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ASSESSMENT OF ALEXITHYMIA: SELF-REPORT AND OBSERVER-RATED MEASURES

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Since the formulation of the alexithymia construct in the mid-1970s (Nemiah, Freyberger, & Sifneos, 1976), there has been controversy over its measurement. Several measures have been developed, including observer-rated questionnaires, self-report scales, projective techniques, and a Q-sort (Block, 1961/1978). Some of the self-report scales, such as the Schalling-Sifneos Personality Scales (Apfel & Sifneos, 1979; Sifneos, 1986) and the MMPI Alexithymia Scale (Kleiger & Kinsman, 1980), were constructed hastily and with little concern for standard methods of test construction. Not surprisingly, subsequent investigations found that these scales lack adequate reliability and validity (see Taylor, Bagby, & Parker, 1997). Although several investigators have used the Rorschach and/or the Thematic Apperception Test (TAT) to assess various facets of the alexithymia construct, there is little empirical support for the reliability and validity of these methods.

Since most of the measures of alexithymia have been reviewed previously (Linden et al., 1995; Taylor & Bagby, 1988; Taylor et al., 1997), we will focus this chapter on the self-report Twenty-Item Toronto Alexithymia Scale (Bagby, Parker, & Taylor, 1994a), which has become the most widely used measure of the construct. Recognizing the need for a multi-method approach for assessing a construct, we will also describe the observer-rated Beth Israel Hospital Psychosomatic Questionnaire (Sifneos, 1973), and a recently developed modified version. We will conclude the chapter with a description of two new measures -- the self-report Bermond-Vorst Alexithymia Questionnaire (Bermond & Vorst, 1998) and the self- and observer-rated California Q-set Alexithymia Prototype (Haviland & Reise, 1996a) -- which were not included in previous review articles. Given the strong overlap of the alexithymia construct and the emotional intelligence construct (which we discussed in Chapter 3), some of the measures of alexithymia reviewed in this chapter can also be considered potential methods for identifying individuals with low emotional intelligence.

THE TWENTY-ITEM TORONTO ALEXITHYMIA SCALE

The Twenty-Item Toronto Alexithymia Scale (TAS-20) was developed by Bagby et al. (1994a) and is a revised version of the earlier 26-item Toronto Alexithymia Scale (TAS; Taylor, Ryan, & Bagby, 1985). The TAS-20 has demonstrated good internal consistency and test-retest reliability. In the initial validation study, exploratory factor analysis of the TAS-20 with a student sample yielded a three factor structure congruent with the theoretical construct of alexithymia: (F1) difficulty identifying feelings and distinguishing between feelings and the bodily sensations of emotional arousal; (F2) difficulty describing feelings to others; (F3) externally-oriented thinking. Despite the absence of items on the TAS-20 directly assessing daydreaming and other imaginal activity, which were included on the TAS-26, the third factor, together with factor 2, seem to reflect the *pensée opératoire* (operatory thinking) component of the alexithymia construct, viz., a cognitive style that shows a preference for the external details of everyday life rather than thought content related to feelings, fantasies, and other aspects of a person's inner experience (Marty & de M'Uzan, 1963; Nemiah et al., 1976). Subsequent research showed that the externally-oriented thinking factor correlates significantly and negatively ($r = -0.45, p < 0.01$) with the fantasy subscale of the openness to experience dimension in the NEO Personality Inventory (Bagby, Taylor, & Parker, 1994b). Given that high scores on the fantasy subscale reflect a vivid imagination and capacity to create an interesting inner world, this finding indicates that the externally-oriented thinking factor of the TAS-20 adequately assesses the constricted imaginal processes facet of the alexithymia construct.

Replicability of the Factor Structure

The replicability of the three-factor structure of the TAS-20 has been demonstrated with both clinical and nonclinical populations by the use of confirmatory factor analysis (Bagby et al., 1994a; Parker et al., 1993). Although the first two factors correlate highly, a three-factor model provided a better fit to the data obtained from several different samples than either a one- or two-factor model. The TAS-20 has also been translated into many languages using the method of back translation to establish cross-language equivalence. The validity of the three factor structure has been demonstrated in these translated versions by confirmatory factor analyses for the following languages: German (Bach et al., 1996; Parker et al., 1993), Hindi

(Pandey et al., 1996), Italian (Bressi et al., 1996), Korean (Lee, Rim, & Lee, 1996), Lithuanian (Beresnevaite et al., 1998), Portuguese (Prazeres, Parker, & Taylor, in press), Spanish (Páez et al., 1999), and Swedish (Simonsson-Sarnecki et al., in press).

