

# **OAI**

## **OFFENDER ASSESSMENT INDEX:**

### **An Inventory of Scientific Findings**

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## **INTRODUCTION**

### **OFFENDER ASSESSMENT INDEX (OAI)**

Probation departments need meaningful probationer information. Staff wants more than just alcohol or drug disclosures. In addition to substance abuse, they need to know if the probationer is truthful, cooperative, has emotional problems, manifests resistant attitudes, or is violent. The Offender Assessment Index is designed specifically for probation department use.

The Offender Assessment Index (OAI) scales evolved from scale items represented in other, established assessment instruments. For example, the Truthfulness, Resistance, Alcohol, Drug, and Stress Coping Abilities items largely, evolved from the SAQ-Adult Probation, which is an established, substance (alcohol and other drugs) abuse screening instrument. The Violence items evolved from the SAQ-Adult Probation II. These items were included in large item pools. Item selection was initially, a rational process by three psychologists having clearly understood definitions of each scale. The original pool of potential test items was analyzed, and items with the best statistical properties were retained. The Offender Assessment Index (OAI) test was, then, administered to a variety of client or offender groups, e.g., substance abuse outpatients, inpatients, municipal court diversion clients, probationers, college students, and job applicants. Test items with the best statistical properties have been retained.

SAQ-Adult Probation research and development began in 1980, and has continued to the present. The SAQ assessment tests are applicable to the Offender Assessment Index, because the tests are designed for the same population. The OAI is designed for intake, screening, and intervention decisions. The proprietary, OAI database ensures continued research and development of the OAI.

OAI users are, typically, not clinicians or diagnosticians. Their role is usually to identify probationer risk, substance (alcohol and other drugs) abuse, and probationer need, prior to recommending change in probationer status, supervision levels and/or treatment. The OAI is to be used in conjunction with a review of available records and respondent interview. No decision or diagnosis should be based, solely, on OAI results. Probationer assessment is not to be taken lightly, as the decisions made can be vitally important, as they affect people's lives. OAI research is ongoing in nature, so that staff can be provided with the most accurate information possible.

The Offender Assessment Index is designed for adult, probation department assessment. The OAI report presents quantitative information obtained by empirically-based measures (scales), which independently generate risk (percentile) scores. Scale development is based upon nearly 20 years of research. In addition, explanatory paragraphs describe attained scores and contain specific, score-related recommendations. And, each scale is presented graphically in the OAI profile.

Information on the Offender Assessment Index (OAI) is available in the OAI Orientation & Training Manual. Computer scoring information is contained in the OAI Computer Operating Guide. Each of these manuals can be obtained from Risk & Needs Assessment, Inc.

## OAI MEASURES (SCALES)

Users of the Offender Assessment Index (OAI) should be familiar with each OAI scale. A description of each OAI scale follows.

### SIX OAI SCALES (MEASURES)

**1. Truthfulness Scale:** Measures the truthfulness of the probationer while they were completing the OAI. This scale identifies guarded and self-protective people who minimize their problems, or attempt to fake their results.

**2. Violence Scale:** Measures use of physical force to injure, damage, or destroy. This scale identifies probationers who are dangerous to self, or others.

**3. Resistance Scale:** Measures probationer's resistance to authority, uncooperativeness, and defensiveness. Resistance influences relationships at home, at work, in families, and towards authority (compliance, acceptance, and cooperation).

**4. Stress Coping Abilities Scale:** Measures how well the probationer copes with stress. Stress exacerbates emotional, attitudinal, and behavioral problems. Severe, stress coping problems are indicative of emotional and mental health problems.

**5. Alcohol Scale:** Measures probationer's alcohol proneness and alcohol-related problems. Alcohol refers to beer, wine, or other liquor.

**6. Drug Scale:** Measures probationer's drug abuse proneness and drug-related problems. Drugs refer to marijuana, cocaine, crack, barbiturates, amphetamines, and heroin.

\* **Substance Abuse/Dependency Classification Scale:** Psychoactive substance use, abuse, and dependency are discussed and defined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). And, it is from this source that the Substance Dependency/Abuse Scale evolved. Dependency, as used in the OAI, is defined as admission to three or more of the seven DSM-IV symptoms of dependency. Substance Abuse is defined as admission to one, or more of the four DSM-IV symptoms. The Substance Abuse/Dependency Scale incorporates the seven, DSM-IV Substance Dependency criteria items, and the four, DSM-IV Substance Abuse criteria items. The OAI Alcohol Scale and Drug Scale measure risk or severity level, and include DSM-IV equivalent items to support DSM-IV criteria items. Offender admission of three of the seven, DSM-IV dependency items results in Substance Dependence classification. Similarly, offender admission to one of the four, DSM-IV abuse items results in Substance Abuse classification.

The following studies summarize research conducted on a variety of participants, e.g., substance abuse inpatients/outpatients, vocational rehabilitation clients, people applying for jobs, college students, municipal court diversion defendants, inmates, etc.

Offender Assessment Index (OAI) research is presented chronologically, in the order it was conducted. Chronological presentation enables the reader to follow the evolution of the OAI into a state-of-the-art, automated (computerized) assessment instrument. More recent studies (toward the end of this document) are most representative of current OAI statistics.

## OAI RESEARCH

## STRESS QUOTIENT

The Stress Quotient (SQ) or Stress Coping Abilities Scale is based upon the following mathematical equation:

$$SQ = CS/S \times k$$

The Stress Quotient (SQ) scale is a numerical value representing a person's ability to handle or cope with stress, relative to their amount of experienced stress. CS (Coping Skill) refers to a person's ability to cope with stress. S (Stress) refers to experienced stress. k (Constant) represents a constant value in the SQ equation to establish SQ score ranges. The SQ includes measures of both stress and coping skills, in the derivation of the Stress Quotient (SQ) score. The better an individual's coping skills, compared to the amount of experienced stress, the higher the SQ score.

The Stress Quotient (SQ) scale equation represents empirically-verifiable relationships. The SQ scale (and its individual components) lends itself to research. Nine studies were conducted to investigate the validity and reliability of the Stress Quotient or Stress Coping Abilities Scale.

**Validation Study 1:** This study was conducted (1980) to compare SQ between High Stress and Low Stress groups. The High Stress group (N=10) was comprised of 5 males and 5 females. Their average age was 39. Subjects for the High Stress group were, randomly, selected from outpatients seeking treatment for stress. The Low Stress group (N=10) was comprised of 5 males and 5 females, (average age 38.7) randomly selected from persons not involved in treatment for stress. High Stress group SQ scores ranged from 32 to 97, with a mean of 64.2. Low Stress group SQ scores ranged from 82 to 156, with a mean of 115.7. The t-test statistical analysis of the difference between the means of the two groups indicated that the High Stress group had, significantly, higher SQ scores than the Low Stress group ( $t = 4.9, p < .001$ ). This study shows that the SQ or Stress Coping Abilities Scale is a valid measure of stress coping. The Stress Coping Abilities Scale significantly discriminates between high stress individuals and low stress individuals.

**Validation Study 2:** This study (1980) evaluated the relationship between the SQ scale and two criterion measures: Taylor Manifest Anxiety Scale and Cornell Index. These two measures have been shown to be valid measures of anxiety and neuroticism, respectively. If the SQ or Stress Coping Abilities Scale is correlated with these measures, it would indicate that the SQ or Stress Coping Abilities Scale is a valid measure. In the Taylor Manifest Anxiety Scale, high scores indicate a high level of anxiety. Similarly, in the Cornell Index, high scores indicate neuroticism. Negative correlation coefficients between the two measures and the SQ were expected, because high SQ scores indicate good, stress coping abilities. The three tests were administered to forty-three (43) subjects selected from the general population. There were 21 males and 22 females, ranging in age from 15 to 64 years. Utilizing a product-moment correlation, SQ scores correlated  $-.70$  with the Taylor Manifest Anxiety Scale and  $-.75$  with the Cornell Index. Both correlations were significant, in the predicted direction, at the  $p < .01$  level. These results support the finding that the Stress Coping Abilities Scale is a valid measure of stress coping abilities. The reliability of the SQ was investigated in ten subjects, (5 male and 5 female) randomly chosen from this study. A split-half correlation analysis was conducted on the SQ items. The product-moment correlation coefficient ( $r$ ) was  $.85$ , significant at the  $p < .01$  level. This correlation indicates that the SQ or Stress Coping Abilities Scale is a reliable measure. These results support the Stress Coping Abilities Scale, as a reliable and valid measure.

**Validation Study 3:** In this study (1981), the relationship between the SQ Scale and the Holmes-Rahe, Social Readjustment Rating Scale (SRRS) was investigated. The SRRS, which is comprised of a self-rating of stressful life events, has been shown to be a valid measure of stress. Three correlation analyses were done. SRRS scores were correlated with SQ scores and, separately, with two components of the SQ scale:

Coping Skill (CS) scores and Stress (S) scores. It was hypothesized that the SQ and SRRS correlation would be negative, since subjects with lower SQ scores would be more likely to either encounter less stressful life events, or experience less stress in their lives. It was also predicted that subjects with a higher CS would be less likely to encounter stressful life events; hence, a negative correlation was hypothesized. A positive correlation was predicted between S and SRRS, since subjects experiencing more, frequent stressful life events would reflect more experienced stress. The participants in this study consisted of 30 outpatient psychotherapy patients. There were 14 males and 16 females. The average age was 35. The SQ and the SRRS were administered in counterbalanced order. The results showed there was a significant, positive correlation (product-moment correlation coefficient) between SQ and SRRS ( $r = .4006$ ,  $p < .01$ ). The correlation results between CS and SRRS was not significant ( $r = .1355$ , n.s.). There was a significant, positive correlation between S and SRRS ( $r = .6183$ ,  $p < .001$ ). The correlations were in predicted directions. The significant correlations between SQ and SRRS, as well as S and SRRS, support the construct validity of the SQ or Stress Coping Abilities Scale.

**Validation Study 4:** This validation study (1982) evaluated the relationship between factor C (Ego Strength) in the 16 PF Test as a criterion measure, and the SQ in a sample of juveniles. High scores on factor C indicate high ego strength and emotional stability, whereas high SQ scores reflect good coping skills. A positive correlation was predicted, because emotional stability and coping skills reflect similar attributes. The participants were 34 adjudicated delinquent adolescents. They ranged in age from 15 to 18 years, with an average age of 16.2. There were 30 males and 4 females. The Cattell 16 PF Test and the SQ scale were administered in counterbalanced order. All subjects had at least a 6.0 grade equivalent reading level. The correlation (product-moment correlation coefficient) results indicated that Factor C scores were, significantly, correlated with SQ scores ( $r = .695$ ,  $p < .01$ ). Results were significant and in the predicted direction. These results support the SQ or Stress Coping Abilities Scale, as a valid measure of stress coping abilities in juvenile offenders.

In a subsequent study, the relationship between factor Q4 (Free Floating Anxiety), on the 16 PF Test and S (Stress) on the SQ scale, was investigated. High Q4 scores reflect free floating anxiety and tension, whereas high S scores measure experienced stress. A high, positive correlation between Q4 and S was predicted. There were 22 of the original 34 subjects included in this analysis, since the remainder of the original files was unavailable. All 22 subjects were male. The results indicated that Factor Q4 scores were, significantly, correlated (product-moment correlation coefficient) with S scores ( $r = .584$ ,  $p < .05$ ). Results were significant and in predicted directions. The significant correlations between factor C and SQ scores, as well as factor Q4 and S scores, support the construct validity of the SQ scale.

**Validation Study 5:** Psychotherapy outpatient clients were used in this validation study (1982) that evaluated the relationship between selected Wiggin's MMPI (Minnesota Multiphasic Personality Inventory), supplementary content scales (ES & MAS) as criterion measures, and the SQ scale. ES measures ego strength and MAS measures manifest anxiety. It was predicted that the ES and SC correlation would be positive, since people with high ego strength would be more likely to possess good coping skills. Similarly, it was predicted that MAS and S correlations would be positive, since people experiencing high levels of manifest anxiety would also, likely, experience high levels of stress. The subjects were 51 psychotherapy outpatients, ranging in age from 22 to 56 years, with an average age of 34. There were 23 males and 28 females. The MMPI and the SQ were administered in counterbalanced order. The correlation (product-moment correlation coefficient) results indicated that ES and CS were positively, significantly correlated ( $r = .29$ ,  $p < .001$ ). MAS and S comparisons resulted in an  $r$  of  $.54$ , significant at the  $p < .001$  level. All results were significant and in predicted directions.

In a related study (1982), utilizing the same population data ( $N=51$ ), the relationship between the Psychasthenia (Pt) scale in the MMPI and the S component of the SQ scale was evaluated. The Pt scale in

the MMPI reflects neurotic anxiety, whereas the S component of the SQ scale measures stress. Positive Pt and S correlations were predicted. The correlation (product-moment correlation coefficient) results indicated that the Pt scale and the S component of the SQ scale were, significantly, correlated ( $r = .58$ ,  $p < .001$ ). Results were significant and in the predicted direction. The significant correlations between MMPI scales (ES, MAS, Pt) and the SQ scale components (CS, S) support the construct validity of the SQ or Stress Coping Abilities Scale.

**Reliability Study 6:** The reliability of the Stress Quotient (SQ) or Stress Coping Abilities Scale was investigated (1984) in a population of outpatient psychotherapy patients. There were 100 participants, 41 males and 59 females. The average age was 37. The SQ was administered soon after intake. The most common procedure for reporting inter-item (within test) reliability is with Coefficient Alpha. The reliability analysis indicated that the Coefficient Alpha of 0.81 was highly significant ( $F = 46.74$ ,  $p < .001$ ). Highly significant, inter-item scale consistency was demonstrated.

**Reliability Study 7 (1985):** The reliability of the Stress Quotient (SQ) or Stress Coping Abilities Scale was investigated in a sample of 189 job applicants. There were 120 males and 69 females, with an average age of 31. The SQ was administered at the time of pre-employment screening. The reliability analysis indicated that the Coefficient Alpha of 0.73 was highly significant ( $F = 195.86$ ,  $p < .001$ ). Highly significant, Cronbach Coefficient Alpha reveals that all, SQ scale items are, significantly ( $p < .001$ ), related and measure one factor or trait.

**Validation Study 8:** Chemical dependency inpatients were used in a validation study (1985) to determine the relation between MMPI scales, as criterion measures, and the Stress Quotient (SQ) Scale or Stress Coping Abilities Scale. The SQ is inversely related to other MMPI scales; consequently, negative correlations were predicted. The participants were 100 chemical dependency inpatients. There were 62 males and 38 females, with an average age of 41. The SQ and the MMPI were administered in counterbalanced order. The reliability analysis results indicated that the Coefficient Alpha of 0.84 was highly significant ( $F = 16.20$ ,  $p < .001$ ). Highly significant, inter-item scale consistency was demonstrated.

The correlation (product-moment correlation coefficient) results between the Stress Quotient (SQ) and selected MMPI scales were significant at the  $p < .001$  level, and in predicted directions. The SQ correlation results were as follows: Psychopathic Deviate (-0.59), Psychasthenia (-0.068), Social Maladjustment (-0.54), Authority Conflict (-0.46), Taylor Manifest Anxiety Scale (-0.78), Authority Problems (-0.22), and Social Alienation (-0.67). The most, significant SQ correlation was with the Taylor Manifest Anxiety Scale. As discussed earlier, stress exacerbates symptoms of impaired adjustment, as well as emotional and attitudinal problems. These results support the Stress Quotient or Stress Coping Abilities Scale, as a valid measure of stress coping abilities.

**Validation Study 9:** In a replication of earlier research, a study (1986) was conducted to further evaluate the reliability and validity of the Stress Quotient (SQ). The participants were 212 inpatients in chemical dependency programs. There were 122 males and 90 females, with an average age of 44. The SQ and MMPI were administered in counterbalanced order. Reliability analysis of the SQ scale resulted in a Coefficient Alpha of 0.986 ( $F = 27.77$ ,  $p < .001$ ). Highly significant, inter-item scale consistency was, again, demonstrated. Rounded off, the **Coefficient Alpha for the SQ was 0.99**.

In the same study (1986, inpatients), product-moment correlations were calculated between the Stress Quotient (SQ) and selected MMPI scales. The SQ correlated significantly (.001 level) with the following MMPI scales: Psychopathic Deviate (Pd), Psychasthenia (Pt), Anxiety (A), Manifest Anxiety (MAS), Ego Strength (ES), Social Responsibility (RE), Social Alienation (PD4A), Social Alienation (SC1A), Social Maladjustment (SOC), Authority Conflict (AUT), Manifest Hostility (HOS), Suspiciousness/Mistrust

(TSC-II), Resentment/Aggression (TSC-V), and Tension/Worry (TSC-VII). **All SQ correlations with selected MMPI scales were significant (at the .001 level of significance), and in predicted directions.** These results support the SQ scale or Stress Coping Abilities Scale, as a valid measure of stress coping abilities.

The studies cited above demonstrate empirical relationships between the SQ scale (Stress Coping Abilities Scale) and other, established measures of stress, anxiety and coping skills. This research demonstrates that the Stress Quotient (SQ) or Stress Coping Abilities Scale is a reliable and valid measure of stress coping abilities. The SQ has high, inter-item scale reliability. The SQ also has high, concurrent (criterion-related) validity with other, recognized and accepted tests. The SQ scale permits objective (rather than subjective) analysis of the interaction of these important variables. In the research that follows, the **Stress Quotient** or **SQ** is also referred to as the **Stress Coping Abilities Scale**.

## OFFENDER ASSESSMENT INDEX RESEARCH

OAI research is reported in a chronological format, reporting studies as they occurred. This gives the reader the opportunity to see how the OAI evolved into a state-of-the-art, risk and needs assessment instrument. For current information, refer to the more recent studies near the end of this research section.

Initially, a large item pool was rationally developed for OAI scale consideration. Consensual agreement among three, Ph.D. level psychologists and other, experienced chemical dependency counselors familiar with OAI scale definitions, reduced the initial item pool markedly. Final item selection was empirical -- comparing statistically-related item configurations to known, substance abuse groups. Items chosen had acceptable, inter-item reliability coefficients and correlated highest with their respective scales. Final item selection was based on each item's statistical properties. The OAI was, then, objectively standardized and normed on substance abuse populations.

