.: SAS Institute Inc.
- Siegert, R.J., McCormick I.A., Taylor, A.J.W., & Walkey, F.H. (1987). An examination of reported factor structures of the General Health Questionnaire and the identification of a stable replicable structure. *Australian Journal of Psychology, 39*, 89-100.
- Siegert, R.J., Patten, M.D., & Taylor, A.J.W. (1988). Factor analysis of the WAIS-R using the factor replication procedure, FACTOREP. *Multivariate Behavioural Research, 23*, 481-489.
- Walkey, F.H. (1983). Simple versus complex factor analyses of responses to multiple scale questionnaires. *Multivariate Behavioural Research, 18*, 401-421.