Notwithstanding the evidence for the replicability of the three-factor structure of the TAS-20, and the considerable empirical and theoretical justification that have produced the scale, some clinicians and researchers still question the suitability and usefulness of its three factor-derived scales (e.g., Deary et al., 1997; Erni et al., 1997; Haviland & Reise, 1996a; Sifneos, 1996). Loas et al. (1996) for example, conducted principal components analysis on data collected from students at a French university and obtained a two factor solution; the items assessing difficulty identifying feelings and difficulty describing feelings constituted a single factor, and the items assessing externally-oriented thinking comprised a second factor. It must be remembered, however, that exploratory factor analyses are theory weak compared to confirmatory factor analyses, as they generate different factor solutions from which the researcher selects the most sensible, rather than evaluating *a priori* models (Kline, 1991). When confirmatory factor analysis was applied to the same French data, the original three factor structure of the scale was found to provide a better fit than a two factor solution (Loas et al., 1997).

Haviland and Reise (1996b) conducted confirmatory factor analyses on data sets from medical students and psychoactive substance-dependent inpatients, and reported that the three factor solution provided a poor fit to the data in both samples. In addition, in the substance-dependent sample, the correlations between factors 1 and 3, and between factors 2 and 3, were nonsignificant. Examination of the results for the medical student sample, however, reveals that one of the goodness of fit indices met its criterion standard and two other indices were just below their criteria standards. Furthermore, the substance-dependent patients constituted an extremely unstable population for a factor analytic study, as they were recently abstinent from alcohol or psychoactive drugs and completed the TAS-20 within their first week of hospitalization (Haviland et al., 1994).

Given that the results of factor analysis of a scale can be influenced by the type of subjects selected (Nunnally, 1978), and that the original derivation sample in the construction of

the TAS-20 was a homogeneous group of undergraduate university students, although cross-validated with a clinical sample, it is possible that a different factor solution might emerge with a more heterogeneous population. Moreover, some investigators have found TAS-20 scores to be associated with male gender and age (Lane et al., 1998; Salminen et al., 1999). As Nunnally (1978) points out, such variables also might influence the factor structure of a scale.

These issues were addressed in a recent study by Parker, Taylor, and Bagby (in preparation), who administered the TAS-20 to a community sample of 1,933 adults (880 men and 1053 women). The results of confirmatory factor analyses replicated the three-factor model of the TAS-20, and the three factor model provided a better fit to the data than both a one-factor model and a two-factor model. Multi-sample confirmatory factor analyses showed that the three-factor model of the TAS-20 fit well for both men and women, and equivalent models were obtained when the sample was divided at the median age of 32 years into younger and older respondents.¹

Validity of the TAS-20 Factors

Some researchers have criticized the TAS-20 (or the earlier 26-item TAS) on the grounds that the factor scales do not always show similar relationships with other constructs (e.g., Deary et al., 1997; Haviland et al., 1994; Hendryx, et al., 1991; Kirmayer & Robbins, 1993; Lane et al., 1998). When evaluating the convergent validity of a measure of a multifaceted construct, however, one can expect the full scale and its factors to be related in similar ways only to measures of closely related constructs (see Carver, 1989). Some facets are likely to relate to other constructs better than the broad construct, and some may even be unrelated to other constructs.

As we summarized in Chapter 3, strong support for the convergent validity of the TAS-20 and for each of its three factors was provided by the findings of significant negative correlations with the overlapping constructs of psychological mindedness, need for cognition, and affective orientation, as well as with the openness to experience dimension in the five factor model of personality (Bagby et al., 1994b; Taylor et al., 1997). In addition, the TAS-20 and its

¹ Copyright on the TAS-20 is held by G.J. Taylor, R.M. Bagby, and J.D.A. Parker. Information for ordering the scale may be found at www.gtaylorpsychiatry.org

three factors were shown to correlate significantly and negatively not only with the total score on the BarOn Emotional Quotient Inventory (EQ-i; Bar-On, 1997), but also with the four second-order factors assessing intrapersonal intelligence, interpersonal intelligence, adaptability skills, and stress management skills.