### 10. A Study of Offender Assessment Index Test-Retest Reliability

Any approach to detection, assessment, or measurement must meet the criteria of reliability and validity. Reliability refers to an instrument's consistency of results, regardless of who uses it. This means that the outcome must be objective, verifiable, and reproducible. Ideally, the instrument or test must also be practical, economical, and accessible. Psychometric principles and computer technology insure OAI accuracy, objectivity, practicality, cost-effectiveness, and accessibility.

Reliability is a measure of the consistency of a test, in obtaining similar results upon re-administration of the test. One measure of test reliability, over time, is the test-retest correlation coefficient. In this type of study, the test is administered to a group and, then, the same test is re-administered to the same group at a later date.

#### Method

College students, at two different colleges, enrolled in introductory psychology classes participated in this study (1984). A total of 115 students participated and received class credit for their participation. The students were administered the OAI in a paper-pencil, test format. One week later, they were re-tested with the OAI again.

#### Results



The results of this study revealed a significant, test-retest, product-moment correlation coefficient of  $r = 0.71, p < .01$ . These results support the reliability of the OAI. Test-retest consistency was very high and indicates that the OAI scores are reproducible and reliable over a one-week interval.

## **11. Validation of the OAI Truthfulness Scale**

The Truthfulness Scale in the OAI is an important psychometric scale, as these scores establish how truthful the respondent was while completing the OAI. Truthfulness Scale scores determine whether or not OAI profiles are accurate, and are integral to the calculation of Truth-Corrected OAI scale scores.

The Truthfulness Scale identifies respondents who were self-protective, recalcitrant, and guarded, as well as those who minimized, or even concealed information while completing the test. Truthfulness Scale items are designed to detect respondents who try to fake good, or put themselves into a favorable light. These scale items are statements about oneself that most people would agree to. The following statement is an example of a Truthfulness Scale item, "Sometimes I worry about what others think or say about me."

There are 21 Truthfulness Scale items in the OAI. This preliminary study was done to determine if these Truthfulness Scale items could differentiate between respondents who were honest, from those trying to fake good. It was hypothesized that the group trying to fake good would score higher on the Truthfulness Scale, than the group instructed to be honest.

### Method

Seventy-eight, Arizona State University college students (1985), enrolled in an introductory psychology class were, randomly, assigned to one of two groups. Group 1 comprised the "Honest" group and Group 2 comprised the "Fakers" group. Group 1 was instructed to be honest and truthful while completing the OAI. Group 2 was instructed to "fake good" while completing the OAI, but to respond "in such a manner that their faking good would not be detected." The OAI, which included the six OAI scales, was administered to the subjects, and the Truthfulness Scale was embedded in the OAI, as one of the six scales. Truthfulness Scale scores were made up of the number of deviant answers given to the 21 Truthfulness Scale items.

### Results

The mean, Truthfulness Scale score for the Honest group was 2.71 and the mean, Truthfulness Scale score for Fakers was 15.77. The results of the correlation (product-moment correlation coefficient) between the Honest group and the Fakers showed that the Fakers scored, significantly, higher on the Truthfulness Scale than the Honest group ( $r = 0.27, p < .05$ ).

The Truthfulness Scale successfully measured how truthful the respondents were while completing the OAI. The results of this study reveal that the Truthfulness Scale accurately detects "Fakers," from those students that took the OAI honestly.

## **12. Validation of Five OAI Scales Using Criterion Measures**

In general terms, a test is valid if it measures what it is supposed to measure. The process of confirming this statement is called validating a test. A common practice, when validating a test, is to compute a correlation between it and another (criterion) test that purports to measure the same thing, and that has been previously validated. For the purpose of this study, five OAI scales (from SAQ: Truthfulness, Alcohol, Drug, Resistance, Stress Coping Abilities) were validated with comparable scales on the Minnesota Multiphasic Personality Inventory (MMPI). The MMPI was selected for this validity study, because it is the most researched, validated, and widely used objective, personality test in the United States. The OAI scales were validated with MMPI scales as follows. The Truthfulness Scale was validated with the L Scale. The Alcohol

Scale was validated with the MacAndrew Scale and Psychopathic Deviant. The Drug Scale was validated with the MacAndrew and Psychopathic Deviant. The Resistance Scale was validated with the Manifest Hostility and Authority Conflict. The Stress Coping Abilities Scale was validated with the Taylor Manifest Anxiety, Psychasthenia, Social Maladjustment, and Social Alienation.

### Method

One hundred (100) chemical dependency inpatients (1985) were administered both the OAI scales and the MMPI. Tests were counterbalanced for order effects -- half were given the OAI first, and half the MMPI first.

### Results and Discussion

Product-moment correlation coefficients were calculated between OAI scales and MMPI scales. These results are summarized in Table 1. The correlation results presented in Table 1 show that all, OAI scales significantly correlated (.001 level of significance) with all, represented MMPI scales. In addition, all correlations were in predicted directions.

**Table 1. (1985) Product-moment correlations  
between MMPI scales and OAI scales**

<u>MMPI SCALES (MEASURES)</u>	<u>OAI SCALES (MEASURES)</u>				
	<b>Truthful- ness</b>	<b>Alcohol</b>	<b>Drug</b>	<b>Resistance</b>	<b>Stress Coping</b>
<b>L (Lie) Scale</b>	0.72	-0.38	-0.41	-0.29	0.53
<b>Psychopathic Deviant</b>	-0.37	0.52	0.54	0.27	-0.59
<b>Psychasthenia</b>	-0.34	0.38	0.41	0.37	-0.68
<b>Social Maladjustment</b>	-0.25	0.34	0.26	0.35	-0.54
<b>Authority Conflict</b>	-0.43	0.31	0.47	0.55	-0.46
<b>Manifest Hostility</b>	-0.45	0.34	0.47	0.57	-0.58
<b>Taylor Manifest Anxiety</b>	-0.58	0.47	0.46	0.50	-0.78
<b>MacAndrew</b>	-0.40	0.58	0.62	0.26	-0.33
<b>Social Alienation</b>	-0.47	0.35	0.45	0.48	-0.67

**NOTE:** All correlations were significant at  $p < .001$ .

The **Truthfulness Scale** correlates significantly with all of the represented MMPI scales in Table 1. Of particular interest is this scale's highly, significant positive correlation with the MMPI Lie (L) Scale. A high L Scale score on the MMPI invalidates other MMPI scale scores, due to untruthfulness. This helps in understanding why the Truthfulness Scale is significantly, but negatively correlated with the other, represented MMPI scales. Similarly, the MMPI L Scale correlates significantly, but negatively with the other OAI scales.

The **Alcohol Scale** correlates significantly with all represented MMPI scales. This is consistent with the conceptual definition of the Alcohol Scale, and previous research that has found that alcohol abuse is associated with mental, emotional, and physical problems. Of particular interest are the highly significant correlations with the MacAndrew ( $r = 0.58$ ) Scale and the Psychopathic Deviant ( $r = 0.52$ ) Scale. High MacAndrew and Psychopathic Deviant scorers on the MMPI are often found to be associated with substance abuse. Similarly, the **Drug Scale** correlates significantly with the MacAndrew ( $r = 0.62$ ) Scale and the Psychopathic Deviant ( $r = 0.54$ ) Scale.

The **Resistance Scale** is most, significantly correlated with the Manifest Hostility ( $r = 0.57$ ) and the Authority Conflict ( $r = 0.55$ ) scales. These findings are consistent with the conceptual definition of the Resistance Scale as measurement of willingness to work and cooperate with others.

The **Stress Coping Ability Scale** is inversely related to MMPI scales, which accounts for the negative correlations shown in Table 1. The positive correlation with the L scale on the MMPI was discussed earlier, i.e., Truthfulness Scale. It should be noted that stress exacerbates symptoms of impaired adjustment and even psychopathology. The Stress coping Ability Scale correlates most significantly with the Taylor Manifest Anxiety ( $r = -0.78$ ) Scale, the Psychasthenia ( $r = -0.68$ ) Scale, and the Social Alienation ( $r = -0.67$ ) Scale.

These findings strongly support the validity of OAI scales. All of the OAI scales were highly correlated with the MMPI criterion scale they were tested against. The large, correlation coefficients support the validity of the OAI. All product-moment correlation coefficients, testing the relation between OAI and MMPI scales, were significant at the  $p < .001$  level.

### 13. Inter-item Reliability of the OAI

Within-test reliability measures to what extent a test with multiple scales measuring different factors, measures each factor independent of the other factors (scales) in the test. It also measures to what extent items in each scale consistently measures the particular trait (or factor) that scale was designed to measure. Within-test reliability measures are referred to as inter-item reliability. The most common method of reporting within-test (scale), inter-item reliability is with Coefficient Alpha.

#### Method

This study (1985) included three separate groups of subjects: 100 outpatients in private practice, 100 substance abuse inpatients, and 189 job applicants -- totaling 389 subjects. Separate, inter-item reliability analyses were conducted to compare results across the three groups.

#### Results and Discussion

The inter-item, reliability coefficient alpha and within-test reliability statistics are presented in Tables 2 and 3, respectively. All, inter-item reliability coefficient alphas and within-test reliability F-values are significant at  $p < .001$ . These results support the reliability of the OAI. The OAI is a highly reliable instrument.

These results (Tables 2 and 3) demonstrate the impressive reliability of the OAI. Reliability was demonstrated with three different groups of people (outpatients, inpatients and job applicants) taking the OAI.

**Table 2. Inter-item reliability, coefficient alpha. (1985)  
Outpatients, Substance Abuse Inpatients and Job Applicants (N = 389)**

<b>OAI SCALES MEASURES</b>	<b>N ITEMS</b>	<b>Outpatients (N = 100)</b>	<b>Inpatients (N = 100)</b>	<b>Job Applicants (N = 189)</b>
<b>Truthfulness Scale</b>	21	0.81	0.79	0.81
<b>Alcohol Scale</b>	21	0.86	0.93	0.83
<b>Drug Scale</b>	21	0.80	0.85	0.79
<b>Resistance Scale</b>	21	0.74	0.74	0.61
<b>Stress Coping Abilities</b>	40	0.81	0.84	0.73

**Table 3. Within-test reliability, F statistic.**

**All F statistics are significant at p<.001.**

<b>OAI SCALES MEASURES</b>	<b>N ITEMS</b>	<b>Outpatients (N = 100)</b>	<b>Inpatients (N = 100)</b>	<b>Job Applicants (N = 189)</b>
<b>Truthfulness Scale</b>	21	21.73	53.15	45.91
<b>Alcohol Scale</b>	21	9.29	31.46	47.75
<b>Drug Scale</b>	21	27.19	16.34	58.18
<b>Resistance Scale</b>	21	15.97	19.21	23.67
<b>Stress Coping Abilities</b>	40	46.74	16.20	195.86

In each of these subject samples, all OAI scales (measures) were found to be significantly independent of the other OAI scales, as shown by the highly significant, within-test F statistics. The F statistic is obtained in within-subjects, between measures ANOVA performed on each, individual OAI scale in each of the samples.

The F statistics show that each OAI scale measures essentially one factor (or trait). In addition, all OAI scales show high, inter-item reliability. This is demonstrated by the Standardized Cronbach's Coefficient Alpha -- a widely used test of inter-item reliability, when using parallel models. This measure reveals that all items in each OAI scale are, significantly, related and measure just one factor. In other words, each OAI scale measures one factor, yet the factor being measured is different from scale to scale.

The inter-item reliability coefficients show very similar results across the three subject samples. The Truthfulness Scale, Alcohol Scale, and Drug Scale are in close agreement. The Stress Coping Abilities Scale shows similar results for the chemical dependency groups, but the job applicant group had a slightly, lower coefficient alpha. This difference might be accounted for by the fact that individuals applying for a job would not want to show themselves in a bad light, by indicating they have an emotional, stress-related, or mental health problem. The Resistance Scale has a somewhat, lower coefficient alpha than the other OAI scales, perhaps, because these two scales are not as specific as, say alcohol or drug abuse.

Because each sample may have scored differently from the other two samples, the data for all subjects were combined. For example, job applicants may score low on the Alcohol Scale and inpatient clients may score high. By combining the data, scale scores would, likely, be distributed from low to high, and result in even, better coefficient alphas than each sample separately. Table 4 presents the inter-item reliability analyses of all of these independent studies (N = 100, N = 100, N = 189) combined (N = 389).

The combined data shows that all, but one coefficient alpha, increased in the combined data, compared to coefficient alphas of each subject sample, alone. These coefficient alphas, in the combined data, are very high and provide strong support for the reliability of the OAI.

**Table 4. Inter-item reliability, coefficient alpha. All data combined (1985, N = 389).**

**All F statistics are significant at p<.001.**

<b>OAI SCALES MEASURES</b>	<b>N ITEMS</b>	<b>COEFFICIENT ALPHA</b>	<b>F VALUE</b>
<b>Truthfulness Scale</b>	21	0.82	96.93
<b>Alcohol Scale</b>	21	0.94	26.68
<b>Drug Scale</b>	21	0.88	79.71
<b>Resistance Scale</b>	21	0.77	53.03
<b>Stress Coping Abilities</b>	40	0.85	150.78

## 14. Relationships Between Selected OAI Scales and Polygraph Examination

A measure that has often been used in business or industry for employee selection is the Polygraph examination. The polygraph exam is most, often used to determine the truthfulness or honesty of an individual while being tested. The Polygraph examination is more accurate, as the area of inquiry is more "situation" specific. Conversely, the less specific the area of inquiry, the less reliable the Polygraph examination becomes.

Three OAI scales were chosen for this study: Truthfulness Scale, Alcohol Scale, and Drug Scale. The Truthfulness Scale was chosen, because it is used in the OAI to measure the truthfulness or honesty of the respondent while completing the OAI. The Alcohol and Drug scales are well suited for comparison with the polygraph exam, because of the situation-specific nature of the scales. Alcohol and Drug scale items are direct and relate, specifically, to alcohol and drug use. The comparison with Truthfulness Scale is less direct, because of the subtle nature of the Truthfulness Scale items, as used in the OAI. The Truthfulness Scale is affected by the respondent's attitude, emotional stability, and tendencies to fake good. It was expected that the Alcohol and Drug scales would be highly correlated with the polygraph results, and the Truthfulness Scale would show a somewhat less but, nonetheless, significant correlation.

### Method

One hundred and eighty-nine (189) job applicants (1985) were administered both the OAI and the Polygraph examination. Tests were given in a counterbalanced order, half of the applicants were given the OAI first, and the other half of the applicants were administered the polygraph first. The subjects were administered the OAI and polygraph exam in the same room, in the same session, with the examiner present for both tests.

### Results

The product-moment correlation results between the Polygraph exam and OAI scales indicated there was a significant, positive correlation between the Truthfulness Scale and Polygraph exam ( $r = 0.23, p < .001$ ). Similarly, significant positive relationships were observed between the Polygraph exam and the Alcohol Scale ( $r = 0.54, p < .001$ ) and the Drug Scale ( $r = 0.56, p < .001$ ).

In summary, this study supports the validity of the OAI. There were strong, positive relationships between the selected OAI scales and the Polygraph examination. The highly significant, product-moment correlations between OAI scales and Polygraph examinations demonstrate the validity of the OAI Truthfulness, Alcohol, and Drug abuse measures.

These results are important, because the Polygraph exam is a direct measure, obtained from the individual being tested, rather than a rating by someone else. This is similar to self-report such as utilized in the OAI. The fact that there was a very strong relationship between Polygraph results and OAI scales shows that this type of information can be obtained accurately in self-report instruments.

These results indicate that the OAI Truthfulness Scale is an accurate measure of the respondent's truthfulness or honesty while completing the OAI. The Truthfulness Scale is an essential measure in self-report instruments. There must be a means to determine the honesty or "correctness" of the respondents answers, and there must be a means to adjust scores, when the respondent is less than honest. The OAI Truthfulness Scale addresses both of these issues. The Truthfulness Scale measures truthfulness and, then, applies a correction to other scales, based on the Truthfulness Scale score. The Truthfulness Scale ensures accurate assessment. The results of this study show that the OAI is a valid assessment instrument.

## 15. Validation of OAI Scales

The OAI is an adult, probation assessment instrument. It is designed for use in probation departments. The OAI is a specific test designed for a specific population. The present study (1987) was conducted to validate OAI scales, in a sample of substance abuse inpatients in a chemical dependency facility.

Selected scales in the Minnesota Multiphasic Personality Inventory (MMPI) were used as criterion measures for the different OAI scales. The Truthfulness Scale was validated with MMPI L Scale, F Scale and K Scale. The Alcohol Scale was validated with MMPI MacAndrew Scale (MAC) and Psychopathic Deviate-Obvious (PD-O). The Drug Scale was validated with MMPI MacAndrew Scale and Psychopathic Deviate-Obvious. The Resistance Scale was validated with MMPI Ego Strength (ES), Social Responsibility (RE), Social Maladjustment (SOC), Social Alienation (PD4), Social Alienation (SCIA), Authority Conflict (AUT), and Suspiciousness (TSC-III). The Stress Coping Abilities Scale was validated with MMPI Psychasthenia (PT), Anxiety (A), Taylor Manifest Anxiety (MAS), and Tension/Worry (TSC-VII). The MMPI scales were chosen to compare to the OAI scales, because they measure similar attributes.

### Method

The subjects used in the study (1987) were 212 substance (alcohol and other drugs) abuse inpatients in chemical dependency facilities. The OAI and MMPI were administered in counterbalanced order.

### Results and Discussion

The product-moment correlation results are summarized in Table 5. Since this study is important in understanding OAI validity, each OAI scale is briefly summarized below. (N=212):

The **Truthfulness Scale** correlates significantly, in predicted directions with selected MMPI criterion scales, L Scale (lie,  $p < .001$ ), F Scale (validity,  $p < .001$ ), and K Scale (validity correction,  $p < .001$ ). Other, significant correlations with traditional MMPI scales include: PD (Psychopathic deviate,  $p < .001$ ), ES (Ego Strength,  $p < .001$ ), and RE (Social responsibility,  $p < .001$ ); Harris MMPI subscales: PD2 (Authority Problems,  $p < .001$ ), PD4 (Social Alienation,  $p < .001$ ), SCIA (Social Alienation,  $p < .001$ ); Wiggins MMPI content scales: SOC (Social Maladjustment,  $p < .001$ ), HOS (Manifest Hostility,  $p < .001$ ); Wiener-Harmon MMPI subscales: PDO (Psychopathic Deviant-Obvious,  $p < .001$ ); Tryon, Stein & Chu MMPI cluster scales: TSC-V (Resentment/Aggressive,  $p < .001$ ).

