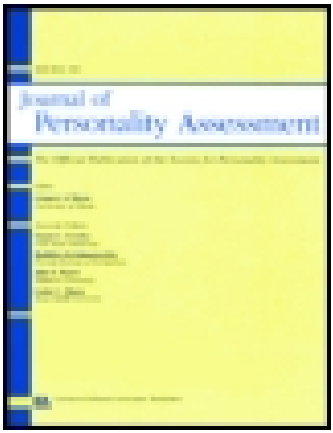

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# Psychometric Properties of the Observer Alexithymia Scale in a Clinical Sample

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# Psychometric Properties of the Observer Alexithymia Scale in a Clinical Sample

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The purpose of this study was to evaluate the psychometric properties of the Observer Alexithymia Scale (OAS; Haviland, Warren, & Riggs, 2000) in a clinical setting. Clinical and counseling psychologists used the OAS to rate outpatients ($n$ = 192) with various *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1994) diagnoses. Reliability and validity data are similar to the initial nonclinical data ($n$ = 819): OAS scores are reliable (coefficient $\alpha$ = .90), and the five-factor structure—Distant, Uninsightful, Somatizing, Humorless, and Rigid—was confirmed. Moreover, the OAS does a relatively good job of differentiating clinical from nonclinical cases. The OAS is psychometrically sound, and it appears to be a useful tool for collecting and evaluating observer data on the clinically relevant, everyday expressions of alexithymia.

*Alexithymia* is a personality trait that appears to reflect deficits in the cognitive processing and regulation of emotions (Lane, Ahern, Schwartz, & Kaszniak, 1997; Taylor, 2000; Taylor, Bagby, & Parker, 1997). A unique trait (Haviland & Reise,

1996; Luminet, Bagby, Wagner, Taylor, & Parker, 1999), alexithymia is associated with various of serious mental and physical illnesses (e.g., substance dependence and abuse, panic, posttraumatic stress, somatoform, and eating disorders; Taylor et al., 1997). As such, researchers have found this construct useful as they study the roles that personality and emotions play in the development and treatment of these often intractable and costly diseases (Taylor, 2000).

The most popular alexithymia assessment tool is the Twenty-Item Toronto Alexithymia Scale (Bagby, Parker, & Taylor, 1994). This self-report scale continues to be used most often by itself, however, despite the originators' recognition that scores are best evaluated in the context of other relevant observer and self-report information (Taylor et al., 1997). As in personality and social psychology research, generally (Funder, 1999), observer reports have been used far less commonly in alexithymia research than have self-report measures, largely because they are harder to obtain. Thus, conclusions about the alexithymia construct are based almost entirely on the administration and correlation of self-report scales (Taylor, 2000).

Two promising observer alexithymia measures—the Twelve-Item Modified Beth Israel Hospital Psychosomatic Questionnaire (Taylor et al., 1997) and the California Q-set Alexithymia Prototype (CAQ–AP; Haviland, 1998; Haviland & Reise, 1996)—are time consuming and, for some raters, difficult to complete. Thus, they have seen very limited use. A third observer measure—the Observer Alexithymia Scale (OAS; Haviland et al., 2000)—is the subject of this study.

The OAS is a 33-item scale that purportedly measures alexithymia. Item content was taken from the CAQ–AP definition of alexithymia (Haviland & Reise, 1996). In CAQ–AP terms, the prototypic alexithymic person has difficulties experiencing and expressing emotion; lacks imagination; and is literal, socially conforming, and utilitarian. He or she is not insightful, is humorless, has not found personal meaning in life, and anxiety and tension find outlet in bodily symptoms. This definition is consistent with the original construct formulations (Nemiah, Freyberger, & Sifneos, 1976; Nemiah & Sifneos, 1970) and with the more recent, comprehensive descriptions (Taylor, 2000; Taylor et al., 1997).

The OAS taps five alexithymic features: (a) distant (unskilled in interpersonal matters and relationships), (b) uninsightful (lacking good stress tolerance and insight or self-understanding), somatizing (having health worries and physical problems), (d) humorless (colorless and uninteresting), and (e) rigid (too self-controlled). Among the OAS's greatest strengths is that it is an observer report with ordinary-language items accessible to both clinical judges and a (target) person's acquaintances or relatives.