Other studies have examined relationships between the TAS-20 and measures of *less* closely related constructs. Not surprisingly, the patterns of correlations that emerge for the three factors depend on the nature of the other construct. For example, on theoretical grounds, one would expect factors 1 and 2 of the TAS-20 to be associated with constructs related to emotional experience or expression, and factor 3 to be associated with creative interests and imaginal and analytical capacities. This discriminability among the factors has been demonstrated in studies examining the relationship between alexithymia and the five factor model of personality. In a university student sample, for example, only factors 1 and 2 correlated positively with the neuroticism dimension of the NEO Personality Inventory (Bagby et al., 1994b). All three factors correlated negatively with the positive emotions subscale of the extraversion dimension, but only factors 1 and 2 correlated negatively with the full dimension of extraversion. While all three TAS-20 factors correlated negatively with the receptivity to feelings subscale of the openness to experience dimension, only factor 3 correlated negatively with the openness to aesthetics and openness to ideas subscales. None of the TAS-20 factors were related significantly to the agreeableness and conscientiousness dimensions.

Given their difficulty in identifying feelings and distinguishing between feelings and the bodily sensations that accompany states of emotional arousal, alexithymic individuals are considered prone to functional somatic symptoms (Taylor et al., 1997). This tendency, however, is most likely assessed by factor 1 of the TAS-20, and to some extent by factor 2, with minimal contribution from the externally-oriented thinking factor. This was demonstrated in a student sample by Martínez-Sánchez (1996), who found that the full scale TAS-20 and factors 1 and 2 correlated positively with the Pennebaker Inventory of Limbic Languidness (a checklist of 54 common physical symptoms and bodily sensations; Pennebaker & Skelton, 1978), whereas factor 3 did not. In a mixed clinical and nonclinical sample, Deary et al. (1997) also found that factors 1 and 2 of the TAS-20 correlated positively with a checklist of medically unexplained symptoms,

whereas factor 3 did not. However, such findings are not always consistent across studies. Bach, Bach, & Zwaan (1996), for example, found that factor 2 of the TAS-20 does not always correlate significantly with functional somatic symptoms, and factor 3 may sometimes show a significant positive correlation.

The TAS-20 as a Measure of Emotional Intelligence

The finding of strong negative correlations between the TAS-20 and the EQ-i suggests that the TAS-20 could be used in the assessment of emotional intelligence, at least as a brief screening device for identifying individuals with low emotional intelligence. To further support this recommendation, we summarize some additional findings from a study by Parker, Taylor, and Bagby (submitted) in which they constructed latent models to examine the relationship between the alexithymia construct (represented by TAS-20 scores) and Bar-On's (1997) broad concept of emotional intelligence (represented by EQ-i scores). Given that some researchers (e.g., Deary et al., 1997) have questioned whether the three factors of the TAS-20, as a whole, best represent the alexithymia construct, the same model was tested separately for each of the three factors from the TAS-20. It was predicted that the TAS-20 total score and the scores for each of its three factors would be independent of, but strongly and inversely associated with, the total score of the EQ-i.

For each of the models tested, all of the goodness-of-fit indices met pre-established criteria standards. The parameter estimates between the EQ-i and the TAS-20 and its factors were -0.94 ($p < 0.001$) for the total TAS-20, -0.78 ($p < 0.001$) for factor 1 (difficulty identifying feelings), -0.70 ($p < 0.001$) for factor 2 (difficulty describing feelings), and -0.55 ($p < 0.001$) for factor 3 (externally-oriented thinking). As with the Pearson correlations between the TAS-20 and the EQ-i (see Chapter 3), the strength of these parameter estimates indicates considerable overlap of the two constructs, and suggests that the TAS-20 could be a useful measure in the assessment of emotional intelligence. For each of the latent models tested, however, a two-factor solution was superior to a one-factor solution, indicating that the construct measured by the TAS-20 is also independent of the construct measured by the EQ-i. As Mayer, Salovey, and Caruso (in press) point out, the EQ-i is based on a model of emotional intelligence which combines mental abilities concerned with understanding emotions with a diverse set of

personality characteristics that Bar-On (1997) relates to the potential to succeed in life.