The **Alcohol Scale** correlates significantly, in predicted directions, with selected MMPI criterion scales: MAC (MacAndrew scale,  $p < .001$ ), and PD-O (Psychopathic Deviate Obvious,  $p < .021$ ). The **Drug Scale** correlates significantly, in predicted directions, with selected MMPI criterion scales: MAC (MacAndrew scale,  $p < .001$ ), and PD-O (Psychopathic Deviate Obvious,  $p < .001$ ).

**Table 5. OAI-MMPI Product-moment Correlations (1987, N=212)  
Inpatients, Chemical Dependency Facilities**

<b>MMPI SCALES (MEASURES)</b>	<b>OAI SCALES (MEASURES)</b>				
	<b>Truthfulness</b>	<b>Alcohol</b>	<b>Drug</b>	<b>Resistance</b>	<b>Stress Coping</b>
<b>L</b>	0.60	-0.24	-0.15	-0.23	-0.30
<b>F</b>	-0.34	0.32	0.32	0.56	0.49
<b>K</b>	0.39	-0.28	-0.29	-0.61	-0.51
<b>MAC</b>	-0.30	0.35	0.37	0.19	0.28
<b>PD-O</b>	-0.35	0.22	0.33	0.52	0.53
<b>PD2</b>	-0.26	0.18	0.17	0.07	0.07
<b>PD</b>	-0.33	0.21	0.33	0.19	0.39

<b>HOS</b>	-0.45	0.25	0.33	0.55	0.46
<b>TSC-V</b>	-0.46	0.34	0.28	0.59	0.58
<b>ES</b>	0.25	-0.27	-0.25	-0.48	-0.51
<b>RE</b>	0.41	-0.27	-0.34	-0.88	-0.45
<b>SOC</b>	-0.19	0.17	0.08	0.34	0.39
<b>PD4</b>	-0.41	0.20	0.28	0.63	0.55
<b>SCIA</b>	-0.36	0.27	0.32	0.58	0.39
<b>AUT</b>	-0.21	0.20	0.30	0.52	0.18
<b>TSC-III</b>	-0.22	0.26	0.28	0.57	0.45
<b>PT</b>	-0.39	0.27	0.24	0.27	0.58
<b>A</b>	-0.41	0.31	0.31	0.53	0.68
<b>MAS</b>	-0.44	0.25	0.18	0.39	0.65
<b>TSC-VII</b>	-0.41	0.33	0.29	0.51	0.66

The **Resistance Scale** correlates significantly, in predicted directions, with selected MMPI criterion scales: ES (Ego Strength,  $p < .001$ ), RE (Social Responsibility,  $p < .001$ ), PD4 (Social Alienation,  $p < .001$ ), SCIA (Social Alienation,  $p < .001$ ), SOC (Social Maladjustment,  $p < .001$ ), AUT (Authority Conflict,  $p < .001$ ), TSC-III (Suspiciousness,  $p < .001$ ), and TSC-V (Resentment/Aggression,  $p < .001$ ).

The **Stress Coping Abilities Scale** correlates significantly, in predicted directions, with selected MMPI criterion scales: PT (Psychasthenia,  $p < .001$ ), A (Anxiety,  $p < .001$ ), MAS (Taylor Manifest Anxiety,  $p < .001$ ), PD4 (Social Alienation,  $p < .001$ ), and TSC-VII (Tension/Worry,  $p < .001$ ).

These findings strongly support the validity of the OAI scales, in this sample of chemical dependency inpatients. All of the OAI scales were highly correlated with the MMPI criterion scales they were tested against. The large, correlation coefficients support the OAI, as a valid instrument for assessment of substance abuse. Inpatients in chemical dependency facilities are known to have substance abuse problems, and these correlation results confirm the validity of the instruments.

The OAI Alcohol and Drug scales are direct measures of alcohol and drug use and abuse, respectively, whereas the MacAndrew Scale was developed from discriminant analysis, and does not include a truthfulness scale. The MacAndrew Scale items do not relate, specifically, to alcohol and drugs. Hence, the correlations between the MacAndrew Scale and the Alcohol and Drug scales could be affected by the lack of a truthfulness measure, which is a deficiency of the MacAndrew Scale. However, the correlation coefficients were significant.

Where MMPI scales are closely related (by definition) to OAI scales, the correlation coefficients were highly significant. For example, the OAI Truthfulness Scale and the MMPI L Scale both measure tendencies to fake good, and the correlation was very, highly significant at  $r = .60$ . The correlation between Resistance Scale and MMPI Social Responsibility Scale was  $r = -.88$ , and the correlation between Stress Coping Abilities Scale and MMPI Tension/Worry Scale was  $r = -.66$ . This study supports the validity of the OAI.

## 16. Replication of OAI Reliability in a Sample of Inpatient Clients

Reliability refers to an instrument's consistency of results, regardless of who uses it. This means that the outcome must be objective, verifiable, and reproducible. Ideally, the instrument or test must also be practical, economical, and accessible. Psychometric principles and computer technology insure accuracy, objectivity, practicality, cost-effectiveness, and accessibility. In a replication of earlier OAI research, chemical dependency inpatients (1987) were used to evaluate the reliability of the OAI scales.

## Method and Results

The OAI was administered to 192 inpatients in a chemical dependency facility. The inter-item, coefficient alpha statistics are presented in Table 6. These results are in close agreement to reliability results obtained in an earlier study, using chemical dependency inpatient clients. In some cases, the coefficient alphas are higher in the present study, as in the previous study. The results of the present study support the reliability of the OAI.

**Table 6. Inter-item reliability, coefficient alpha. (1987)  
Chemical dependency inpatients (N = 192).**

<b><u>OAI SCALES MEASURES</u></b>	<b><u>N ITEMS</u></b>	<b><u>COEFFICIENT ALPHA</u></b>	<b><u>F VALUE</u></b>	<b><u>P VALUE P&lt;</u></b>
<b>Truthfulness Scale</b>	21	0.79	13.28	0.001
<b>Alcohol Scale</b>	21	0.92	24.39	0.001
<b>Drug Scale</b>	21	0.87	22.23	0.001
<b>Resistance Scale</b>	21	0.81	10.92	0.001
<b>Stress Coping Abilities</b>	40	0.99	27.77	0.001

In all, of the subject samples studied, the OAI scales were demonstrated to be independent measures. This mutual exclusivity (significant at  $p < .001$ ) was demonstrated, by a within-subjects measures ANOVA performed on each OAI scale. These analyses demonstrate that each OAI scale measures one factor or trait. All OAI scales demonstrate high, inter-item congruency, as reflected in the standardized Cronbach Coefficient Alpha. The items, on each OAI scale, are significantly related to the factor or trait each scale was designed to measure. In other words, each OAI scale measures one factor, and the factor (or trait) being measured differs from scale to scale.

OAI scales (measures) have been shown to be both, mutually exclusive and have high, inter-item scale consistency. The OAI has acceptable and empirically-demonstrated reliability. In addition, inter-item reliability studies have shown that each OAI scale is an independent measure of the trait (factor) it was designed to measure.

### **17. Validation of OAI Scales Using the DRI as the Criterion Measure**

A study was conducted in 1988 that was designed to examine relationships (correlations) between the Offender Assessment Index (OAI) scales and the Driver Risk Inventory (DRI) scales, on an inmate population of incarcerated DWI offenders. The DRI has been demonstrated to be a valid, reliable, and accurate assessment instrument for evaluation of DWI offenders.

The OAI is designed for adult probation assessment. It contains six measures or scales: Truthfulness, Violence, Alcohol, Drug, Resistance, and Stress Coping Abilities. Four of these OAI scales are analogous (although independent) and directly comparable to Driver Risk Inventory (DRI) measures or scales. The DRI is designed for DWI (Driving While Intoxicated) and DUI (Driving Under the Influence) offender evaluation. The DRI contains five measures or scales: Truthfulness, Alcohol, Drug, Driver Risk, and Stress Coping Abilities.

Although the scales designated Truthfulness, Alcohol, and Drug are independent and differ in the OAI and DRI, they were designed to measure similar behaviors or traits. Thus, although essentially composed of different test questions in the OAI and DRI test booklets, these comparable measures or scales do have similarity. The Stress Coping Abilities Scale is the same in both OAI and DRI, and each contains 40 test items.

## Method



The OAI and DRI were administered in group settings to 154 DWI offender inmates, in counter balanced order, at Arizona State Department of Corrections (ADOC) facilities. All of the subjects in this study were male inmates. The demographic composition was as follows. There were 98 Caucasians, 25 Hispanics, 13 American Indians, 12 Blacks, and six other ethnicities. Five age categories were represented: 16-25 years (N = 26); 26-35 years (N = 74); 36-55 years (N = 38); 46-55 years (N = 11); and 56 or older (N = 5). Six educational levels were represented: Eighth grade or less (N = 7); Partially-completed high school (N = 50); High School graduates (N = 70); Partially-completed college (N = 16); College graduates (N = 9); and Professional/graduate school (N = 2). Each inmate completed both the OAI and the DRI. Although all inmates volunteered to participate in this study, inmate motivation varied.

**Results and Discussion**

The results of this study are presented in Table 7. The results demonstrate highly significant relationships between the analogues OAI and DRI scales. The DRI has been shown to be a valid measure of substance abuse in DUI/DWI offenders; hence, these correlation results support the validity of the OAI, as a valid measure of substance abuse.

It was noted that inmate motivation varied widely. This is evident in the Stress Coping Abilities correlation coefficient of .7642. Even though this is a highly, significant correlation (p<.001), the Agreement Coefficient could be expected to be even higher, because these were identical scales consisting of the same 40 items. It is reasonable to conclude that low motivation, on the part of many inmate volunteers, contributed to lower Agreement Coefficients. Inmate volunteers were serving DWI-related sentences, and these tests had no bearing on their incarcerated status or sentences. However, in spite of widely, varied inmate motivation, Agreement Coefficients, for all five sets of scale comparisons, were highly significant.

**Table 7. Product-moment correlations 1988 study of DWI inmates (N = 154).  
All product-moment correlations are significant at p<.001.**

<b><u>DRI versus OAI Scales</u></b>	<b><u>Agreement Coefficients</u></b>
Truthfulness Scale	.6405
Alcohol Scale	.3483
Drug Scale	.3383
Stress Coping Abilities	.7642

These results are important for another reason. This study extends the OAI normative (standardization sample) population to include inmates and incarcerated individuals, who are serving their sentences in maximum security facilities. The validity of the OAI has been demonstrated on a sample of incarcerated, substance abuse offenders.

**18. A Study of Sex Differences in the OAI**

People often develop firm masculine and feminine identifications that contribute to consistent "sex differences" or gender differences, on psychometric tests. The Offender Assessment Index (OAI) is a risk assessment instrument that measures risk, from a variety of perspectives, notably, risk of alcohol and drug abuse, resistance to authority, and mental health. If sex differences exist in these areas, then male and female respondents are likely to score differently on these OAI scales. The purpose of the present study (1990) was to investigate sex differences in OAI scales.

**Method**

There were three subject samples, with a total N of 1,586 included in the present study (1990). Group 1 consisted of 446 adult probationers. Group 2 consisted of 294 probationers, and Group 3 consisted of 846 adult

probationers. The Offender Assessment Index was administered to each probationer, individually, as part of routine, adult offender evaluation programs, at each location.

Group 1 consisted of 446 probationers. There were 347 males (77.8%) and 99 females (22.2%). Age categories were as follows: 221 (16 to 25 years); 143 (26 to 35 years); 46 (36 to 45 years); 31 (46 to 55 years); and 5 (over 55 years of age). There were 370 Caucasians; 18 Blacks; 14 Hispanics; 1 Asian; 39 American Indians; and 4 other. Educational levels were: Below 8th grade (24); Some High School (71); GED (64); High School Graduates (155); Some College (92); Business/Technical School (9); and College Graduates (31).

Group 2 consisted of 294 probationers, 203 (69%) males and 91 (31%) females. Age was represented as follows: 16-25 years (71 males, 16 females); 26-35 years (93 males, 42 females); 36-45 years (32 males, 17 females); and 46-55 years (7 males, 16 females). Ethnicity was represented as follows: Caucasian (55 males, 32 females); Black (130 males, 58 females); Hispanic (9 males); American Indian (7 males); and other (2 males, 1 female). Education was represented as follows: 8th grade or less (13 males, 1 female); Some High School (43 males, 19 females); GED (16 males, 7 females); High School Graduates (83 males, 24 females); Some College (26 males, 21 females); Business/Technical School (1 male, 1 female); College Graduates (13 males, 15 females); and Graduate/Professional Degrees (8 males, 3 females).

Group 3 consisted of 846 probationers, 715 were male and 131 female. Age distributions were as follows: Under 16 (11 males, 2 females); 16-25 years (394 males, 60 females); 26-35 years (301 males, 67 females); and over 55 (9 males, 2 females). Ethnicity was represented as follows: Caucasian (436 males, 106 females); Black (96 males, 16 females); Hispanic (168 males, 9 females); and American Indian (15 males). Education was distributed as follows: 8th grade or less (56 males, 5 females); Some High School (241 males, 34 females); GED (72 males, 9 females); High School Graduate (230 males, 30 females); Some College (91 males, 49 females); Business/Technical School (6 males, 1 female); College Graduates (14 males, 3 females); and Graduate/Professional Degree (5 males).

### Results and Discussion

Reliability coefficient alpha results are presented in Table 8.

**Table 8. Reliability statistics, coefficient alpha. (1990, N = 1,586)  
All coefficient alphas are significant as p<.001.**

<u>OAI SCALES</u>	<u>Group 1 446 Probationers</u>	<u>Group 2 294 Probationers</u>	<u>Group 3 846 Probationers</u>
Truthfulness Scale	.81	.83	.84
Alcohol Scale	.87	.86	.87
Drug Scale	.89	.87	.86
Resistance Scale	.80	.80	.82
Stress Coping Abilities Scale	.91	.93	.94

Coefficient Alpha is considered the most important index of internal consistency or reliability. This study demonstrates the reliability (internal consistency) of the OAI scales, with probationers from three different locations. Reliability refers to consistency of test results, regardless of who uses the test. OAI test results are reliable, objective, verifiable, and reproducible. These results support the internal consistency (reliability) of the Offender Assessment Index.

T-tests were calculated for all OAI scales to assess possible sex or gender differences. T-test results are presented in Table 9.

**Table 9. T-test comparisons of sex differences. (1990)**  
**Probation Sex Differences (Total N = 1,586)**

<b>OAI SCALE</b>	<b>Group 1 446 Probationers</b>	<b>Group 2 294 Probationers</b>	<b>Group 3 846 Probationers</b>
Truthfulness Scale	n.s.	n.s.	n.s.
Alcohol Scale	t=6.41, p<.001	t=2.29, p<.023	t=5.95, p<.001
Drug Scale	n.s.	n.s.	n.s.
Resistance Scale	n.s.	n.s.	n.s.
Stress Coping Abilities	n.s.	n.s.	t=2.92, p<.004

Significant sex differences were demonstrated on one of the five scales, i.e., Alcohol Scale, in Group 1; significant sex differences were found on the Alcohol Scale in Group 2; and, significant sex differences were found on the Alcohol and Stress Coping Abilities scales in Group 3.

Based on this (1990) study, gender-specific norms (or separate male and female scoring procedures) have been established in the OAI software program, for men and women on the Alcohol and Stress Coping Abilities scales. Significant sex differences were not observed on the other OAI scales. This is an example of the value of ongoing, Offender Assessment Index research. With more accurate and fair measures, assessment personnel can be more confident in their assessment-related decisions.

In the present Group 1 sample, females had a mean, Alcohol scale score of 5.35 and males, 11.30. Similar sex differences were demonstrated on the Driver Risk Inventory Alcohol Scale. Higher male scores on these OAI scales are, likely, reflecting straightforward admissions. Males appear to be more open than females, regarding their drinking behavior.

No significant gender differences were observed on the Truthfulness Scale. The Truthfulness Scale is composed of items, to which most people would agree. The present analyses (1990) suggest that clients were so open (candid or honest) in their answers to these test items that sex differences were minimal or non-significant. In other words, items on the Truthfulness Scale do not appear to be intimidating or threatening.

No significant sex differences were observed on the OAI Drug Scale and Resistance Scale. These results suggest an equal level of guardedness among men and women, when answering questions about illegal substances, or compliance in a probation- or court-related setting. This uniform guardedness (defensiveness) appears to neutralize and, perhaps, cancel out any sex differences on these two scales.

**19. OAI Reliability Study in Different Samples**

The present (1991) study was conducted to evaluate the statistical properties of the Offender Assessment Index, in three different samples. As the OAI becomes more widely used, it will continue to be our policy to continue to investigate statistical (reliability) properties, on the various population databases.

Method

There were three groups of adult probationers, total N = 1,665, included in this study (1991). Group 1 consisted of 1,299 clients. Group 2 consisted of 177 clients. Group 3 consisted of 253 clients. Group 1 consisted of 1,149 (88.5%) men and 150 (11.5%) women. Age group by gender is summarized as follows: Under 16 (2 males, 5 females, total 7); 16 to 25 (649 males, 64 females, total 713); 26 to 35 (277 males, 48 females, total 325); 36 to 45 (180 males, 23 females, total 203); 46 to 55 (26 males, 7 females, total 33); over 55 (15 males, 3 females, total 18). Ethnicity is summarized as follows: Caucasian (897 males, 126 females, total 1023); Black (234 males, 23 females, total 257); Hispanic (6 males, 0 females); American Indian (5 males); and Asian (7 males,

1 female, total 8). Education level is as follows: Less than 8th grade (103 males, 13 females, total 116); Some High School (478 males, 47 females, total 525); GED (132 males, 17 females, total 149); High School Graduates (283 males, 43 females, total 326); Business/Technical School (125 males, 26 females, total 151); Some College (8 males, 2 females, total 10); College Graduate (14 males, 1 female, total 15); and Professional/Graduate Degree (6 males, 1 female, total 7).