The reliability and validity of the OAS have been examined for people in nonclinical settings. Scores are reliable (coefficient $\alpha$ for the total score = .88 in one sample, and .89 in a second; test–retest reliability = .87; coefficient $\alpha$ for the

subscale scores range from .69 to .86 in two samples), and the instrument's five-factor structure is replicable (Haviland et al., 2000). Given these encouraging preliminary findings, this study was designed to evaluate the OAS's psychometric properties in a clinical setting. Our primary purposes were (a) to evaluate the psychometric properties (reliability and factorial validity) of the OAS in a clinical sample using clinicians as judges and (b) to determine whether OAS scores distinguish clinical from nonclinical cases.

## METHOD

### Survey

We mailed the OAS to a random sample of 1,000 doctoral-level clinical and counseling psychologists and distributed it to 20 local clinical psychologists (all were American Psychological Association members providing patient care). Reminder/thank-you postcards were sent approximately 4 weeks after the initial mailing and distribution. Psychologists were asked to think of a patient whom they knew very well and to rate the patient on the 33 OAS items. Our first preference was for each to choose a patient with a *Diagnostic and Statistical Manual of Mental Disorders* (*DSM–IV*; American Psychiatric Association, 1994) Axis I diagnosis of substance dependence or abuse, panic, posttraumatic stress, somatoform, or eating disorder (disorders associated with alexithymia). Our second preference was for them to choose a patient with depressive or dysthymic disorder (disorders not necessarily associated with alexithymia). We asked them not to choose patients with delirium or dementia, bipolar disorder, or schizophrenia (because the data would be difficult to interpret) or with an Axis II diagnosis of schizoid or antisocial personality disorder (disorders distinct from, but sharing features with, alexithymia). The psychologists also were asked to supply information about themselves (sex, age, and number of years in practice) and their target patients (sex, age, race/ethnicity, educational level, psychiatric diagnoses, and trauma experience).

Alexithymia is associated with our "first preference" disorders, being in poor physical health (Taylor et al., 1997), and having experienced traumatic stress (Krystal, 1988). Our goal was to have a good range of alexithymia severity in the final sample and for the sample to include truly alexithymic individuals. We collected diagnosis and trauma experience data to estimate the likelihood of achieving that goal.

### Psychometric Properties

*Internal consistency and scale–subscale relations.* To evaluate internal consistency, we used coefficient alpha. To evaluate scale–subscale interrelations, we used Pearson correlation.

*Factor structure (confirmatory factor analysis).* We tested a hierarchical, second-order model using EQS for Windows, Version 5.6 (Bentler & Wu, 1995). The first-order factors—Distant, Uninsightful, Somatizing, Humorless, and Rigid—were hypothesized to be products of the single, second-order construct, alexithymia. Before testing the model, however, we created within-dimension item parcels (two to four randomly selected items in each parcel and two or three parcels for each dimension).

To evaluate model fit, we used the conventional chi-square test (Bollen, 1989) and comparative fit index (CFI; Bentler, 1990). The chi-square statistic (and its corresponding *p* value) tests the null hypothesis that the actual covariance matrix among the variables is the same as the one implied by the specified model. A nonsignificant ($p > .05$) chi-square, thus, is desirable and suggests that the model is an adequate representation of the data. The CFI is an estimate of the proportion of sample information that has been explained by the model, and it can range from 0 to 1 (perfect fit). Values above 0.90 are considered adequate; values in the 0.80 to 0.89 range are marginal. The distribution of CFI indexes (and other commonly used fit indexes) is not known, so probabilities are not associated with their values.

## OAS Total and Subscale Correlates

To compare total and subscale differences between scores obtained for women and men, we used effect sizes ($d$ = the mean difference divided by the within-population standard deviation; Cohen, 1992). Values of .20, .50, and .80 correspond to small, medium, and large effects, respectively. To evaluate total and subscale score differences related to age and education, we used correlation. Values of .10, .30, and .50 correspond to small, medium, and large effects, respectively (Cohen, 1992).

## Clinical–Nonclinical Group Comparisons

*T scores and effect sizes.* We calculated *T* scores ($M = 50$, $SD = 10$) based on the ratings of 819 nonclinical (people-in-general) targets (Haviland et al., 2000). Nonclinical raters were undergraduate and graduate or professional school students who rated parents, spouses, girlfriends or boyfriends, friends, adult children, siblings, aunts or uncles, cousins, and in-laws. To evaluate group differences (clinical vs. nonclinical subgroups), we used effect size ($d$).