Although the TAS-20 may correlate with many of these personality characteristics, they are not part of the definition of the alexithymia construct; nor are they included in the models of emotional intelligence proposed by Salovey and Mayer (1990) and Mayer, Salovey, and Caruso (in press). Future research might investigate the relationship between the TAS-20 and measures of emotional intelligence that restrict themselves to mental abilities concerning the awareness and cognitive processing of emotion.

State Effects versus Trait Stability

One of the more challenging problems in the assessment of a personality trait that is hypothesized to be a vulnerability or risk factor for certain medical or psychiatric illnesses is to ensure that its measurement is not confounded by the state effects of the illness. Some investigators have argued that the presence of alexithymia may merely reflect a concomitant state reaction to an illness, which may be predicted by state anxiety, a depressed mood, or lowered quality of life, and lessens over time as the illness improves (Haviland et al., 1994; Keltikangas-Järvinen, 1987; Wise et al., 1990). However, several longitudinal studies have yielded strong support for alexithymia being a stable trait that is independent of psychological distress or other effects of a medical or psychiatric illness. Salminen et al. (1994), for example, followed a group of patients with anxiety and depressive disorders and found that the mean TAS score was unchanged after one year, even though there was a significant decrease in the mean score on a measure of psychological distress. In a study of newly abstinent alcoholic patients, Haviland et al. (1988) found no significant change in the mean TAS score over a three-week treatment period despite a significant drop in the mean score on the Beck Depression Inventory (BDI). Similar findings were reported by Pinard et al., (1996), who administered the TAS-20 and the BDI to a group of substance dependent patients before and after a 4-6 week period of treatment, and by Porcelli et al. (1996), who had a group of patients with inflammatory bowel disease complete the TAS-20 and the Hospital Anxiety and Depression Scale before and after six months of treatment. In a group of university students in Spain, Martínez-Sánchez et al. (1998) demonstrated stability of TAS-20 scores despite fluctuations in measures of psychological and somatic distress during and after university examinations.

Notwithstanding the positive findings from these longitudinal studies, none have examined the distinction between absolute and relative stability, an important concept in trait psychology. Absolute stability refers to the extent to which personality scores change over time, whereas relative stability indicates the extent to which the relative differences among individuals remain the same over time (Santor et al., 1997). Evidence of relative stability in the context of change in symptomatology for a personality construct such as alexithymia confers the assumption of individual vulnerability to any given disorder or disease.

Treatment studies represent an ideal way to test for relative stability since profound changes are expected. In a recent study, Luminet, Bagby, and Taylor (submitted) evaluated the absolute and relative stability of alexithymia in a sample of patients who entered a treatment program for major depression. Depression was used as the “disease” state on which to examine the stability of alexithymia as several studies with clinical or nonclinical populations have reported positive and significant relationships between the TAS-20 and measures of depression. It was hypothesized that depression and alexithymia would be correlated at both treatment initiation (baseline) and at follow-up (treatment completion), and that both constructs would show significant reductions from baseline to treatment completion. However, it was hypothesized also that alexithymia scores at baseline and treatment completion would be highly correlated, and that alexithymia assessed at baseline would still predict alexithymia assessed at treatment completion even after controlling for the effects of depression. Such a finding would demonstrate that change in alexithymia from baseline to treatment completion cannot be attributed entirely to the severity of depressive symptoms.

In a sample of 46 outpatients who met DSM-IV criteria for major depressive disorder and were treated with antidepressant medication for 14 weeks, there was no significant correlation between the measures of alexithymia and depression at treatment initiation ($r = 0.09$); at treatment completion, however, the two measures did correlate significantly ($r = 0.38$, $p < 0.01$). As expected, there was a significant and substantial reduction in depressive symptoms over 14 weeks of treatment, mean change score = -11.31 , $t(45) = 10.54$, $p < 0.0001$, as measured by the Hamilton Rating Scale for Depression (HRSD). There was also a smaller but still significant change in alexithymia as measured by the TAS-20, mean change score = -5.11 ,

$t(45) = 2.61, p < 0.01$. Despite this large reduction in depression severity, the relative stability of alexithymia was demonstrated by a positive and significant correlation between TAS-20 scores at baseline and treatment completion ($r = 0.64, p < 0.001$).