Demographics of Group 2 are as follows. Age: Under 16 years (1, .6%); 16 to 25 (30, 16.9%); 26 to 35 (93, 52.5%); 36 to 45 (35, 19.8%); 46 to 55 (14, 7.9%); and over 55 (4, 2.3%). Ethnicity: Caucasian (152, 85.9%); Black (11, 6.2%); Hispanic (3, 1.7%); American Indian (2, 1.1%); and Other (9, 5.1%). Education: 8th grade or less (15, 8.5%); Some High School (36, 20.3%); GED (36, 20.3%); High School Graduate (63, 35.6%); Some College (23, 13.0%); Business/Technical School (1, .6%); College Graduate (2, 1.1%); and Graduate/Professional Degree (1, .6%).

Group 3 consisted of 189 (75%) men and 64 (25%) women. Age was distributed as follows: Under 16 years (1, .4%); 16 to 25 (100, 39.5%); 26 to 35 (105, 51.5%); 36 to 45 (37, 14.6%); 46 to 55 (9, 3.6%); and over 55 (1, .4%). Ethnicity categories were the following: Caucasian (167, 66%); Black (52, 20.6%); Hispanic (13, 5.1%); American Indian (19, 7.5%); and Other (2, .8%). Education level was as follows: 8th grade or less (10, 4.0%); Some High School (95, 37.5%); GED (21, 8.3%); High School Graduate (75, 29.6%); Some College (45, 17.8%); Business/Technical School (3, 1.2%); College Graduate (3, 1.2%); and Graduate/Professional degree (1, 0.4%).

### Results and Discussion

Reliability coefficient alphas are presented in Table 10. The three groups are presented together, for comparison purposes: Group 1: 1,299 adult probationers, Group 2: 177 adult probationers, and Group 3: 189 adult probationers; Total number of participants = 1,665.

**Table 10. Reliability coefficient alphas. (1991, N = 1,665)**  
**All coefficient alphas are significant at p<.001.**

<b>OAI Scales</b>	<b>Group 1 N = 1,299</b>	<b>Group 2 N = 177</b>	<b>Group 3 N = 253</b>
Truthfulness Scale	.81	.85	.86
Alcohol Scale	.93	.84	.91
Drug Scale	.90	.91	.89
Resistance Scale	.88	.92	.90
Stress Coping Abilities	.91	.92	.92

The results of this study demonstrate the reliability (internal consistency) of the OAI. Reliability coefficient alphas for all OAI scales are very high. These results strongly support the reliability of the Offender Assessment Index.

T-tests were calculated for all OAI scales to assess possible sex differences in Group 1, adult probationers. Significant gender differences were demonstrated on two (2) of the OAI scales, i.e., Alcohol Scale and Drug Scale. These results are presented in Table 11.

**Table 11. Sex differences in Group 1, adult probationer sample (N = 1,299).**

<b>OAI SCALE</b>	<b>Mean Scale Score</b>		<b>SIGNIFICANCE LEVEL</b>
	<b>Males</b>	<b>Females</b>	
Alcohol Scale	9.30	13.94	P<.05
Drug Scale	8.78	12.34	P<.05

Significant gender differences were not observed on the other OAI scales; consequently, separate male and female scoring procedures were established for only the Alcohol and Drug scales.

Higher male scores, on these two OAI scales, likely reflect more straightforward admissions by men. Men appear to be more open than women, regarding their substance (alcohol and other drugs) abuse behavior.

## 20. Validation of the OAI in a Sample of Adult Probationers

The present study (1992) was conducted to validate the Offender Assessment Index (OAI) with adult probation clients, with criterion measures from selected Minnesota Multiphasic Personality Inventory (MMPI) scales. This study was done to provide validation of the OAI, and to compare these findings to those obtained in previous research for different client samples. The subjects used in the present study were individuals who had been arrested, convicted, and had entered the probation system.

### Method

There were 171 adult probationers included in the present study. There were 129 males and 42 females. Age was distributed (frequency given in parentheses) as follows, Under 17 years (2); 18-21 years (20); 22-25 years (25); 26-29 years (27); 30-33 years (24); 34-37 years (22); 38-41 years (17); 42-45 years (13); 46-49 years (5); 50-53 years (8); over 54 years (8). Education was represented as follows: 8th grade or less (20); Partially-completed High School (43); GED (16); High School Graduate (53); Some College (36); and College Graduate (3).

The OAI and MMPI were administered in counterbalanced order. Product-moment correlations were calculated between OAI scales and selected MMPI scales. The MMPI scales used for criterion measures were as follows. The Truthfulness Scale was validated with the MMPI L Scale, F Scale, and K Scale. The Alcohol Scale was validated with the MMPI MacAndrew Scale and PD Scale. The Drug Scale was validated with the MMPI MacAndrew Scale and PD Scale. The Resistance Scale was validated with the MMPI SOC Scale, SCIA Scale, AUT Scale, and TSC-III Scale. The Stress Coping Abilities Scale was validated with the MMPI PT Scale, MAS Scale, and TSC-VII Scale.

Key to MMPI Scales: **L** (Lie Scale), **F** (Validity), **K** (Validity Correction), **PD** (Psychopathic Deviate), **PT** (Psychasthenia), **MAS** (Taylor Manifest Anxiety) **MAC** (MacAndrew), **SOC** (Social Maladjustment), **AUT** (Authority Conflict), **HOS** (Manifest Hostility), **TSC-III** (Suspiciousness), **TSC-V** (Resentment), **TSC-VII** (Tension), **PD2** (Authority Problems), and **SCIA** (Social Alienation).

### Results and Discussion

The results of this study (1992, N = 171) are summarized in Table 12.

**Table 12. Product-moment correlations.  
Adult Probation Clients (1992, N=171)**

<b>MMPI SCALES</b>	<b>Truthfulness</b>	<b>Alcohol</b>	<b>Drug</b>	<b>Resistance</b>	<b>Stress Coping</b>
L	.511**	.022	-.186*	.089	-.065
F	-.293**	.379**	.269*	.276**	.462**
K	.458**	-.201*	-.151	-.077	-.319**
PD	-.241**	.312**	.190*	.065	.491**
PT	-.279**	.202*	.115	.069	.470**
MAS	-.394**	.288**	.151	.031	.536**
MAC	.005	.051	.090	.127	.076

SOC	-.335**	.273**	.174	.033	.329**
AUT	-.321**	.238**	.173	.262**	.217*
HOS	-.465**	.197*	.159	.176	.266**
TSC-III	-.373**	.195*	.061	.209*	.247**
TSC-V	-.457**	.322**	.195*	.140	.402**
TSC-VII	-.431**	.222*	.168	.052	.446**
PD2	-.161	.165	.161	.031	.105
SC1 A	-.377**	.283**	.171	.249**	.447**

NOTE: level of significance \* p<.01, \*\* p<.001

The **Truthfulness Scale** was highly, significantly correlated with the MMPI L Scale, F Scale, and K Scale. The scales in the MMPI that relate to truthfulness are significantly correlated with the OAI Truthfulness Scale. This supports the validity of the OAI Truthfulness Scale.

The **Alcohol Scale** correlates significantly with the MMPI PD Scale. The correlation with the MAC Scale was not significant. Similarly, The **Drug Scale** correlates significantly with the MMPI PD Scale, but not with the MAC Scale. These results support the validity of the OAI Alcohol Scale and Drug Scale.

The **Resistance Scale** correlates highly, significantly, with the MMPI AUT Scale, SCIA Scale, and TSC-III Scale. These results support the validity of the OAI Resistance Scale.

The **Stress Coping Abilities Scale** correlates highly, significantly, with the MMPI PT Scale, MAS Scale, and TSC-VII Scale. These results support the validity of the OAI Stress Coping Abilities Scale.

**The present study supports the validity of the OAI in a sample of adult probationers.** OAI scales correlate significantly, in predicted directions, with criterion MMPI scales. The MMPI was selected for this criterion-related validity study, because it is the most, widely used and respected personality test in the United States. A shortcoming of the MMPI MAC Scale (MacAndrew) is that it is a discriminant scale that discriminates between known substance abusers and non-abusers. However, none of the MacAndrew items relate to alcohol or drugs, per se. The OAI Alcohol and Drug scales are correlated with the PD Scale, which has been shown do be valid for substance abusers and adult probationers.

With the exception of the MacAndrew Scale, these correlation results are in close agreement with previous studies that validated the OAI, with criterion measures selected from the MMPI. The results of the present study support the validity of the OAI.

## 21. A Study of OAI Reliability in a Sample of Probationers

The present study (1992) was conducted to investigate reliability and possible sex differences in adult probationers.

### Method and Results

There were 306 adult probationers included in the present study. There were 241 men (78.8%) and 65 women (21.2%). Demographics are presented in the following table.

<u>AGE GROUP</u>			<u>ETHNICITY</u>			<u>EDUCATION</u>		
Under 16 years:	1,	0.3%	Caucasian:	228,	74.5%	8th grade or less:	11,	3.6%
16 to 25 years:	146,	47.7%	Black:	66,	21.6%	Some High School:	71,	23.2%
26 to 35 years:	112,	36.6%	Hispanic:	3,	1.0%	GED:	24,	7.8%

36 to 45 years:	34,	11.1%	Asian:	3,	1.0%	High School Grad.:	114,	37.3%
46 to 55 years:	10,	3.3%	Am. Indian:	5,	1.6%	Some College:	69,	22.5%
Over 55 years:	3,	1.0%	Other:	1,	0.3%	Business/Tech. Degree:	8,	2.6%
						College Graduate:	7,	2.3%
						Grad/Prof. Degree:	2,	0.7%

T-test comparisons indicated there were no sex differences for age group, ethnicity, or education levels. T-test comparisons between males and females on OAI scales indicate that males scored, significantly, higher than females on the Alcohol Scale and Drug Scale. These results are in agreement with sex differences that were found in previous OAI research.

Reliability coefficient alphas are presented in Table 13. All coefficient alphas were significant at  $p < .001$ . These results support the reliability of the OAI, in the assessment of adult probationers.

These results are in close agreement with reliability coefficient alphas found in previous OAI studies. These results, again, demonstrate the internal consistency of the OAI.

**Table 13. Reliability coefficient alpha. Adult probationers (1992, N = 306).**  
All coefficient alphas are significant at  $p < .001$ .

<u>OAI SCALES</u>	<u>Coefficient Alpha</u>
Truthfulness Scale	.89
Alcohol Scale	.93
Drug Scale	.90
Resistance Scale	.85
Stress Coping Abilities	.92

## 22. A Study of Reliability in Five Samples of Adult Probationers

Five adult probation samples were included in the present study (1993) to further investigate reliability and sex differences in different samples and assessment milieu. The groups of probationers represented diversion program clients, department of corrections probationers, outpatient probationers, and probationers.

### Methods and Results

The five groups that participated in the present study were made up of probationers located in different areas of the country. **Group 1** consisted of 110 misdemeanor diversion program clients. Demographics for this diversion group are summarized as follows: Gender (92 males and 18 females). Age: 16 to 25 (27.3%); 26 to 35 (35.5%); 36 to 45 (26.4%); 46 to 55 (7.3%); and Over 55 (3.6%). Ethnicity: Caucasian (62.7%); Black (37.3%). Education: 9th grade or less (2.7%); Some High School (21.8%); GED (6.4%); High School Graduate (22.7%); Some College (23.6%); Technical/Business School (10%); College Graduates (10%); and Graduate/Professional Degree (2.7%).

**Group 2** consisted of 510 Department Of Corrections' probationers (475 male and 35 female). Demographics are summarized for age as follows: Under 16 (4.0%); 16 to 25 (55.1%); 26 to 35 (31.6%); 36 to 45 (9.6%); 46 to 55 (2.5%); and Over 55 (8.0%). Ethnicity: Caucasian (26.7%); Black (71.4%); Hispanic (1%); Asian (0.2%); and Other (0.8%). Education: Less than 9th grade (5.5%); Some High School (44.3%); GED (5.1%); High School Graduate (27.6%); Some College (12.4%); Technical/Business School (0.4%); College Graduate (3.7%); and Graduate/Professional Degree (1.0%).

**Group 3** consisted of 859 outpatients and probationers (724 males and 135 females). Age is summarized as follows: Under 16 (0.3%); 16 to 25 (30.8%); 26 to 35 (39%); 36 to 45 (21.9%); 46 to 55 (6.1%); and Over 55 (1.9%). Ethnicity: Caucasian (82.8%); Black (15.1%); Hispanic (1.0%); Asian (0.5%); American Indian (0.3%); and Other (0.2%). Education: 9th grade or less (4.1%); Some High School (29.3%); GED (4.8%); High School Graduate (41.2%); Some College (16.2%); Technical/Business School (0.3%); College Graduate (3.8%); and Graduate/Professional Degree (0.2%).

**Group 4** consisted of 1,479 outpatient and probation respondents (1291 males and 188 females). Age demographics were: Under 16 (0.3%); 16 to 25 (38.9%); 26 to 35 (36.2%); 36 to 45 (18.0%); 46 to 55 (4.9%); and Over 55 (1.6%). Ethnicity: Caucasian (61.9%); Black (36.2%); Hispanic (0.9%); Asian (0.3%); American Indian (0.2%); and Other (0.4%). Education: 9th grade or less (4.5%); Some High School (33.9%); GED (5.0%); High School Graduate (35.2%); Some College (15.4%); Technical/Business School (1.1%); College Graduates (4.3%); and Graduate/Professional Degree (0.7%).

**Group 5** consisted of 1,042 adult probationers. There were 835 (80.1%) males and 207 (19.9%) females. This sample is described as follows: Age: 18 years or younger (10.8%); 19 to 29 (43.8%); 30 to 39 (31.0%); 40 to 49 (10.5%); 50 to 59 (3.3%); and 60 & over (0.7%). Ethnicity: Caucasian (73.6%); Black (23.2%); Asian (0.3%); American Indian (1.2%); Hispanic (1.5%); and Other (0.1%). Education: 8th grade or less (7.9%); Partially- Completed High School (36.5%); High School Graduate (34.2%); Partially-Completed College (7.9%); College Graduate (0.8%); and Professional/ Graduate School (12.8%). Marital Status: Single (57.5%); Married (18.9%); Divorced (16.7%); Separated (6.0%); and Widowed (0.5%). Employment Status: Employed (50.6%); Unemployed (49.2%).

Reliability coefficient alphas for the 4,000 clients represented in these five groups are presented in Table 14. All coefficient alphas are significant at  $p < .001$ . These results strongly support the reliability of the Offender Assessment Index.

T-test comparisons of male/female differences in OAI scale scores (N = 4,000) showed varied results. For Group 1 diversion clients, there were no, sex differences observed, on any of the OAI scales. Group 2 DOC probationers exhibited significant, sex differences on three of the OAI scales, i.e., Truthfulness Scale, Alcohol Scale, and the Stress Coping Abilities Scale. For Groups 3 and 4 outpatient probationers, and Group 5 probationers, significant sex differences were found on the Alcohol Scale. Consistent, male/female differences are found on the Alcohol Scale, across different subject groups and locations, around the country. These results suggest that men are, on the average, more open, with regard to self-report and their alcohol consumption, than most women. Higher male scores, likely, reflect more straightforward admissions by men.

**Table 14. Reliability coefficient alphas for five probationer samples (1993, N = 4,000).**

**All coefficient alphas are significant at  $p < .001$ .**

<b><u>OAI SCALES</u></b>	<b>1 Diversion Clients N = 110</b>	<b>2 DOC Probationers N = 510</b>	<b>3 Outpatient Probationers N = 859</b>	<b>4 Outpatient Probationers N = 1479</b>	<b>5 Probationers N = 1042</b>
Truthfulness Scale	.87	.87	.87	.87	.90
Alcohol Scale	.92	.93	.92	.92	.96
Drug Scale	.90	.93	.89	.92	.92
Resistance Scale	.85	.88	.87	.86	.88
Stress Coping Abilities	.99	.91	.93	.93	.93



### **23. Validation of the OAI Violence Scale with a Polygraph Examination**

In 1994, an additional scale was included in the OAI. The new scale is the **Violence Scale**. The Violence Scale measures physical force to injure, damage, or destroy. The Violence Scale identifies people who are dangerous to themselves and others. The Offender Assessment Index contains six scales: Truthfulness Scale, Alcohol Scale, Drug Scale, Resistance Scale, Violence Scale, and Stress Coping Abilities Scale. This study (1994) was conducted to evaluate the validity of the Violence Scale.

#### Method and Results

One hundred and seven (107) halfway house, male resident volunteers participated in the study. The Violence Scale and a Polygraph “violence” examination were alternately administered. The Product-moment correlation coefficient of  $r = .25$  was significant at  $p < .01$ . This means that the OAI Violence Scale and polygraph examination on violence were in agreement, most of the time. The significant correlation was in the predicted direction. This study supports the validity of the Violence Scale.

### **24. Validation of the OAI Violence Scale**

The present study (1994) utilized selected MMPI scales, as criterion measures, to validate the Violence Scale. Ninety-seven (97) male chemical dependency outpatients were, alternately, administered the MMPI and the OAI Violence Scale. The results demonstrated that the Violence Scale correlated, significantly, in the predicted direction, with the following MMPI scales: Hypomania (MA,  $r = 0.49$ ) and Manifest Hostility (HOS,  $r = 0.44$ ). All correlations were significant at  $p < .01$ . These results support the validity of the Violence Scale.

### **25. Reliability of the OAI**

In 1994, the Offender Assessment Index was developed to include an important area of assessment. **The new scale that was added to the OAI is the Violence Scale.** The Violence Scale measures physical force to injure, damage, or destroy. The Violence Scale identifies people who are dangerous to themselves and others. The purpose of the present study (1994) was to test the reliability of the OAI. Three subject samples are included in the study, and they total 4,067 probationers.