*Receiver operating characteristic analyses.* We used receiver operating characteristic (ROC) analyses to determine OAS total and subscale score thresholds for differentiating the clinical from the nonclinical group members. ROC curves are plots of sensitivity against false-positive rates, and each ROC analysis gives an area under the curve (AUC). The AUC index can range from 0.5 (no predictive power) to 1 (perfect prediction). Optimal thresholds give the best balance

between identifying the highest proportion of true clinical cases and the lowest proportion of nonclinical cases incorrectly identified as clinical cases.

*Item-group correlations.* To determine which OAS items were the best (and worst) clinical–nonclinical discriminators, we correlated each item with group. Items were coded 0 (*never, not at all like the person*), 1 (*sometimes, a little like the person*), 2 (*usually, very much like the person*), and 3 (*all of the time, completely like the person*). Group was coded 0 (*nonclinical*) and 1 (*clinical*).

## RESULTS

### Response Rate

Of the 1,000 surveys, 976 were deliverable. Of the deliverable surveys, 200 were returned (20.5%), and 180 of those (90.0%) were usable. Of the 20 surveys distributed to local psychologists, 12 (60%) were returned and all were usable. Total *N* for the study, thus, is 192. Of the 192 psychologist respondents, 54.2% were women, and 45.8% were men. Average age was 49.2 years (*SD* = 7.6), and average years in practice was 18.0 (*SD* = 7.8).

### Patient Characteristics

Of the 192 patients, 69.8% were women, and 30.2% were men; mean age = 39.2 years (*SD* = 10.4). Most were White (88.0%), and 51.1% had bachelor's or postgraduate degrees. A *DSM–IV* Axis I diagnosis was provided for 190 participants (one for 140 patients, two for 38, three for 10, and two for 4). Among the 190, the most common first-listed diagnoses were anxiety/posttraumatic stress (32.6%), anxiety/other than posttraumatic stress (20.5%), mood/major depressive (15.3%), mood/dysthymic (11.1%), eating (8.9%), substance dependence (7.4%), and somatoform (2.6%) disorders. Axis II diagnoses were listed for 53 participants, and the most common disorders were borderline (41.5% of the 53; 11.6% of the 190 for whom *DSM–IV* diagnoses were given) and dependent (17.0% and 4.7%, respectively). Axis III diagnoses were listed for 78 participants. Trauma experiences were noted for 133 (69.3%) participants. Sixty-three had experienced sexual abuse (47.4% of the 133, and 32.5% all participants), and 49 (36.8% and 25.5%, respectively) had experienced physical abuse. Although we cannot be certain that the sample included individuals with severe/trait alexithymia, these figures increased our confidence that such was the case.

### OAS Scores

OAS and subscale means and standard deviations are shown in Table 1. OAS items are rated on the previously described 0 to 3 scale, and, thus, total scores can range

TABLE 1
OAS and Subscale Scores: Means and Standard Deviations

| | | *All Patients*[a] | | *Women*[b] | | *Men*[c] | |
|---|---|---|---|---|---|---|---|
| *Scale* | *No. of Items* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| OAS | 33 | 47.6 | 14.6 | 47.7 | 14.1 | 47.3 | 15.6 |
| 1. Distant | 10 | 14.5 | 5.6 | 14.5 | 5.5 | 14.4 | 5.9 |
| 2. Uninsightful | 8 | 13.1 | 4.3 | 13.2 | 4.3 | 12.7 | 4.2 |
| 3. Somatizing | 5 | 7.3 | 4.4 | 7.3 | 4.2 | 7.2 | 4.9 |
| 4. Humorless | 5 | 6.0 | 3.1 | 6.0 | 3.1 | 5.9 | 3.3 |
| 5. Rigid | 5 | 6.8 | 3.5 | 6.6 | 3.3 | 7.0 | 4.0 |

*Note.* OAS = Observer Alexithymia Scale.
[a]$N = 192$. [b]$n = 134$. [c]$n = 58$.