To demonstrate further evidence of the relative stability of the alexithymia construct, Luminet et al. (submitted) used a hierarchical regression analysis with TAS-20 scores at treatment completion as the criterion variable. TAS-20 scores at baseline and HRSD scores at baseline and treatment completion served as the predictor variables. HRSD scores were forced into the model first and accounted for approximately 14% of the variance [$F(1, 44) = 7.31, p < 0.01$]. TAS-20 scores at baseline were then entered into the model and accounted for an additional 34% of the variance [$F(2,43) = 26.41, p < 0.001$]. These results indicate that although alexithymia scores may change in the context of a marked reduction in depression, there is strong evidence for the relative stability of alexithymia despite such changes. Such findings, together with results from the various longitudinal studies, support the view that the TAS-20 is measuring a stable trait, independent of depression.

THE BETH ISRAEL HOSPITAL PSYCHOSOMATIC QUESTIONNAIRE

The Beth Israel Hospital Psychosomatic Questionnaire (BIQ) was developed by Sifneos (1973) in an attempt to quantify differences he had observed in the cognitive-affective style between psychoneurotic patients and patients with “classical” psychosomatic diseases. It is a 17-item, forced choice questionnaire (1 = presence; 0 = absence) completed by an interviewer or observer. Of these 17 questions, Sifneos (1973) selected eight “key” items that best assess alexithymic characteristics; higher scores on these items indicate higher degrees of alexithymia. The method of interviewing, as outlined by Nemiah et al. (1976), involves an initial period of unstructured conversation followed by repeated exploration of the patient’s ability to describe feelings and to report fantasies and dreams.

As studies evaluating the psychometric properties of the BIQ have been reviewed elsewhere (Linden et al., 1995; Taylor et al., 1997), we will summarize only the essential findings, and then describe the development and preliminary testing of a modified version of the questionnaire. Factor analysis of the BIQ, and correlations with total word count in response to the TAT or Rotter Sentence Completion Test (as indices of the capacity to fantasize), have

provided partial support for the construct validity of the BIQ (Gardos et al., 1984; Lesser et al., 1979; Sriram et al., 1987). In addition, the BIQ has demonstrated concurrent validity with the 26-item TAS in both clinical and nonclinical populations, with the magnitude of the correlations ranging from 0.39 to 0.77 ($p < 0.01$) (Fukunishi, Saito, & Ozaki, 1992; Jimerson et al., 1994; Kauhanen, Julkunen, & Salonen, 1992; Sriram Prapat, & Shanmugham, 1988). There is less support, however, for the reliability of the scale. Although Sriram et al. (1988) demonstrated adequate internal consistency and test-retest reliability, there is evidence that interrater reliability is influenced by the experience, bias, and style of the interviewer (Taylor & Bagby, 1988). Moreover, studies that used independently rated audio- or videotapes of a single interview have reported high interrater reliability of the BIQ, whereas unacceptably low interrater reliabilities have been reported in studies that used separate interviews to rate the same patients (see Taylor et al., 1997).

Notwithstanding these limitations, Linden et al. (1995) concluded that the BIQ shows potential for becoming a useful observer-rated measure of the alexithymia construct. In an attempt to improve the reliability and validity of the BIQ, some researchers have recommended several modifications to the questionnaire. These include revising the item content, using dimensional rating scales, and developing a standardized method of interviewing as well as guidelines for rating responses. An important step in this direction was initiated by Sriram et al. (1988), who proposed a set of guidelines and probes for rating the eight key items of the BIQ.

The Modified BIQ

Following Sriram et al. (1988), Bagby et al. (1994b) recently developed a modified version of the BIQ by adding four new items for rating alexithymia and eliminating nine of the original 17 items that are less relevant to the construct. In addition, the rating scale was changed from a dichotomous format to a 7-point Likert type format to enhance the reliability. The resulting 12 item questionnaire comprises six items pertaining to the ability to identify and verbally communicate feelings (i.e., affect awareness), and six items pertaining to imaginal activity and externally-oriented thinking (i.e., operatory thinking).²

² The modified BIQ is published as an Appendix in Taylor et al., (1997).