#### Method

There were three groups of probationers included in the present study. There were 2,734 probationers in Group 1, 344 probationers in Group 2, and 989 probationers in Group 3. Demographic composition of **Group 1** probationers is as follows: There were 2,182 (79.8%) males and 552 (20.2%) females. Age: 19 years and younger (11.9%); 20 to 29 years (46.0%); 30 to 39 years (29.8%); 40 to 49 years (9.4%); 50 to 59 years (2.2%); 60 to 69 years (0.3%); 70 + years (0.3%). Ethnicity: Caucasian (50.4%); Black (17.4%); Hispanic (31.0%); Asian (0.3%); American Indian (0.5%); Other (0.4%). Marital Status: Single (53.2%); Married (25.5%); Divorced (12.6%); Separated (7.5%); Widowed (0.7%); and Missing (0.5%).

**Group 2** demographic composition is as follows: There were 273 male (79.4%) and 71 female (20.6%) probationers. Age: 19 and younger (9.3%); 20 to 29 years (46.5%); 30 to 39 years (29.1%); 40 to 49 years (9.3%); 50 to 59 years (4.1%); and 60 to 69 years (1.5%). Ethnicity: Caucasian (55.5%); Black (15.1%); Hispanic (24.1%); American Indian (3.8%); and Other (1.5%). Education: 8th grade or less (2.0%); Partially-Completed High School (31.1%); High School Graduates (41.0%); and Other (26.9%). Marital Status: Single (59.3%); Married (25.3%); Divorced (7.8%); Separated (6.7%); and Widowed (0.9%).

**Group 3** demographic composition is as follows: Of the 989 probationers, there were 721 (72.9%) males and 267 (27.0%) females. Age: 16 to 20 years (15.3%); 21 to 25 years (22.4%); 26 to 30 years (18.1%); 31 to 35 years (17.3%); 36 to 40 years (11.1%); 41 to 45 years (7.3%); 46 to 50 years (3.7%); 51 to 55 years (2.0%); 56 to 60 years (0.9%); 61 and older (1.8%). Ethnicity: Caucasian (57.5%); Black (10.2%); Hispanic (23.5%); Asian (0.5%); American Indian (5.8%); and Other (2.3%). Marital Status: Single (58.9%); Married (22.9%); Divorced (10.5%); Separated (6.8%); and Widowed (0.7%). Employment Status: Employed (62.3%); Unemployed (37.4%).

The OAI was administered to 4,067 probationers, as part of routine evaluation programs. Subjects were administered the OAI individually, in paper-pencil test format.

### Results

Reliability coefficient alphas for the three groups (total N = 4,067) are presented in Table 15.

These results support the reliability of the Violence Scale of the OAI. Coefficient alphas for the Violence scales are, highly, significant at  $p < .001$ . Coefficient alphas for all scales are highly significant. These results support the reliability of the OAI.

**Table 15. Reliability coefficient alphas for OAI (1994, N = 4,067).**  
All coefficient alphas are significant at  $p < .001$ .

<u>OAI SCALE</u>	<u>Group 1 N = 2,734</u>	<u>Group 2 N = 344</u>	<u>Group 3 N = 989</u>
Truthfulness Scale	.88	.87	.88
Alcohol Scale	.94	.91	.91
Drug Scale	.92	.89	.89
Violence Scale	.84	.85	.87
Resistance Scale	.85	.86	.85
Stress Coping Abilities	.91	.92	.92

### **26. Reliability of OAI and Review of Client Responses Across Samples of Probationers**

This study (1995) was done to further test the reliability of the OAI, and to review responses to selected, OAI test items, across probationer samples. Two probationer samples were included in the study. The samples were from similar, probationer evaluation programs, but came from different parts of the country. Items selected for review include self-perception of the severity of alcohol and drug problems, desire for treatment, and violence problems. Summarizing the percentage of responses to selected OAI items gives added insight into the probationer's situation and needs.

The present study (1995) was done to compare probationer responses to selected OAI test items. These comparisons could serve to determine the general nature of substance abuse problems that are reported by probationers. If self-perceptions of probationers show similarities, this would suggest that the OAI has wide applicability, across different samples of probationers.

### Method and Results

There were two probationer samples used in the present study (1995). The total number of probationers administered the OAI was 3,791. The participants in **Group 1** were 1,969 probationers in the Midwest. This

sample consisted of 1,539 males (78.2%) and 430 females (21.8%) All were administered the OAI. Demographic composition is as follows: Age: 19 and younger (24.9%); 20 to 29 years (42.3%); 30 to 39 years (23.5%); 40 to 49 years (7.0%); 50 to 59 years (1.6%); 60 to 69 years (0.7%); and over 70 (0.1%). Ethnicity: Caucasian (78.2%); Black (14.8%); Hispanic (4.2%); Asian (0.3%); American Indian (1.9%); and Other (0.6%). Employment Status: Employed (70.9%); Unemployed (29.1%). Marital Status: Single (65.1%); Married (17.2%); Divorced (12.6%); Separated (4.5%); and Widowed (0.7%).

**Group 2** consisted of 1,822 probationers in the Southwest. Demographic composition of this sample is as follows: Gender: males (1,452, 79.7%) and females (370, 20.3%). Age: 19 and younger (15.8%); 20 to 29 (45.9%); 30 to 39 (26.1%); 40 to 49 (8.2%); 50 to 59 (3.0%); 60 to 79 (1.1%). Ethnicity: Caucasian (48.7%), Black (36.9%); Hispanic (12.1%); Asian (0.8%); American Indian (0.4%); and Other (1.0%). Education: 8th grade or less (5.4%); Partially-Completed High School (25.6%); High School Graduate (51.5%); and Advanced Education (17.6%). Employment: Employed (63.7%); Unemployed (36.2%). Marital Status: Single (48.8%); Married (30.0%); Divorced (12.2%); Separated (8.0%); and Widowed (0.9%).

Reliability coefficient alphas are presented in Table 16 and 3,791 probationers are represented.

**Table 16. Reliability coefficient alphas OAI (1995, N = 3,791).**  
All coefficient alphas are significant at  $p < .001$ .

<b>OAI SCALE</b>	<b>Group 1 (N = 1,969)</b>	<b>Group 2 (N = 1,822)</b>
Truthfulness Scale	.89	.88
Alcohol Scale	.93	.91
Drug Scale	.90	.89
Violence Scale	.87	.88
Resistance Scale	.84	.87
Stress Coping Abilities	.93	.93

These results support the reliability and internal consistency of the OAI. All coefficient alphas are significant at  $p < .001$ . These results are consistent with reliability coefficient alphas found in earlier studies. The OAI has proven to be a reliable test instrument, across different probationer samples around the country. These reliability results support the applicability of the OAI for widely, distributed probationer populations.

The OAI facilitates analysis of client responses to items or questions. The percentage of probationers responding to selected items provides additional insight into probationer profiles and patterns of responding. The following items were selected for probationer “percentage of response” analyses. Probation departments could find it interesting to compare probationer’s percentage responses, to selected OAI items, so percentage of probationer responses follow.

It should be noted that all respondents consisted of probationers. And, negative responses to alcohol, drug, or violence questions could be perceived by respondents, as potentially having adverse consequences on probationer status; consequently, these percentages may be underestimates. In many cases, percentage response analysis, even though likely underestimates (client self-report), *do* provide additional insight and understanding of the probationer’s risk and needs.

Comparisons, of probationer self-perceptions of substance abuse (alcohol and drugs) problems, show striking similarities, across these two probationer samples. Regarding alcohol abuse, there were about 7-9 percent of the probationers who indicated they had a severe alcohol problem, and 12 percent in both samples indicated they were recovering alcoholics. It is interesting to note that the percentage of probationers who indicated alcohol problems was in close agreement to the percentage who indicated a desire for alcohol

treatment. Similar patterns emerged for drug abuse problems. However, there were only 5 percent of the probationers who indicated a severe drug problem. Group 2 (Southwest) probationers reported higher percentages of substance abuse treatment than Group 1 (Midwest) probationers (36% for Southwest and 24% for Midwest).

With regard to violence, the Southwest probationers indicated a slightly higher, overall tendency toward violence potential, than the Midwest probationers. In particular, the percentage of Southwest probationers (12%), who reported frequent thoughts of death, dying, or suicide, was higher than the percentage of Midwest probationers (9%).

Whereas, these two probationer samples may appear to be quite similar, differences exist that suggests a “one-size-fits-all” approach would not work. For this reason, the OAI continues to be individualized on a variety of probationer populations. The OAI database makes this type of research possible. Probationer self-perceptions are presented in Table 17.

**Table 17. Probationer (N = 3,791) self-perceptions of substance abuse and violence problems.**

<b>Alcohol Responses</b>	<b>Group 1 (Midwest-1,969)</b>	<b>Group 2 (Southwest-1,822)</b>
7. I am concerned about my drinking . . . . .	16%	17%
21. My drinking is more than just a minor problem . . . . .	13%	14%
54. My drinking is a serious problem . . . . .	10%	14%
60. I have a drinking or alcohol-related problem. . . . .	16%	19%
81. I am a recovering alcoholic. . . . .	12%	17%
121. I am an alcoholic. . . . .	12%	20%
173. Select the statement that best describes your drinking (beer, wine or liquor) problem.		
1. Severe problem . . . . .	7%	9%
2. Moderate problem. . . . .	8%	7%
3. Slight problem. . . . .	12%	11%
175. Recovering means having an alcohol or drug problem, but not using or abusing them anymore. I am a recovering:		
1. Alcoholic ( beer, wine or liquor). . . . .	12%	12%
2. Drug abuser (pot, cocaine, etc.) . . . . .	7%	6%
3. Both 1 and 2 (alcohol and drugs). . . . .	5%	8%
176. How much motivation or desire do you have for alcohol rehabilitation, treatment or help?		
1. Highly motivated (want help) . . . . .	13%	13%
2. Some motivation (undecided) . . . . .	6%	7%
3. Little motivation (handle it myself) . . . . .	9%	11%
<b>Drug Responses</b>		
90. I am dependent on drugs and may be addicted to them . . . . .	5%	7%
91. I am a recovering drug abuser. . . . .	10%	13%
103. I have a drug abuse or drug-related problem . . . . .	10%	12%

114. My use of drugs is out of control .....	7%	6%
174. Select the statement that best describes your drug (marijuana, cocaine, crack, speed, heroin, etc.) problem.		
1. Severe problem .....	5%	5%
2. Moderate problem.....	3%	4%
3. Slight problem.....	6%	8
175. Recovering means having an alcohol or drug problem, but not using or abusing them anymore. I am a recovering:		
1. Alcoholic (beer, wine or liquor).....	12%	12%
2. Drug abuser (pot, cocaine, etc.) .....	7%	6%
3. Both 1 and 2 (alcohol and drugs).....	5%	8%
177. How much motivation or desire do you have for drug rehabilitation, treatment or help?		
1. Highly motivated (want help) .....	9%	9%
2. Some motivation (undecided) .....	3%	4%
3. Little motivation (handle it myself) .....	4%	8%

**Substance Abuse Treatment**

172. How many times have you had treatment (inpatient, outpatient or counseling) for alcohol or drug abuse?		
2. Once .....	13%	19%
3. Twice.....	3%	7%
4. Three times or more .....	8%	10%

<b>Violence Responses</b>	<b>1 Probationers (Midwest)</b>	<b>2 Probationers (Southwest)</b>
31. I am a violent person.....	3%	5%
39. I frequently think of death, dying or suicide.....	9%	12%
44. I am a member of a gang .....	2%	3%
65. When angered, I am dangerous.....	9%	11%
79. I am proud of my reputation for being tough and aggressive ...	11%	11%
107. I have never been a member of a gang .....	18%	16%

**27. OAI Reliability in Large Samples of Probationers**

In 1996, two large, probationer assessment programs were added to the OAI database. A study (1996) was conducted to determine the reliability of the OAI in these two, new probationer samples. **The first group contained 15,203 probationers.** Although completed in 1996, this study used the OAI. Demographic composition of Group 1 is as follows. Of the 15,203 probationers 12,424 (81.7%) were male and 2,772 (18.2%) were female. Age: 18 or younger (10.3%); 19 to 29 (43.0%); 30 to 39 (31.5%); 40 to 49 (11.8%); 50 to 59 (2.5%); and 60 or older (0.7%). Ethnicity: Caucasian (64.5%); Black (32.6%); Hispanic (1.1%); Asian (0.3%);

Native American (0.7%); and Other (0.4%). Education: 8th grade or less (7.1%); Partially- Completed High School (34.9%); High School Graduate (44.7%); Partially-Completed College (9.3%); College Graduate (2.0%); and Professional/Advanced Degree (0.3%). Employment: Employed (54.4%) and Unemployed (45.1%).

**Group 2 consisted of 9,247 probationers.** Of these 9,247 probationers, 7,582 (82%) were male and 1,665 (18%) were female. Demographic composition of Group 2 is as follows. Age: 18 or younger (9.7%); 19 to 29 (43.0%); 30 to 39 (32.2%); 40 to 49 (11.8%); 50 to 59 (2.7%); and 60 or older (0.7%). Ethnicity: Caucasian (64.9%); Black (32.3%); Hispanic (1.2%); Asian (0.2%); Native American (0.7%); and Other (0.3%). Education: 8th grade or less (7.3%); Partially-Completed High School (34.6%); High School Graduate (44.6%); Partially-Completed College (9.1%); College Graduate (2.0%); and Professional/ Advanced Degree (0.4%). Employment: Employed (52.8%) and Unemployed (46.8%).

Reliability coefficient alphas are represented in Table 18, and represent 24,450 probationers.

These results support the internal consistency (reliability) of the OAI for these two, large probationer samples. These results are similar to those reported earlier, on other client populations. Similar results will be obtained upon replication or retest. Outcomes are objective, verifiable, and reproducible. OAI test results are reliable.

**Table 18. Reliability coefficient alphas (1996, N = 24,450).**  
All coefficient alphas are significant at p<.001.

<u>OAI SCALE</u>	<u>Group 1 N = 15,203</u>	<u>Group 2 N = 9,247</u>
Truthfulness Scale	.89	.89
Alcohol Scale	.95	.96
Drug Scale	.92	.93
Resistance Scale	.86	.87
Stress Coping Abilities	.93	.93

## 28. OAI Reliability in Two Samples of Probationers

A study (1997) was conducted to determine the reliability of the OAI in two probationer samples, from different geographical regions. **The first group consisted of 1,930 probationers.** Demographic composition of Group 1 is as follows. Of the 1,930 probationers 1,401 (72.6%) were male and 529 (27.4%) were female. Age: 19 or younger (20.5%); 20 to 29 (46.3%); 30 to 39 (22.1%); 40 to 49 (8.3%); 50 to 59 (1.9%); and 60 or older (0.9%). Ethnicity: Caucasian (72.5%); Black (17.7%); Hispanic (6.3%); Asian (0.9%); Native American (1.6%); and Other (1.0%). Education: 8th grade or less (3.9%); Partially-Completed High School (26.3%); High School Graduate (51.3%); Partially-Completed College (14.5%); and College Graduate (3.2%). Marital Status: Single (66.8%); Married (14.8%); Divorced (13.2%); Separated (4.8%); and Widowed (0.4%).

**Group 2 consisted of 2,284 probationers.** Of these 2,284 probationers, 1,842 (80.6%) were male and 442 (19.4%) were female. Demographic composition of Group 2 is as follows. Age: 19 or younger (16.1%); 20 to 29 (39.5%); 30 to 39 (29.5%); 40 to 49 (11.9%); 50 to 59 (2.2%); and 60 or older (0.8%). Ethnicity: Caucasian (56.7%); Black (25%); Hispanic (14.5%); Asian (0.4%); Native American (1.5%); and Other (1.8%). Education: 8th grade or less (9.8%); Partially-Completed High School (32.9%); High School Graduate (41.8%); Partially-Completed College (10.1%); and College Graduate (3.3%). Marital Status: Single (58.5%); Married (21.9%); Divorced (12.5%); Separated (6.2%); and Widowed (0.8%).

Reliability coefficient alphas are represented in Table 19 and represent 4,214 probationers.

These results support the reliability of the OAI for these, two probationer samples. These results are similar to those reported earlier, on other client populations. All coefficient alphas are significant at  $p < .001$ . These results support the reliability of the OAI.

**Table 19. Reliability coefficient alphas (1997, N = 4,214).**  
All coefficient alphas are significant at  $p < .001$ .

<b>OAI SCALE</b>	<b>Group 1 N = 1,930</b>	<b>Group 2 N = 2,284</b>
Truthfulness Scale	.88	.88
Alcohol Scale	.93	.93
Drug Scale	.91	.92
Violence Scale	.80	.81
Resistance Scale	.83	.83
Stress Coping Abilities	.93	.93

### **29. Validity, Reliability, and Scale Risk Range Accuracy Study of the OAI**

This study (1997) was conducted to test the validity, reliability, and accuracy of the OAI assessment instrument. The test is concise, direct, and easy to complete. Reading levels of the test items were analyzed to improve readability and comprehension for probationers.

Two statistics procedures were used in the present study to test the validity of the OAI. The first procedure involved t-test comparisons between first offenders and multiple offenders (discriminant validity), and the second procedure involved statistical decision-making (predictive validity). For the t-test comparisons, a first offender was defined as an offender who did not have a prior arrest, and a multiple offender was defined as an offender who had one or more prior arrests. Several, discriminant validity tests were conducted. Number of alcohol arrests was used to define first offenders and multiple offenders to test discriminant validity of the Alcohol Scale. Similarly, number of drug arrests was used for the Drug Scale. The answer sheet item, “total number of times arrested” was used to categorize offenders as either first offenders or multiple offenders, for other scale analyses. Because risk is often defined in terms of severity of problem behavior, it is expected that multiple offenders would score, significantly, higher on the different scales than first offenders. This was an empirical question that was tested in the present study.

In assessment, a measurement can be considered a prediction. For example, the Alcohol Scale is a measure of alcohol abuse or severity of abuse. Alcohol Scale scores would predict if an individual has an alcohol problem. A benchmark that can be used for the existence of an alcohol problem is treatment. If an individual has been in alcohol treatment, then, the individual is known to have had an alcohol problem. Therefore, the Alcohol Scale should predict if an individual has been in treatment.

Statistical decision-making is closely related to predictive validity of a test. The quality of statistical decision-making and test validity are both assessed by the accuracy with which the test (Alcohol Scale) classifies “known” cases (treatment). In the present study, predictive validity was evaluated in the OAI by using contingency tables defined by scale scores and either treatment, or number of arrests. Treatment was used with the Alcohol Scale and Drug Scale, and number of arrests was used with the Violence Scale.