TABLE 2
OAS and Subscale Correlations

| *Scale* | *OAS* | *1* | *2* | *3* | *4* | *5* |
|---|---|---|---|---|---|---|
| OAS | | | | | | |
| 1. Distant | .79 | | | | | |
| 2. Uninsightful | .73 | .41 | | | | |
| 3. Somatizing | .56 | .10 | .45 | | | |
| 4. Humorless | .72 | .64 | .34 | .17 | | |
| 5. Rigid | .65 | .45 | .26 | .20 | .44 | |

*Note.* OAS = Observer Alexithymia Scale.

from 0 to 99. Among all participants ($N = 192$), OAS scores ranged from 15 to 76 among women ($n = 134$) and 17 to 76 among men ($n = 58$). The mean OAS score for all patients was 47.6 ($SD = 14.6$).

## Psychometric Properties

*Internal consistency and scale–subscale relations.* Coefficient alpha for the OAS was .90. Subscale alphas were .87 for Distant, .78 for Uninsightful, .87 for Somatizing, .82 for Humorless, and .75 for Rigid. The scale–subscale intercorrelations matrix is shown in Table 2. Total subscale correlations ranged from .56 (Somatizing) to .79 (Distant), and the median was .72. Subscale intercorrelations ranged from .10 (Distant–Somatizing) to .64 (Distant–Humorless); the median was .38.

*Factor structure (confirmatory factor analysis).* After an initial run, we fixed the parameters significantly contributing to model misfit (Lagrange Multiplier test; Bentler & Wu, 1995) and then ran a relaxed model (all fixed covariances were

either parcel-to-parcel or first-order factor to first-order factor). The final model had an excellent fit to the data: $\chi^2(34, N = 192) = 47.50$, $p = .06$ (CFI = .988). The paths between all first-order factors and their item parcels were large and significant (range = .61 to .98; $p < .05$). Moreover, all five paths between the second-order construct and the first-order dimensions were significant ($p < .05$), and four of the five were large (range = .61 to .93). Somatizing (.21) was the exception. More important, none of the parameter estimates between parcels and unrelated first-order factors resulted in large standardized residuals (i.e., no significant crossloading of parcels to secondary subscales), which supports the distinctiveness of the five subscales.



## OAS Total and Subscale Correlates

The mean differences between women and men on total and subscale scores (shown in Table 1) were small (all effect sizes < .20). The correlations between age and OAS and subscale scores also were small, $r < .10$. The correlation between education level and OAS total score was in the small-to-medium effect size range, $r = –.24$. The correlations between education level and Distant, $r = –.30$, Uninsightful, $r = –.25$, and Humorless, $r = –.21$, also were in the small-to-medium effect size range. We did not evaluate differences in OAS performance for groups based on ethnicity because only 20 of the patients were from minority ethnic backgrounds.

## Clinical–Nonclinical Comparisons

*T scores and effect sizes.* The OAS total score difference between clinical and nonclinical groups was substantial (13.4, $d = 1.3$), as were all subscale differences, range = 7.8 (Somatizing) to 11.0 (Humorless); $d$ range = 0.8 to 1.1.

*ROC analyses.* A summary of the ROC analyses is given in Table 3. For OAS total score, the AUC was .82, and the best threshold score was 40 (sensitivity = .73, specificity = .80). Subscales 1, 2, and 4 had better predictive power (AUCs of

TABLE 3
Receiver Operating Characteristic Analyses

| *Scale* | *AUC* | *Cutoff* | *Sensitivity* | *Specificity* |
|---|---|---|---|---|
| OAS | .82 | 40 | .73 | .80 |
| 1. Distant | .76 | 12 | .70 | .69 |
| 2. Uninsightful | .77 | 11 | .70 | .71 |
| 3. Somatizing | .66 | 6 | .63 | .64 |
| 4. Humorless | .78 | 4 | .73 | .66 |
| 5. Rigid | .71 | 5 | .72 | .60 |

*Note.* AUC = area under the curve; OAS = Observer Alexithymia Scale.