Even without probe questions and rating guidelines, Bagby et al. (1994b) obtained statistically significant interrater agreement among three clinicians who interviewed 39 outpatients referred to a Behavioural Medicine Clinic ($\text{Kappa} = 0.51$). Evidence of the concurrent validity of the modified BIQ was demonstrated by significant positive correlations with the TAS-20 ($r = 0.53, p < 0.01$) and its three factor scales. The BIQ subscale assessing affect awareness correlated with factor 1 ($r = 0.43, p < 0.01$) and factor 2 ($r = 0.52, p < 0.01$) of the TAS-20; and the BIQ subscale assessing operatory thinking correlated with factor 2 ($r = 0.58, p < 0.01$) and factor 3 of the TAS-20 ($r = 0.30, p < 0.05$) (Bagby et al., 1994b).

As several other measures were completed by the same group of behavioural medicine outpatients, it was possible to examine the relationships of the modified BIQ and its subscales with general intelligence and with neurotic psychopathology. General intellectual functioning was assessed with the Shipley Institute of Living Scale (SILS; Zachary, 1986), which provides subscores for vocabulary and abstract concept formation. Neurotic psychopathology was measured with the Crown-Crisp Experiential Index (CCEI; Crown & Crisp, 1979). The modified BIQ and its two subscales were unrelated to the total score and vocabulary score on the SILS; however, the subscale assessing affect awareness was significantly and negatively related to the abstract thinking score ($r = -0.32, p < 0.05$). The modified BIQ and its two subscales were unrelated to the total score on the CCEI; this result is consistent with findings from a study with anorexia nervosa patients in which the 26-item TAS also was unrelated to the CCEI (Bourke et al., 1992).

The psychometric properties of the modified BIQ were subsequently evaluated in Japan by Fukunishi et al. (1997) in samples of college students and psychiatric outpatients. Principal components factor analysis yielded a two-factor solution, which accounted for approximately 41% of the total variance in both samples, and corresponded to the two subscales identified by Bagby et al. (1994b). In addition, and in both samples, the modified BIQ and its two subscales demonstrated adequate internal consistency (Cronbach alpha coefficients ranged from 0.72 to 0.85) and test-retest reliability over a three month interval ($r = 0.71$ for college students and 0.51 for psychiatric outpatients, $p < 0.05$).

The level of agreement between observer ratings on the modified BIQ and self-report TAS-20 scores was evaluated by Martínez-Sánchez (1996) in a group of university students in Spain. In this study, the modified BIQ and its two subscales correlated positively and significantly with the TAS-20 total score; the magnitude of the correlations ranged from 0.47 to 0.51, $p < 0.001$). Significant positive correlations were obtained also with the three factors of the TAS-20, except for the correlation between the affect awareness subscale of the BIQ and the externally-oriented thinking factor of the TAS-20, which was nonsignificant.

Although further studies are needed to evaluate the reliability and construct validity of the modified BIQ, the preliminary findings are promising. Investigators who use the modified version are advised to employ a semistructured form of interview, as outlined by Nemiah et al. (1976). Interrater reliability should be established by using different raters who interview separately the same group of subjects. Alternatively, different clinician/researchers could interview and rate different subjects if they are randomly assigned to conduct the actual interview while the other clinician/researcher(s) observe and rate the live interview.