Risk range percentile scores are calculated for each OAI scale. These risk range percentile scores are derived from scoring equations based on responses to scale items, Truth-Corrections, and prior criminal history information, and, then converted to percentile scores. There are four risk range categories: **Low Risk** (zero to 39th percentile), **Medium Risk** (40 to 69th percentile), **Problem Risk** (70 to 89th percentile), and **Severe Problem or Maximum Risk** (90 to 100th percentile). Risk range percentile scores represent degree of severity.

Analysis of the accuracy of OAI risk range percentile scores involves comparing the risk range percentile scores, obtained from OAI test results, to the predicted risk range percentages, as defined above. The percentages of clients expected to fall into each risk range is the following: Low Risk (**39%**), Medium Risk (**30%**), Problem Risk (**20%**), and Severe Problem or Maximum Risk (**11%**). The actual percentage of clients falling into each of the four risk ranges, based on their risk range percentile scores, was compared to these predicted percentages.

### Method and Results

There were two samples of adult probationers included in this study. **The subjects in Group 1 consisted of 850 adult probationers.** There were 663 males (78%) and 187 females (22%). Demographic composition of these probationers is as follows: Age: 19 & under (21%); 20-29 (43%); 30-39 (23%); 40-49 (9%); 50-59 (2%); and 60 & over (1%). Ethnicity: Caucasian (74%); Black (11%); Hispanic (10%); Asian (1%); Native American (3%); and Other (1%). Education: Eighth grade or less (7%); Some H.S. (30%); H.S. graduate (47%); Some College (11%); and College graduate (4%). Marital Status: Single (61%); Married (19%); Divorced (13%); Separated (5%); and Widowed (1%).

**Group 2 consisted of 2,331 adult probationers.** There were 1,847 males (79%) and 484 females (21%). Demographic composition of these probationers is as follows: Age: 19 & under (15%); 20-29 (40%); 30-39 (28%); 40-49 (13%); 50-59 (3%); and 60 & over (1%). Ethnicity: Caucasian (58%); Black (25%); Hispanic (15%); Asian (1%); Native American (1%); and Other (1%). Education: Eighth grade or less (9%); Some H.S. (31%); H.S. graduate (44%); Some College (9%); and College graduate (3%). Marital Status: Single (55%); Married (25%); Divorced (12%); Separated (5%); and Widowed (1%).

Reliability coefficient alphas for the two groups (total N = 3,181) are presented in Table 20.

The results of the study support the reliability of the OAI. All coefficient alphas are significant at  $p < .001$ . All scale reliability coefficients maintained high levels. These results show that the OAI is a reliable, risk assessment instrument.

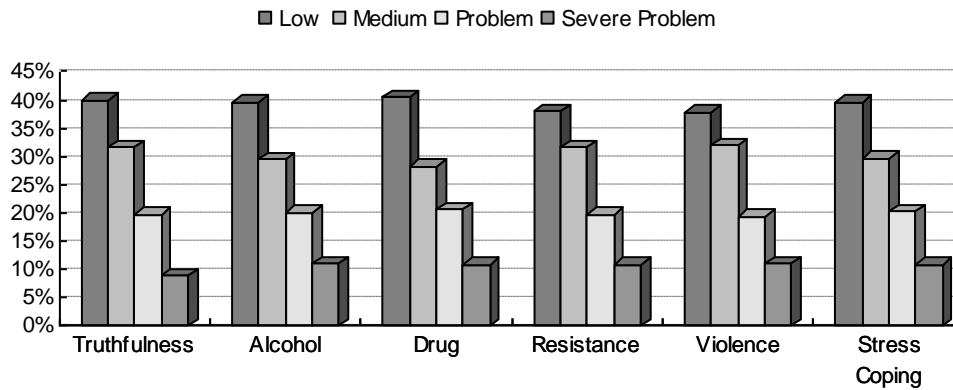
**Table 20. Reliability coefficient alphas (1997, N = 3,181).**  
**All coefficient alphas are significant at  $p < .001$ .**

<b>OAI SCALES</b>	<b>Group 1 N = 850</b>	<b>Group 2 N = 2,331</b>
Truthfulness Scale	.87	.88
Alcohol Scale	.95	.95
Drug Scale	.93	.92
Resistance Scale	.81	.80
Violence Scale	.87	.85
Stress Coping Abilities	.93	.92



The risk range percentile scores for the two samples in the study, using the OAI, are presented in Table 21. Group 1 results are presented in the graph.

**Table 21. Risk Range Percentile Scores for Group 1, N = 850.**



Risk Range	Truthfulness	Alcohol	Drug	Resistance	Violence	Stress Coping	Predicted
Low	39.9	39.6	40.5	37.9	37.8	39.5	39%
Medium	31.6	29.5	28.2	31.6	32.0	29.6	30%
Problem	19.6	20.0	20.5	19.7	19.3	20.1	20%
Maximum	8.9	10.9	10.8	10.8	10.9	10.8	11%

**Risk Range Percentile Scores for Group 2, N = 2,331.**

Risk Range	Truthfulness	Alcohol	Drug	Resistance	Violence	Stress Coping	Predicted
Low	36.3	37.1	40.7	38.7	37.4	39.0	39%
Medium	30.8	32.1	27.7	30.8	31.8	30.3	30%
Problem	19.6	20.0	21.0	20.0	20.2	20.1	20%
Maximum	13.3	10.8	10.6	10.5	10.6	10.6	11%

These results show that obtained, risk range percentile scores closely approximated the predicted, risk range percentile scores for each of the six OAI scales, presented in Table 22, for both probationer samples included in the study. **These results indicate that the OAI is a very, accurate probationer risk assessment instrument.**

The results of the comparisons between obtained risk percentages and predicted percentages for Group 1 show that all, obtained scale risk range percentile scores were within 2.1 percent of predicted. For Group 2, all, obtained scale risk range percentile scores were within 2.7 percent of predicted. For the Problem Risk and Maximum Risk categories, all but one comparison for Group 1, showed that the obtained percentages were within one percentage point of predicted, and for Group 2, all but two comparisons were within one percentage point. **This is very, accurate probationer risk assessment.**

The t-test comparisons, between first offenders and multiple offenders for each scale, are presented in Tables 22 through 24. Group 1 probationers were used in this analysis (N = 850).

These t-test results support the discriminant validity of the OAI. All t-test comparisons between first offenders and multiple offenders were significant at  $p < .001$ . All but the Truthfulness Scale showed that multiple offenders had higher scale scores than first offenders. The Truthfulness Scale indicated that first offenders had

higher scale scores than multiple offenders. This result suggests that first offenders are more likely to “fake good” or minimize, than multiple offenders.

**Table 22. T-test comparisons between first offenders and multiple offenders.  
Offender status defined by total number of arrests.**

<b>OAI Scale</b>	<b>First Offenders Mean (N=277)</b>	<b>Multiple Offenders Mean (N=573)</b>	<b>T-value</b>	<b>Level of significance</b>
Truthfulness Scale	8.91	7.23	t = 3.93	p<.001
Alcohol Scale	6.84	13.86	t = 6.48	p<.001
Drug Scale	7.88	14.86	t = 7.29	p<.001
Resistance Scale	11.74	26.03	t = 19.81	p<.001
Violence Scale	11.26	24.11	t = 16.31	p<.001
Stress Coping Abilities	117.54	106.68	t = 3.38	p<.001

**Table 23. T-test comparison of Alcohol Scale between first offenders and multiple offenders.  
Offender status defined by number of alcohol arrests.**

<b>OAI Scale</b>	<b>First Offenders Mean (N=646)</b>	<b>Multiple Offenders Mean (N=204)</b>	<b>T-value</b>	<b>Level of significance</b>
Alcohol Scale	7.03	25.95	t = 14.13	p<.001

**Table 24. T-test comparison of Drug Scale between first offenders and multiple offenders.  
Offender status defined by number of drug arrests.**

<b>OAI Scale</b>	<b>First Offenders Mean (N=741)</b>	<b>Multiple Offenders Mean (N=109)</b>	<b>T-value</b>	<b>Level of significance</b>
Drug Scale	9.85	28.70	t = 11.66	p<.001

T-test results of the Violence Scale indicated that multiple offenders scored much higher than first offenders. The very, large significant difference between first and multiple offenders strongly support the discriminant validity of the Violence Scale. T-test results of the Alcohol Scale and Drug Scale, where offender status was defined by alcohol arrests and drug arrests, respectively, also showed very, large significant differences between first and multiple offenders. These results strongly support the discriminant validity of the Alcohol Scale, Drug Scale, and Violence Scale.

The test of predictive validity for the Alcohol Scale is presented in Table 25. The data is from Group 1, which contained 850 probationers. Probationers who scored between the 40th and 69th percentile are not included in the table, because the table distinguishes between problem and no problem behavior. No problem is defined as an Alcohol Scale score at or below the 39th percentile, whereas alcohol-related problematic behavior is defined as an Alcohol Scale score in the 70th or above percentile range. Alcohol treatment information was obtained from probationers responses to OAI test items.

These results show that for the 208 probationers who reported having had alcohol treatment, 199 probationers, or 96 percent had Alcohol Scale scores at or above the 70th percentile. Similarly, of the 392 probationers who did not have alcohol treatment, 328 probationers, or 84 percent had Alcohol Scale scores in the Low Risk, or no problem range. This lower percentage is reasonable, because probationers could have a drinking problem without having been in treatment. Combining these results gives an overall

accuracy of the Alcohol Scale, of 88 percent. This is very accurate, considering that a highly accepted diagnostic procedure, the mammogram, is about 70 percent accurate. These results show there is a very, strong positive correlation between Alcohol Scale scores and alcohol treatment.

**Table 25. Predictive validity for the Alcohol Scale using scale scores and alcohol treatment.**

Alcohol Scale	Alcohol Treatment		Number in each category
	No treatment	One or more treatments	
Low Risk (zero to 39th percentile)	328 (.84)	9 (.04)	337
Problem or Severe Problem Risk (70 to 100th percentile)	64 (.16)	199 (.96)	263
	392	208	N = 600

The predictive validity test of the Drug Scale was done in the same way, using drug treatment as the criterion. Of the 204 probationers who reported having had drug treatment 194, or 95 percent had Drug Scale scores in the 70th percentile or higher (Problem Risk and above). Of the 406 probationers, who did not have treatment, 334 (82%) had Drug Scale scores in the Low Risk (no problem) range. The overall accuracy of the Drug Scale, in predicting drug treatment, was 87 percent. These results show there is a very, strong positive correlation between the Drug Scale and drug treatment.

Similar procedures done, where number of arrests was the criteria used for testing the Alcohol Scale, Drug Scale, and Violence Scale, showed nearly as high accuracy, as the Alcohol and Drug scales showed with treatment accuracy. For the Alcohol Scale, 84 percent of the probationers, who had one or more alcohol arrests, had Alcohol Scale scores at or above the 70th percentile (Problem or Severe Problem Risk). The overall accuracy of the Alcohol Scale, in predicting alcohol arrests, was 83 percent. This result means that there is a very, strong positive correlation between Alcohol Scale scores and alcohol arrests. For the Drug Scale, 87 percent of the probationers, who had one or more drug arrests, had Drug Scale scores in the Problem or Severe Problem risk range (70th percentile or above). The overall accuracy of the Drug Scale, in predicting drug arrests, was 81 percent. This means there is a very, strong positive correlation between Drug Scale scores and drug arrests. For the Violence Scale, 80 percent of the probationers, who had one or more total number of arrests, had Violence Scale scores at or above the 70th percentile, and the overall accuracy was 80 percent. This means that there is a very, strong positive correlation between Violence Scale scores and total number of arrests.

Taken together, these results strongly support the reliability, validity, and accuracy of the OAI. Reliability coefficient alphas were significant at  $p < .001$  for all OAI scales. T-test comparisons between first offenders and multiple offenders support discriminant validity of all, but the Truthfulness Scale. Discriminant validity was supported on the Alcohol Scale, Drug Scale, Resistance Scale, Violence Scale, and Stress Coping Abilities Scale, because multiple offenders scored, significantly, higher on the different scales than first offenders. Predictive validity of the Alcohol Scale, Drug Scale, and Violence Scale was shown by the accuracy with which the scales identified problem risk behavior (having had treatment or having had an arrest). The Alcohol Scale had an accuracy of 88 percent, the Drug Scale had an accuracy of 87 percent, and the Violence Scale had an accuracy of 80 percent. These results support the reliability, validity, and accuracy of the OAI.

### 30. Reliability of the OAI in Two Samples of Probationers

Another study (1998) was conducted to determine the reliability of the OAI in two, different probationer samples. **The first group consisted of 3,483 probationers.** Demographic composition of Group 1 is as follows. Of the 3,483 probationers 2,875 (82.5%) were male and 608 (17.5%) were female. Age: 19 or younger (14.7%); 20 to 29 (41.4%); 30 to 39 (26%); 40 to 49 (13.7%); 50 to 59 (3%); and 60 or older (1.1%). Ethnicity: Caucasian (57.9%); Black (27.8%); Hispanic (12.1%); Asian (0.5%); Native American (0.8%); and Other (0.9%). Education: 8th grade or less (8.3%); Partially-Completed High School (30.5%); High School Graduate (43.9%); Partially-Completed College (11.1%); and College Graduate (3.6%). Marital Status: Single (57.4%); Married (25.3%); Divorced (12.4%); Separated (4.4%); and Widowed (0.5%).

**Group 2 consisted of 1,056 probationers.** Of these 1,056 probationers, 823 (77.9%) were male and 233 (22.1%) were female. Demographic composition of Group 2 is as follows. Age: 19 or younger (13.7%); 20 to 29 (41.1%); 30 to 39 (28.3%); 40 to 49 (13.6%); 50 to 59 (2.5%); and 60 or older (0.7%). Ethnicity: Caucasian (54.8%); Black (30%); Hispanic (13.3%); Asian (0.3%); Native American (1%); and Other (0.6%). Education: 8th grade or less (8.9%); Partially-Completed High School (32.3%); High School Graduate (43.6%); Partially-Completed College (8%); and College Graduate (3.2%). Marital Status: Single (56.3%); Married (26.6%); Divorced (11.3%); Separated (5.1%); and Widowed (0.7%).

Reliability coefficient alphas are represented in Table 26, and represent 4,539 probationers.

**Table 26. Reliability coefficient alphas (1998, N = 4,539).**  
All coefficient alphas are significant at p<.001.

<u>SCALES</u>	<u>Group 1</u> <u>N = 3,483</u>	<u>Group 2</u> <u>N = 1,056</u>
Truthfulness Scale	.88	.88
Alcohol Scale	.94	.95
Drug Scale	.92	.92
Resistance Scale	.80	.80
Violence Scale	.85	.86
Stress Coping Abilities	.92	.92

These results support the reliability of the OAI for these, two probationer samples. These results are similar to those reported earlier on other probationer populations. All coefficient alphas are significant at p<.001. These results support the reliability of the OAI.

### **31. Reliability of the OAI in Drug Court Clients**

This study investigated the OAI (1998) in a sample of drug court clients. The present study consisted of a sample of 300 drug court defendants, and replicated reliability tests, to include the Substance Abuse/Dependency Scale.

Within-test **reliability** statistics were performed on the Offender Assessment Index, as was done in the earlier investigation. The within-test reliability measures, or inter-item reliability are reported with coefficient alpha. Reliability coefficient alphas for the six OAI scales are presented.

#### Method and Results

The OAI was administered to 300 drug court clients, as part of routine evaluation in a southwestern, municipal court substance abuse screening program. There were 242 (80.7%) males and 58 (19.3%) females. The demographic composition of the drug court clients was as follows: Age in years: 19 & under (17.7%); 20-29 (36%); 30-39 (29.3%); 40-49 (10.3%); 50-59 (5.3%); 60 & over (0.7%). Ethnicity: Caucasian (25.6%); Black

(2.4%); Hispanic (64.7%); Native American (5.2%); Other (2.1%). Education: 8th grade or less (7.3%); Some High School (28.7%); H.S. graduate (47.3%); Some College (8%); College graduate (6.3%). Marital Status: Single (69.6%); Married (20.4%); Divorced (7.8%); Separated (1.5%); Widowed (0.7%).

Reliability coefficient alphas are presented in Table 27.

**Table 27. Reliability coefficient alphas (N = 300).  
All coefficient alphas are significant at p<.001.**

<u>SCALES</u>	<u>Drug court clients</u> <u>N = 300</u>
Truthfulness	.90
Alcohol	.93
Drug	.91
Resistance	.84
Violence	.89
Stress Coping Abilities	.92
Dependency Items*	.92
Abuse Items*	.87

\* The Substance Dependency/Abuse Scale is a classification (as opposed to measurement) scale derived from DSM-IV criteria. The dependency and abuse items are used to determine whether or not clients meet dependency or abuse criteria. They do not measure the extent to which criteria are met. However, they are included here, because they demonstrate that client responses are consistent on these DSM-IV dependency and abuse items.

These results strongly support the reliability of the OAI. All of the coefficient alphas for the OAI scales are well, above generally accepted standards (.80) for reliability. Most of the OAI scales are at or above .90. These high, coefficient alpha results are similar to results found in previous studies. The OAI is a statistically, reliable screening instrument for assessment of court and substance (alcohol and drugs) abuse defendants.

### **32. Study of OAI Reliability, Validity, and Accuracy**

This study (2009) examined OAI test statistics in a sample of offenders tested in correction settings (courts, jails, prisons, etc.), throughout the United States, during the time period beginning September, 2003 and ending April, 2009. There were 277 offenders included. OAI reliability, validity, and accuracy were examined.