TABLE 4
Item-Group (Clinical–Nonclinical) Correlations

| *Correlated Items* | *r* |
|---|---|
| Most highly: He or she … | |
| is playful[a] | .39 |
| knows him or herself well[a] | .39 |
| is flexible[a] | .38 |
| has physical problems that are hard to treat | .36 |
| tells jokes and makes funny remarks[a] | .36 |
| understands his or her needs very well[a] | .35 |
| likes to touch or be touched[a] | .34 |
| is imaginative; creative[a] | .33 |
| has a good sense of humor[a] | .33 |
| likes to have close friends[a] | .32 |
| has strong emotions that he or she cannot explain | .30 |
| Least: he or she … | |
| is sensitive to other people[a] | .09 |
| talks about physical pain or discomfort | .08 |
| must "go by the book" | .06 |
| has trouble finding the right words for his or her feelings | .06 |
| likes to explore his or her feelings[a] | .00 |

[a]Items are reverse scored.



.76, .77, and .78, respectively) than did Subscales 3 and 5 (respective AUCs = .66 and .71).

*Item-group correlations.* The items that were most highly, $r > .30$, and least correlated, $r < .10$, with clinical–nonclinical group are shown in Table 4. Not surprisingly, given the results of the ROC analyses, items from the Distant, Uninsightful, and Humorless subscales were the best discriminators. Interestingly, none of the least correlated items were negatively related to group.

## DISCUSSION

The primary purpose of this study was to evaluate the OAS's psychometric properties in a clinical sample. Clinical reliability and validity data are similar to the initial data for those in nonclinical settings (Haviland et al., 2000)—total and subscale scores are reliable, and the five-factor structure is stable. In light of these encouraging findings, we recommend that researchers and clinical investigators use both total OAS and subscale scores (Distant, Uninsightful, Somatizing, Humorless, and Rigid). We recommend also that, when possible, researchers obtain and compare OAS scores from multiple, independent judges. Judge–judge agreement is a good

proxy for accuracy (Funder, 1999), and consensus scores, generally, are more reliable (and valid) than individual scores (Cheek, 1982). Block (1961/1978), Funder (1999), and McCrae (1994) have made several useful suggestions for calculating consensus scores (and for evaluating discrepant reports).

Our secondary purpose was to determine how OAS scores differ for clinical versus nonclinical cases. First, all OAS scores for clinical participants (a group largely composed of patients with disorders and experiences associated with alexithymia), on the average, were considerably higher than the scores for nonclinical participants, with large effect sizes of 1.3 for total raw score and 0.8 to 1.1 for the subscale scores. In fact, using an OAS total score cutoff of 40, one can distinguish between the two groups reasonably well. It is important to underscore, however, that it remains to be demonstrated that OAS scores can make the distinction between cases in which the presence or absence of alexithymia has been established independently. At present, however, a gold standard for identifying alexithymic cases does not exist. Moreover, it is not known whether alexithymia is appropriately thought of as "present or absent" as opposed to "present along a continuum." Given these uncertainties (and the desirability of using both observer ratings and self-reports in personality research; McCrae, 1994), OAS scores clearly are best evaluated with other direct and indirect observer and self-report alexithymia assessments.

This study is not without its limits, and chief among them is the relatively low response rate. This raises two important questions. First, was the sample size large enough for the confirmatory factor analysis? Although, no firm guidelines have been established for minimum number of participants per variable (item) in exploratory factor analyses or confirmatory factor analysis, we met the 5-to-1 participant-to-variable rule of thumb, and fell just shy of the generally preferred sample size of 200 (Floyd & Widaman, 1995).

Second, what were the consequences of nonresponse bias on mean OAS total and subscale scores? Unfortunately, we can only speculate about the possible effects. Nonresponding psychologists, for example, might have chosen patients with different levels of alexithymia severity, and thus shifting mean scores up or down. It seems unlikely, however, that such shifts (even several points in either direction) would have materially affected the results of the confirmatory factor analysis. On the other hand, for several reasons, one must exercise caution in interpreting the various OAS mean total and subscale scores: (a) the effects of nonresponse bias are unknown; (b) we intentionally biased the sample by asking clinicians to choose patients with problems associated with alexithymia; and (c) alexithymia is associated with older age, male sex, lower socioeconomic status, and fewer years of education (Lane, Sechrest, & Riedel, 1998), and our sample was disproportionately female and highly educated.

Despite these limits, the results of this study support the use of the OAS, particularly in research protocols when an observer measure of alexithymia is desired. It

is based on a comprehensive, consensus definition of the construct (Haviland & Reise, 1996); it is brief and accessible to clinical and lay judges; and it taps everyday expressions of alexithymia that are observable and relevant to diagnosis, treatment planning, and outcomes assessments.

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