THE BERMOND-VORST ALEXITHYMIA QUESTIONNAIRE

Recently, Dutch investigators introduced a new self-report measure of alexithymia -- the Bermond-Vorst Alexithymia Questionnaire (BVAQ). Bermond et al. (1994; Bermond et al., 1999; Vingerhoets et al., 1995) initially developed a 20-item scale -- the Amsterdam Alexithymia Scale -- which was subsequently extended into the 40-item BVAQ with the purpose of having two parallel versions. Items were written to assess five elements of alexithymia, which were confirmed by exploratory factor analysis of data collected from samples of university students (Bermond & Vorst, 1998). The factors were defined as: identifying, verbalizing, analyzing, fantasizing, and emotionalizing. Whereas the first three factors assess facets of the alexithymia construct that correspond to those assessed by the three TAS-20 factors, the fantasizing factor attempts to assess directly the facet involving constricted imaginal processes, and the emotionalizing factor assesses the degree to which a person can be emotionally aroused by emotion-inducing events (Bermond & Vorst, 1998). Each factor of the BVAQ is comprised of 8 items which are rated on five-point likert scales; half of the items are negatively keyed. High scores are indicative of higher degrees of alexithymia. Originally

developed in Dutch, the BVAQ has been translated into several languages including English and French. Acceptable levels of internal consistency have been demonstrated for the Dutch, English, and French translations (Vorst & Bermond, 1999; Zech et al., in press), but estimates of test-retest reliability have not yet been reported.

The replicability of the factor structure of the BVAQ was evaluated recently by Zech et al. (in press) for both English and French language versions by means of confirmatory factor analysis. These investigators found that although the parameter estimates of all items of the 40-item BVAQ in both language versions loaded significantly on each of the *a priori* factors (p 's < 0.001), most of the indices of goodness of fit were just below the standard criteria. Examining the two parallel versions of the questionnaire separately, however, the second 20-item version (BVAQ-20B) yielded much better indices of fit for both English and French speaking samples. Although the first four factors of the BVAQ correspond to the four salient features in Nemiah et al.'s (1976) definition of the alexithymia construct, and also to the four factors of the original TAS, emotionalizing is not part of the original definition of the construct and should be considered a correlate of alexithymia.

The concurrent validity of the BVAQ-20B was demonstrated by positive correlations with the TAS-20 total score for both the English version ($r = 0.62$; $p < 0.0001$) and the French version ($r = 0.61$, $p < 0.0001$). Bermond and Vorst (1998) found a similar correlation between the TAS-20 and the Dutch version of the 40-item BVAQ ($r = 0.64$). The moderate magnitude of these correlations might be due to the presence in the BVAQ of two factors that are not shared with the TAS-20, viz., fantasizing and emotionalizing. This was confirmed when Zech et al. (in press) computed correlations between total TAS-20 scores and BVAQ-20B scores excluding these two factors. The correlation coefficients were 0.82 for the English translations of both scales and 0.79 for the French translations.

There is evidence also that the three conceptually similar factors in the TAS-20 and the two 20-item versions of the BVAQ correlate positively and strongly (Zech et al., in press). While all three factors of the TAS-20 correlate positively with the total score on the BVAQ-20B (magnitude of the correlations range from 0.42 to 0.65, $p < 0.01$), in agreement with their conceptual specificity, the factors assessing fantasizing and emotionalizing within the BVAQ-

20B remained statistically uncorrelated with the total TAS-20 and showed low or nonsignificant correlations with the three TAS-20 factor scales. Moreover, the emotionalizing and fantasizing factors showed nonsignificant or low magnitude correlations with the other factors of the BVAQ-20B. Although the results of preliminary tests of reliability and validity of the BVAQ are encouraging, further research is needed to determine whether responses to items on the fantasizing factor of the BVAQ are influenced by social desirability, as was found during the development of the TAS-20. Additional tests of convergent validity are needed also, and will help determine whether the emotionalizing factor should be retained within the BVAQ.

THE CALIFORNIA Q-SET ALEXITHYMIA PROTOTYPE (CAQ-AP)

Haviland and Reise (1996b) recently developed a new self- and observer-rated measure of alexithymia using the Q-sort method (Block, 1961/1978). In contrast to the development of most self-report scales in which items are written to compare one person to another person on a variety of attributes, the Q-sort method is a person-centered approach in which attributes are compared to other attributes within the same person. The goal in developing such an instrument was to come up with a prototype of alexithymia based on expert judges' categorization of cognitions and behaviors highly representative of the construct. Haviland and Reise (1996b) asked 17 experts in the field of alexithymia to sort 100 personality statements from the California Q-set (CAQ) into a forced, nine-category, quasnormal distribution ranging from most uncharacteristic of alexithymia to most characteristic of alexithymia. Usable sorts were returned by 13 judges, who gave each CAQ item a score ranging from 1 to 9. Individual items were then ranked and converted to a normal nine-points score distribution. The average interjudge correlation was satisfactory ($r = 0.58$), and the judge-prototype correlation was high ($r = 0.77$). The normal distribution of the 100 items led to 13 "most characteristic" and 13 "most uncharacteristic" attributes of alexithymia.