#### Method

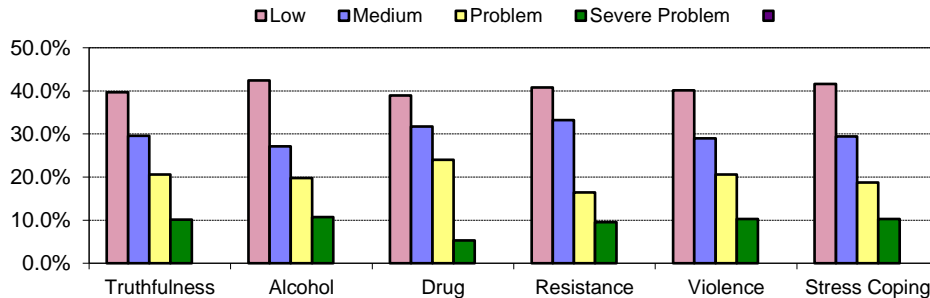
Participants in this study (2009) consisted of 277 offenders. There were 203 (73.3%) males and 74 (26.7%) females. Demographic composition of the sample follows. Age: 20 & under (14.8%); 21-30 (34.7%); 31-40 (26.7%); 41-50 (15.5%); 51-60 (6.1%); 61 & Over (2.2%). Ethnicity: Caucasian (81.9%); African American (11.2%); Hispanic (6.1%); Asian (0.0%); Native America (0.7%); Other (0.0%). Education: Eighth grade or less (27.8%); Some H.S. (31.8%); H.S. graduate (28.5%); Some College (9.4%); College graduate (1.2%). Marital Status: Single (49.8%); Married (21.7%); Divorced (21.3%); Separated (6.1%); and Widowed (0%).

#### Accuracy

Test accuracy is demonstrated by how close attained scale scores are to predicted scores. Four categories of risk are assigned: Low Risk (zero to 39<sup>th</sup> percentile), Medium Risk (40 to 69<sup>th</sup> percentile), Problem Risk (70 to 89<sup>th</sup> percentile), and Severe Problem Risk (90 to 100<sup>th</sup> percentile). The top row of Table 28 shows

the percentages of probationers who were predicted to score within each risk range. The body of Table 28 presents actual, attained risk category percentages. Differences between attained and predicted percentages are shown in bold, in parentheses. For example, in terms of the Low Risk range for the Truthfulness Scale: 39% of probationers were predicted to score within this range; the attained percentage of probationers who scored in this range was 39.7%, which is a difference of 0.7 percentage points from what was predicted.

**Table 28. OAI Accuracy (N=277\*, 2009)**



Scale	Low Risk (39%)	Medium Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	39.7 (0.7)	29.6 (0.4)	20.6 (0.6)	10.1 (0.9)
Alcohol	42.4 (3.4)	27.1 (2.9)	19.8 (0.2)	10.7 (0.3)
Drug	38.9 (0.1)	31.7 (1.7)	24.0 (6.0)	5.3 (5.7)
Resistance	40.8 (1.8)	33.2 (3.2)	16.4 (3.6)	9.5 (1.5)
Violence	40.1 (1.1)	29.0 (1.0)	20.6 (0.6)	10.3 (0.7)
Stress Coping Abilities	41.6 (2.6)	29.4 (0.6)	18.7 (1.3)	10.3 (0.7)

\*Note: For respondents who scored in the 95<sup>th</sup> percentile or higher on the Truthfulness Scale (thereby invalidating other Scale scores), only their Truthfulness Scale scores were included in this analysis; thus, the sample size for the remaining five Scales was slightly smaller- less by 15 (the number of offenders with invalid Scale scores).

Twenty-two out of 24 attained, risk range percentiles were within **3.6** points of the predicted percentages. The average difference between attained percentages and predicted percentages was **1.7** points. These results strongly support the accuracy of the OAI, as an offender-assessment instrument.

Reliability

Test reliability refers to a scale’s consistency of measurement. A scale is reliable if a person gets the same score when re-tested, as he/she did when originally tested. Table 29 shows the reliability scores for each OAI scale. Perfect reliability is 1.00.

**Table 29. OAI Reliability (N=277, 2009)**

<u>Scale</u>	<u>Alpha coefficient</u>
Truthfulness Scale	<b>.90</b>
Alcohol Scale	<b>.90</b>
Drug Scale	<b>.90</b>
Resistance Scale	<b>.87</b>
Violence Scale	<b>.85</b>
Stress Coping Abilities Scale	<b>.93</b>

**All OAI scales have a reliability of .87 or higher.** The professionally accepted reliability standard is .75. All OAI scales exceed this standard and demonstrate impressive reliability.

### Validity

Validity refers to a test's ability to measure what it is purported to measure. The quality of a test is largely determined by its validity. Concurrent validity correlates the independent scales of the test being validated with corresponding measures from another, established test. This type of validation (concurrent validation) has been conducted in numerous studies, which are presented earlier in this document.

Predictive validity refers to a test's ability to predict observable "criterion" behaviors. In this analysis, our prediction criterion was whether or not offenders had been treated for alcohol and/or drug problems. It was predicted that the "treated" offenders would be identified by their higher scores on the Alcohol and/or Drug Scales. More specifically, it was predicted that a large percentage of "treated" offenders would have Alcohol and/or Drug Scale scores that fell within the 70<sup>th</sup> and 100<sup>th</sup> percentile range (the High Risk range). The possibility of "treated" offenders scoring in the Low Risk range (zero to 69<sup>th</sup> percentile) was not discounted altogether; however, it was expected that a significantly, higher percentage of these individuals would score within the High Risk range on the Alcohol and/or Drug Scales than the Low Risk range. The results of the analysis confirmed these predictions. Almost all (**93.8%**) of offenders, who had been treated for alcohol problems, scored in the High Risk range on the Alcohol Scale. Additionally, the majority (**80.5%**) of the offenders, who had been treated for drug problems, scored in the High Risk range on the Drug Scale. These findings indicate that the Alcohol and Drug Scales accurately identify offenders who have been treated for alcohol and/or drug problems.

Another analysis was performed for the Violence Scale. Two comparative groups were established, using direct admissions. The *violent* group made the self-admission, "I am a violent person," whereas the *nonviolent* group did not. It was predicted that a large percentage of violent offenders would score within the High Risk range (70<sup>th</sup> to 100<sup>th</sup> percentile) on the Violence Scale. Analysis results confirmed this prediction. The majority (**85.7%**) of violent offenders were Violence Scale "High Risk" offenders. The Violence Scale accurately identifies violent offenders. This finding and the findings from the Alcohol and Drugs Scale analyses above support the predictive validity of the OAI.

### Substance Abuse/Dependency Scale

The OAI Substance Abuse/Dependency Scale classifies offenders as "substance dependent," "substance abuse," or non-problematic, according to their responses regarding DSM-IV criteria. Offenders are classified "substance abuse," if they admit to one or more of the four abuse criteria (symptoms). These DSM-IV criteria are discussed in the OAI Orientation and Training Manual. Offenders are classified "substance dependent," if they admit to three or more of the seven dependency criteria (symptoms), or if they have ever been diagnosed "substance dependent" in the past. (According to DSM-IV methodology, once an individual is diagnosed "dependent," that diagnosis applies for the rest of his/her life.) The DSM-IV substance abuse and substance dependency criteria, literally, reflect these scales, as presented in the DSM-IV, and are widely used for classification purposes.

#### **DSM-IV Classification**

<b>Classification</b>	<b>Males %</b>	<b>Females %</b>	<b>N</b>	<b>%</b>
Non-Problematic	33.2	41.9	98	35.4
Substance Abuse	27.7	16.2	68	24.5

Substance Dependent	39.1	41.9	110	39.7
Diagnosed dependent in past	16.3	13.5	43	15.5

The table above shows that almost 40 percent of the sample was classified as “substance dependent,” according to DSM-IV criteria. Additionally, 15.5 percent of the sample had been diagnosed “substance dependent” in the past. One fourth of offenders were classified as substance abusers. Almost two thirds of offenders were classified as either, “substance dependent” or “substance abuse.”

When Offender status is considered, 45.6% of Multiple Offenders were diagnosed “substance dependent,” and 26.2 percent were diagnosed “substance dependent.” Additionally, 19.4 percent had been diagnosed “substance dependent” in the past. Twenty-eight percent of Multiple Offenders were classified as non-problematic.

Unlike Multiple Offenders, the majority of First Offenders (53.1%) were classified as non-problematic. An additional, 21.0 percent of First Offenders were diagnosed “substance abuse,” and only 25.9 percent were diagnosed “substance dependent.” The percentage of Multiple Offenders who had been diagnosed “substance dependent” in the past was more than three times that of First Offenders (6.2%).

The results of chi-square analyses indicated that the differences between the percentages of First Offenders and Multiple Offenders who were classified “substance dependent”,  $\chi^2(1) = 9.28$ ,  $p < .001$ ,  $V = .18$ , “substance dependent” in the past,  $\chi^2(1) = 7.63$ ,  $p < .001$ ,  $V = .17$ , and non-problematic,  $\chi^2(1) = 15.47$ ,  $p < .001$ ,  $V = .24$ , were all, statistically significant.

### 33. Validity, Reliability and Scale Risk Range Accuracy Study of the OAI (2010)

This study (2010) was conducted to test the validity, reliability, and accuracy of the OAI assessment instrument. The test is concise, direct, and easy to complete. Reading levels of the test items were analyzed to improve readability and comprehension for probationers.

#### Method and Results

There was one sample of adult probationers included in this study. **The subjects consisted of 169 adult probationers.** There were 107 males (63.3%) and 62 females (36.7%). Demographic composition of these probationers is as follows: Age: 19 & under (13.0%); 20-29 (38.5%); 30-39 (20.7%); 40-49 (15.4%); 50-59 (6.5%); and 60 & over (5.9%). Ethnicity: Caucasian (84.6%); Black (7.7%); Hispanic (5.9%); Asian (1.2%); and Other (0.6%). Education: Eighth grade or less (7%); Some H.S. (30%); H.S. graduate (47%); Some College (11%); and College graduate (4%). Marital Status: Single (61%); Married (19%); Divorced (13%); Separated (5%); and Widowed (1%).

OAI scale reliability coefficient alphas for the sample are presented in Table 30.

The results of the study support the reliability of the OAI. All coefficient alphas are significant at  $p < .001$ . All scale reliability coefficients maintained high levels. These results show that the OAI is a reliable; risk assessment instrument.

**Table 30. Reliability coefficient alphas (2010, N = 169)**



<u>SCALES</u>	<u>Group 1</u> <u>N = 850</u>
Truthfulness Scale	.90
Alcohol Scale	.94
Drug Scale	.93
Resistance Scale	.72
Violence Scale	.86
Stress Coping Abilities	.93

The risk range percentiles; for this sample of probationers administered the OAI (n=169); are presented in Table 31. These results show that obtained, risk range percentile scores closely approximated the predicted, risk range percentile scores, for each of the six OAI scales. **These results indicate that the OAI is an accurate, probationer risk assessment.**

**Table 31. Risk Range Percentile Scores for Group 1, N = 169**

<b>Risk Range</b>	Truthfulness	Alcohol	Drug	Resistance	Violence	Stress Coping	<b>Predicted</b>
<i>Low</i>	43.2	42.5	39.4	41.1	39.4	40.9	<b>39%</b>
<i>Medium</i>	27.8	28.7	29.7	33.5	29.4	29.7	<b>30%</b>
<i>Problem</i>	21.3	18.6	20.0	16.5	20.6	18.9	<b>20%</b>
<i>Maximum</i>	7.7	10.2	10.9	8.9	10.6	10.7	<b>11%</b>

The results of the comparisons between obtained risk percentages and predicted percentages for Group 1 shows that all obtained scale risk range percentile scores were within 2.1 percent of predicted. For Group 2, all obtained scale risk range percentile scores were within 2.7 percent of predicted. For the Problem Risk and Maximum Risk categories, all but one comparison for Group 1 showed that the obtained percentages were within one percentage point of predicted. And, for Group 2, all but two comparisons were within one percentage point. **This is very, accurate probationer risk assessment.**

The *t*-test comparisons of first offenders' and multiple offenders' scores for each scale is presented in Table 32. These *t*-test results support the validity of the OAI. All *t*-test comparisons between first offenders and multiple offenders were significant at  $p < .001$ . For all OAI scales, except the Truthfulness Scale and Resistance

Scale, multiple offenders attained higher, (more severe) average scale scores than first offenders. For the Truthfulness Scale, first offenders had higher scale scores than multiple offenders. This result suggests that first-time offenders are more likely to equivocate, “fake good,” or minimize their problems, than multiple offenders. Multiple offenders attained lower, (less severe) Resistance Scale scores than first-time offenders. Having likely had more experience with the court system, multiple offenders may be less resistant to receiving help for their problems, and may be somewhat more compliant in completing their court-ordered activities (supervision/probation terms, mandatory treatment completion, etc.).

**Table 32. T-test comparisons between first offenders and multiple offenders**

<u>Scales</u>	<u>First Offenders Mean (N=64)</u>	<u>Multiple Offenders Mean (N=103)</u>	<u>T-value</u>	<u>Level of significance</u>
Truthfulness	12.88	8.34	5.01	p>.001
Alcohol	5.34	12.20	-3.49	p>.001
Drug	10.55	21.11	-4.83	p>.001
Resistance	16.41	13.57	2.51	p>.001
Violence	13.02	21.63	-8.62	p>.001
Stress Coping Abilities	114.23	99.50	2.07	p>.001

*T*-test results of the Violence Scale indicated that multiple offenders scored, much, higher than first offenders. The very, large significant difference between first and multiple offenders strongly support the validity of the Violence Scale. *T*-test results of the Alcohol Scale and Drug Scale showed very, large significant differences between first and multiple offenders. These results strongly support the validity of the Alcohol Scale, Drug Scale, and Violence Scale.

### **34. Confirmation Reliability Study of the OAI (2013)**

This study (2013) was conducted to confirm the reliability of the Offender Assessment Index instrument. Data were retrieved from the Behavior Data Systems’ online database. There were 346 data submissions used in the analysis.

#### Participants

There were 245 males (70.8%) and 101 females (29.2%). Ethnicity: Caucasian (59.5%); Black (32.1%); Hispanic (4.6%); Asian (<1%); and Native American (1.2%). Education: Eighth grade or less (3.8%); Some H.S. (24.9%); H.S. graduate (34.2%); Some College (13.6%); Technical/Business School (2.6%); College graduate (6.9%); and Graduate/Professional (<1%). Marital Status: Single (59.2%); Married (21.4%); Divorced (10.1%); Separated (4.3%); and Widowed (1.4%). Demographic information was missing for approximately, 2-3% of respondents.

Thirty-four percent (34%) of offenders reported one or fewer arrests, and 66% were repeat offenders, with approximately, 35% of offenders reporting four or more arrests.

Offenders were also classified as having a substance abuse or substance dependence diagnosis, using DSM-IV criteria: 58.7% of offenders met the criteria for substance abuse diagnosis, and 33.8% met the criteria for a dependent diagnosis.

Reliability

Reliability refers to a scale or test’s consistency. Cronbach’s alpha is a statistical measure of internal consistency, and was used to confirm the reliability of each OAI scale. Perfect reliability is 1.00. Most professionals in the field believe that reliability .70-.80 is appropriate for this type of risk assessment. OAI scale, reliability coefficient alphas for the sample are presented in Table 33.

**Table 33. OAI Reliability coefficients (2013, N = 346)**

<u>Scales</u>	
Truthfulness	.91
Alcohol	.94
Drug	.94
Resistance	.74
Violence	.89
Stress Management	.93

The results of the study support the reliability of the OAI. All coefficient alphas are significant at p<.001. All scale reliability coefficients maintained high levels. These results show that the OAI is a reliable, risk assessment instrument.

**35. Correlation Coefficients for the Offender Assessment Index (OAI)**

This brief study explored whether a statistical relationship exists between Alcohol Scale, Drug Scale, and DSM-IV Substance Use classification, on the Offender Assessment Index (OAI).

When using the OAI, clinicians must be confident that offender alcohol and drug problems are adequately and accurately measured, without being redundant. In other words, we expect the Alcohol Scale to provide specific information related to alcohol problem severity, and the DSM-IV classification to provide us with information about whether the severity meets the threshold for a substance abuse or dependence diagnosis. Scale scores and DSM-IV diagnoses should be related, if the OAI is adequately, measuring alcohol and drug problems. This study used correlation statistics to measure the relationship between scale scores and DSM-IV classifications.

Participants

There were 346 participants in the study with 245 males (70.8%) and 101 females (29.2%). Ethnicity: Caucasian (59.5%); Black (32.1%); Hispanic (4.6%); Asian (<1%); and Native American (1.2%). Education: Eighth grade or less (3.8%); Some H.S. (24.9%); H.S. graduate (34.2%); Some College (13.6%); Technical/Business School (2.6%); College graduate (6.9%); and Graduate/Professional (<1%). Marital Status:

Single (59.2%); Married (21.4%); Divorced (10.1%); Separated (4.3%); and Widowed (1.4%). Demographic information was missing for approximately, 2-3% of respondents.

Thirty-four percent (34%) of offenders reported one or fewer arrests, and 66% were repeat offenders, with approximately, 35% of offenders reporting four or more arrests.

Offenders were also classified as having a substance abuse or substance dependence diagnosis, using DSM-IV criteria: 58.7% of offenders met the criteria for substance abuse diagnosis, and 33.8% met the criteria for a dependent diagnosis.

### Analysis

As noted above, correlation statistics are used to measure the relationship between two variables. Correlation scores range from 0 to 1. A score that is closer to 1 indicates a strong relationship between the items. Correlations can be positive or negative. In a positive correlation, both items move together, meaning as one item increases (or decreases) so does the other item (Gavetter & Wallanu, 2009). In a negative correlation, the items tend to move in opposite directions. For example, as one item increases the other item decreases (Gavetter & Wallanu, 2009). Results of the analyses are presented below:

**Table 34. Scale Scores and Substance Abuse Classification (N = 346, 2013)**

	DSM –IV Abuse	Alcohol score	Drug score
Substance Abuse	1.00		
Alcohol score	.597*	1.00	
Drug score	.699*	.470*	1.00

As noted in Table 35, there was a statistically, significant relationship between offenders’ Alcohol Scale score and Substance Abuse classification,  $r = .60, p < .01$ , and a statistically, significant relationship between offenders’ Drug Scale score and Substance Abuse classification,  $r = .70, p < .01$  (two tailed). Moreover, the Alcohol Scale and Drug Scale scores were also related at a statistically, significant level, however the strength of the scales’ relationship was lower than the individual scales, with the DSM-IV Substance Abuse classification.