The items representing the "most characteristic" attributes of alexithymia included difficulties experiencing and expressing emotion, lack of imagination, lack of insight, being literal and utilitarian, being humorless, and experiencing meaninglessness. This description is reasonably consistent with Nemiah et al's (1976) definition of the alexithymia construct. The items representing the "most uncharacteristic" attributes of alexithymia included engaging in

personal fantasy and daydreams, having insight into one's own motives and behaviors, being warm and compassionate, having the capacity for close relationships, being introspective and concerned with self as an object, and enjoying esthetic impressions.

To date, there are only sparse data on the validity of the CAQ-AP. In the development of the measure, Haviland and Reise (1996b) found that high scores correlated moderately and positively with a Q-sort prototype for ego control, and strongly and negatively with a Q-sort prototype for ego resiliency. In a subsequent study with a college student sample, Haviland (1998) correlated Q-sorts similarity scores given by observers with self-ratings on measures of depression, anxiety, emotional expression, and dimensions of personality. The CAQ-AP similarity score evidenced significant positive correlations with neuroticism ($r = 0.27$), depression ($r = 0.38$), and anxiety ($r = 0.17$), and significant negative correlations with extraversion ($r = -0.38$), openness ($r = -0.17$), and emotional expression ($r = -0.34$). In contrast to studies using the TAS-20, however, a significant negative correlation was found with agreeableness ($r = -0.24$).

Although the preliminary validity data for the CAQ-AP are consistent with theoretical assumptions about the alexithymia construct, there are several uncertainties about the measure. First, there are no data available on concurrent validity; as the CAQ-AP is claimed to be both a self- and observer-rated measure of the alexithymia construct, future studies should investigate its relationship with the TAS-20 and the modified version of the BIQ. Second, completing the 100 items of the CAQ-AP can be a tedious task, especially if judges have to rate several people. Finally, one can question whether the CAQ-AP can represent equally the most characteristic and most uncharacteristic attributes of alexithymia. The alexithymia construct is relatively specific in contrast to the broad focus of the CAQ, which was designed to cover a large domain of personality. Consequently, while the most characteristic attributes of alexithymia selected by the judges are likely to be very characteristic of the construct, it may be argued that the most uncharacteristic attributes of alexithymia in the CAQ can be more heterogeneous with respect to their conceptual distance from the alexithymia construct.

CONCLUSIONS

The TAS-20 is currently the best validated measure of the alexithymia construct and can be recommended for both clinical and research purposes. Results from various studies that use the TAS-20 as a dependent variable are directly comparable to one another; and investigators using the scale to create "alexithymic" and "nonalexithymic" subjects in between group experimental designs can be assured that their designation is similar to that used in other studies. Although alexithymia is considered a dimensional construct, upper and lower cutoff scores have been established empirically for the TAS-20, which allows for comparisons of rates of alexithymia across studies (Taylor et al., 1997).

Although some researchers have criticised the use of self-report measures to assess alexithymia and/or emotional intelligence (Lane et al., 1997, 1998; Mayer, Salovey, & Caruso, in press), the findings of consensual agreement between TAS-20 scores and observer ratings on the modified BIQ in two different cultures suggest that even when used as a sole measure, the TAS-20 can assess the construct adequately. Nonetheless, if researchers are able to include the modified BIQ in their studies, empirical research is always enhanced by the use of a multi-method assessment approach. In clinical situations, when in-depth evaluations of patients may be required, we have found it useful to administer not only the TAS-20 and the modified BIQ, but also the EQ-i (Bar-On, 1997) and the Revised NEO Personality Inventory (Costa & McCrae, 1992). The EQ-i provides a more comprehensive assessment of intrapersonal and interpersonal intelligence, and alexithymic individuals generally score in the low range on the openness to fantasy and the receptivity to feelings facets of the openness dimension of personality.

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