**Table 35. Scale Scores and Substance Dependence Classification (N = 346, 2013)**

	DSM-IV Dependence	Alcohol score	Drug score
DSM-IV Dependence	1.00		
Alcohol score	.585*	1.00	
Drug score	.685	.470*	1.00

The strength of the relationship between DSM-IV dependence diagnosis and OAI scale scores is presented in Table 36. There was a statistically, significant relationship between offenders' Alcohol Scale scores and Substance Dependence classification,  $r = .59, p < .01$  (two tailed). Also, the relationship between offenders' Drug Scale scores and Substance Dependence classification,  $r = .69, p < .01$  (two tailed) was statistically significant. As noted earlier, there is a statistically, significant relationship between Alcohol Scale and Drug Scale scores.

**Results**

The results indicate that Offender Assessment Index (OAI) scales and classifications are related, but seem to be measuring separate constructs, or aspects of problem severity. Moreover, these initial findings support the inclusion of both assessment types (dimensional and categorical), within one instrument. As noted above, the categorical assessment (DSM-IV criteria) can provide a threshold of significance, as well as inform and guide treatment decisions. The OAI will be updated to include the new DSM-5 criteria.

**36. Reliability and Validity Confirmation of the OAI**

This study summarizes reliability and validity studies using a clinical sample from Southeastern region of the United States. There were 244 participants in the study.

**Participants**

Gender: 71% were male, 29% were female. Race/Ethnicity: Caucasian 81%, Black 14%, Hispanic 5% and 19% reported Other. Education: Eighth grade or less 3%, Some H.S. 17%, H.S. graduate 61%, Some College 10%, and 9% graduated from college. Marital Status: Single 50%, Married 22%, Divorced 22%, and Separated 6%. Arrest history: 16% were first-time offenders, 84% were repeat offenders; 57% reported one or more felony arrests; 99% reported at least one arrests with approximately with approximately 66% of offenders reporting 3 or more arrests.

**Reliability**

Test reliability refers to a scale's consistency of measurement. Cronbach's Alpha, a measure of reliability, measured the internal consistency of each scale. Perfect reliability is 1.00 and the professionally accepted standard of reliability for these types of instruments is .70 - .80 or higher (Murphy & Davidshofer, 2001).

**Table 36. Reliability (N = 244, 2014)**

Scales	Coefficient Alpha
Truthfulness Scale	.93
Alcohol Scale	.95
Resistance Scale	.75
Drugs Scale	.95
Violence (Lethality) Scale	.92

Control Scale	.78
Stress Coping Abilities Scale	.94

All scales exceed accepted reliability standards

### Validity

In testing, the term *validity* refers to the extent that a test measures what it was designed to measure. A test cannot be accurate without being valid. When individuals known to have more severe problems or symptoms receive higher scale scores than individuals known to have fewer problems or symptoms, the test is said to have evidence of construct validity (DeVon et al., 2007). Offenders were categorized into first-time and repeat offenders. First-time offenders are defined as having one arrest; repeat offenders have two or more arrests. It is anticipated that repeat offenders' mean scale percentile scores would be higher than first-time offenders, indicating more severe symptoms or problems.

**Table 37. Offender Score Comparison (N = 244)**

<u>Scales</u>	<u>First-time</u>	<u>Repeat</u>	<u>t-value</u>	<u>p</u>
	<u>Mean Scores</u>	<u>Mean Scores</u>		
Truthfulness	66.33	44.60	3.88	.000
Alcohol	50.80	55.92	.837	n.s
Resistance	46.10	55.64	2.90	n.s
Drug	56.43	76.73	1.56	n.s
Violence	56.38	39.72	3.32	.002
Stress Coping Abilities	49.25	60.79	1.86	n.s

First-time offenders and repeat offenders mean percentile scale scores were compared. Results found higher scale scores for repeat offenders on the Alcohol, Resistance, Drug, and Stress Coping Abilities Scale. On the Truthfulness Scale first-time offenders had higher mean scores which may be associated with an offender's level of experience with law enforcement and assessment procedures. These individuals may, naively, engage in more denial and minimizing behaviors whereas, repeat offenders (who have more experience with law enforcement and the courts) may be aware that denial, minimization, and deception will be detected.

Higher scores for first-time offenders on the Violence Scale is inconsistent with previous OAI research and are unique feature to this sample.

T-test analyses were conducted to examine whether the differences between mean scores were statistically significant. Bonferroni adjustments were made to control for experimentwise inflation. Results were only statistically significant for the Truthfulness Scale and Violence Scale. The non-significant findings were likely the result of the small differences between offender groups and small sample size. In general, these findings demonstrate that the OAI effectively differentiates between offenders who are known to have more severe problems (repeat offenders) than first time offenders.

### 37. Reliability and Validity Confirmation of the OAI

This study summarizes reliability and validity studies using a clinical sample from Southeastern region of the United States. There were 319 participants in the study.

#### Participants

Gender: 72% were male, 28% were female. Race/Ethnicity: Caucasian 78%, Black 14%, Hispanic 7% and <1% reported Other. Education: Eighth grade or less 3%, Some H.S. 17%, H.S. graduate 52%, Some College 10%, and 9% graduated from college. Marital Status: Single 46%, Married 24%, Divorced 23%, and Separated 7%. Arrest history: 15% were first-time offenders, 85% were repeat offenders; 55% reported one or more felony arrests; 99% reported at least one arrests with approximately with approximately 66% of offenders reporting 3 or more arrests. DSM-IV: 86% met criteria for substance abuse diagnosis; 63% met the criteria for a substance dependence diagnosis.

#### **Reliability**

Test reliability refers to a scale's consistency of measurement. Cronbach's Alpha, a measure of reliability, measured the internal consistency of each scale. Perfect reliability is 1.00 and the professionally accepted standard of reliability for these types of instruments is .70 - .80 or higher (Murphy & Davidshofer, 2001).

**Table 38. Reliability (N = 319, 2014)**

Scales	Coefficient Alpha
Truthfulness Scale	.93
Alcohol Scale	.94
Resistance Scale	.75
Drugs Scale	.95
Violence (Lethality) Scale	.92
Control Scale	.78
Stress Coping Abilities Scale	.94

All scale scores are within or exceeded accepted reliability standards for this type of instrument.

#### **Validity**

In testing, the term *validity* refers to the extent that a test measures what it was designed to measure. A test cannot be accurate without being valid. When individuals known to have more severe problems or symptoms receive higher scale scores than individuals known to have fewer problems or symptoms, the test

is said to have evidence of construct validity (DeVon et al., 2007). Offenders were categorized into first-time and repeat offenders. First-time offenders are defined as having one arrest; repeat offenders have two or more arrests. It is anticipated that repeat offenders' mean scale percentile scores would be higher than first-time offenders, indicating more severe symptoms or problems. The Stress Coping Abilities Scale measures protective and prosocial factors so first-time offenders are expected to have a higher scale score than repeat offenders.



**Table 39. Offender Score Comparison (N = 319, 2014)**

<u>Scales</u>	<u>First-time Mean Scores</u>	<u>Repeat Mean Scores</u>	<u>t-value</u>	<u>p</u>	<u>d</u>
Truthfulness	12.79	7.99	4.42	<.001	.7
Alcohol	7.04	14.23	4.53	<.001	.5
Resistance	13.52	15.65	2.01	.05	.9
Drug	13.75	27.70	5.63	<.001	.3
Violence	9.25	22.45	8.79	<.001	.8
Stress Coping Abilities	129.54	93.04	5.15	<.001	.9

First-time offenders and repeat offenders mean percentile scale scores were compared. Results found higher scale scores for repeat offenders on the Alcohol Scale, Resistance Scale, Drug Scale, and Violence Scale.

On the Truthfulness Scale first-time offenders had higher mean scores which may be associated with an offender's level of experience with law enforcement and assessment procedures. These individuals may, naively, engage in more denial and minimizing behaviors whereas, repeat offenders (who have more experience with law enforcement and the courts) may be aware that denial, minimization, and deception will be detected.

T-test analyses were conducted to examine whether the differences between mean scores were statistically significant. Bonferroni adjustments were made to control for experimentwise inflation. Results were statistically significant for all scales but the Resistance Scale. The non-significant finding was likely the result of the small differences between offender groups and small sample size. In general, these findings demonstrate that the OAI effectively differentiates between offenders who are known to have more severe problems (repeat offenders) than first-time offenders.

### **38. Reliability, Validity, and Risk Range Analyses of the OAI**

This study summarizes reliability and validity studies, as well as risk range analyses, using a clinical sample from the Southeastern region of the United States. There were 118 participants in this study from the 2016 reporting period.

#### **Participants**

Gender: 73% were male, 27% were female.

Average Age: 36 years; at first conviction: 21 years.

Race/Ethnicity: Caucasian 79%, Black 15%, Hispanic 5% and <1% reported Other.

Education: Up to 8<sup>th</sup> grade 3%, Some H.S. 15%, G.E.D 20%, H.S. graduate 46%, Some College 10%, and 7% graduated from college or technical/business school.

Marital Status: Single 45%, Married 22%, Divorced 25%, Separated 5%, and Widowed <1%.

Arrest history: 9% were first-time offenders, 92% were repeat offenders; 53% reported one or more felony arrests; 99% reported at least one arrests with approximately with approximately 80% of offenders reporting 3 or more arrests.

DSM-IV: 93% met criteria for substance abuse diagnosis; 72% met the criteria for a substance dependence diagnosis.

**Reliability**

Test reliability refers to a scale's consistency of measurement. Cronbach's Alpha, a measure of reliability, measured the internal consistency of each scale. Perfect reliability is 1.00 and the professionally accepted standard of reliability for these types of instruments is .70 - .80 or higher (Murphy & Davidshofer, 2001).

**Table 40. OAI Reliability (N = 118, 2016)**

Scales	Coefficient Alpha
Truthfulness Scale	.89
Alcohol Scale	.95
Drugs Scale	.91
Resistance Scale	.72
Violence (Lethality) Scale	.89
Stress Coping Abilities Scale	.93

All scale scores are within or exceeded accepted reliability standards for this type of instrument.

**Validity**

In testing, the term *validity* refers to the extent that a test measures what it was designed to measure. A test cannot be accurate without being valid. When individuals known to have more severe problems or symptoms receive higher scale scores than individuals known to have fewer problems or symptoms, the test is said to have evidence of construct validity (DeVon et al., 2007). Offenders were categorized into first-time and repeat offenders. First-time offenders are defined as having up to one arrest; repeat offenders have two or more arrests. It is anticipated that repeat offenders' mean scale percentile scores would be higher than first-time offenders, indicating more severe symptoms or problems. The Stress Coping Abilities Scale measures protective and prosocial factors so first-time offenders are expected to have a higher scale score than repeat offenders.

**Table 41. OAI Scale Validity (N = 118, 2016)**

<u>Scales</u>	<u>First-time</u> <u>Mean Scores</u>	<u>Repeat</u> <u>Mean Scores</u>	<u>t-value</u>	<u>p</u>
Truthfulness	10.20	6.02	2.44	.016
Alcohol	10.90	16.57	-1.09	.279
Drugs	16.30	31.13	-3.14	.002
Resistance	15.90	12.06	1.77	.079
Violence	10.50	22.91	-3.01	.003
Stress Coping Abilities	96.50	82.98	1.11	.270

First-time offenders and repeat offenders mean percentile scale scores were compared. Results found higher scale scores for repeat offenders on the Alcohol Scale, Drug Scale, and the Violence Scale.

On the Truthfulness Scale, first-time offenders had higher mean scores which may be associated with an offender's level of experience with law enforcement and assessment procedures. These individuals may, naively, engage in more denial and minimizing behaviors whereas, repeat offenders (who have more experience with law enforcement and the courts) may be aware that denial, minimization, and deception will be detected.

**T-test** analyses were conducted to examine whether the differences between mean scores were statistically significant. Bonferroni adjustments were made to control for experimentwise inflation. Results were statistically significant for the Violence Scale. The non-significant findings were likely the result of the small differences between offender groups and small sample size. In general, these findings demonstrate that the OAI effectively differentiates between offenders who are known to have more severe problems (repeat offenders) than first-time offenders.

### **Risk Range Analyses**

A secondary analysis was conducted using selected risk ranges for each of the behavioral scales. The expected percentage of offenders for the Low Risk is 39%, Moderate Risk is 30%, Problem Risk is 20%, and Severe Problem is 11%. Percentage frequencies are presented in Table 42.

**Table 42. OAI Respondent Risk Range Summary (N= 118, 2016)**

<u>Scale*</u>	<u>Low Risk</u> <u>(39%)</u>	<u>Moderate Risk</u> <u>(30%)</u>	<u>Problem Risk</u> <u>(20%)</u>	<u>Severe Problem</u> <u>(11%)</u>
Truthfulness	34.7	<b>36.4</b>	16.9	11.9
Alcohol	37.3	33.1	18.6	11.0
Drugs	39.8	27.1	24.6	8.5
Resistance	42.4	29.7	17.8	10.2
Violence	40.7	28.0	21.2	10.2
Stress Coping Abilities	39.0	30.5	20.3	10.2

As displayed in Table 42, most of the obtained percentages of offenders in each risk category were consistent with expected percentages. Consistency is defined by obtained percentages being less than 5% away from the expected percentages, in either direction. The exception was the obtained percentage for the Moderate Risk range on the Truthfulness Scale, which was 6% higher than expected. Inconsistencies like this could be the result of having a small sample size. Overall, this provides evidentiary support for the accuracy of the OAI.

### 39. Reliability, Validity, and Risk Range Analyses of the OAI

This study summarizes reliability and validity studies, as well as risk range analyses, using a sample of agencies administering the OAI in 2017 to 2019. There were 654 participants in this study from the 2017-2019 reported period.

#### Participants

Gender: 71.6% were male, 28.4% were female.

Age: 14.1% were 20 or younger, 40.1% were 21 to 30, 21.7% were 31 to 40, 12.7% were 41 to 50, 9.0% were 51 to 60, and 2.4% were 61 or older.

Race/Ethnicity: 50.8% were Caucasian, 26.1% were African American, 17.6% were Hispanic, 1.8% were Native American, and 1.7% responded other.

Education: 2.9% completed 8<sup>th</sup> grade or less, 18.7% completed some HS, 14.4% obtained a GED, 37.6% graduated high school, 10.6% completed trade or technical school, 4.9% completed some college, 7.3% graduated college, 1.1% completed an advanced degree.

Marital Status: 65.7% were single, 19.6% were married, 8.6% were divorced, 2.3% were separated, and <1% were widowed.

Arrest History: 28.1% were first-time offenders, 70.6% were repeat offenders; 53.9% reported one or more felony arrest; 88.8% reported at least one arrests, with 58.4% reporting 3 or more arrests.

DSM-IV: 42.2% met criteria for substance dependence diagnosis; 63.0% met the criteria abuse diagnosis.

#### Reliability

Test reliability refers to a scale's consistency of measurement. Cronbach's Alpha, a measure of reliability, measured the internal consistency of each scale. Perfect reliability is 1.00 and the professionally accepted standard of reliability for these types of instruments is .70-.80 or higher (Murphy & Davidshofer, 2001).

**Table 43. OAI Reliability (N = 654, 2019)**

Scales	Coefficient Alpha
Truthfulness Scale	.91
Alcohol Scale	.95
Drugs Scale	.94
Resistance Scale	.74
Violence (Lethality) Scale	.90
Stress Management Scale	.94

All scale scores are within or exceeded accepted reliability standards for this type of instrument.

## Validity

In testing, the term *validity* refers to the extent that a test measures what it was designed to measure. A test cannot be accurate without being valid. When individuals known to have more severe problems or symptoms receive higher scale scores than individuals known to have fewer problems or symptoms, the test is said to have evidence of construct validity (DeVon, et al, 2007). Offenders were categorized into first-time and repeat offenders. It is anticipated that repeat offenders' mean scale percentile scores would be higher than first-time offenders; indicating more severe symptoms or problems. The Stress Management Scale measures protective and prosocial factors so first-time offenders are expected to have a higher scale score than repeat offenders.

**Table 44. OAI Scale Validity (N=654, 2019)**

<u>Scales</u>	<u>First-time</u> <u>Mean Scores</u>	<u>Repeat</u> <u>Mean Scores</u>	<u>t-value</u>	<u>p</u>
Truthfulness	12.11	9.27	3.89	.000
Alcohol	6.15	12.38	-5.12	.000
Drugs	12.97	19.95	-6.98	.000
Resistance	17.20	14.82	3.52	.000
Violence	12.34	24.11	-10.01	.000
Stress Management	121.98	104.93	4.08	.000

First-time offenders and repeat offenders mean percentile scale scores were compared. Results found higher scale scores for repeat offenders on the Alcohol, drug, Violence, and Stress Management Scales. (On the Stress Management Scale, raw higher scores indicate lower scale scores.)

On the Truthfulness Scale, first-time offenders had higher mean scores which may be associated with an offender's level of experience with law enforcement and assessment procedures. These individuals may, naively, engage in more denial and minimizing behaviors whereas, repeat offenders (who have more experience with law enforcement and the courts) may be aware that denial, minimization, and deception will be detected.

**T-test** analyses were conducted to examine whether the differences between mean scores were statistically significant. Bonferroni adjustments were made to control for experimentwise inflation. Results were statistically significant for all scales, repeat offenders scored higher than first-time offenders, on average, on the Alcohol, Drug, Violence, and Stress Management Scales. In general, these findings demonstrate that the OAI effectively differentiates between offenders who are known to have more severe problems (repeat offenders) than first-time offenders.

## Risk Range Analyses

A secondary analysis was conducted using selected risk ranges for each of the behavioral scales. The expected percentage of offenders for the Low Risk range is 39%, Moderate Risk range is 30%, Problem Risk range is 20%, and Severe Problem range is 11%. Percentage frequencies are presented in Table 45.

**Table 45. OAI Respondent Risk Range Summary (N= 654, 2019)**

Scale*	Low Risk (39%)	Moderate Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	40.7	23.7	20.9	14.7
Alcohol	41.4	24.2	12.7	<b>21.7</b>
Drugs	<b>26.6</b>	28.7	16.2	<b>28.4</b>
Resistance	31.8	<b>42.0</b>	12.2	13.9
Violence	36.4	<b>42.0</b>	<b>8.4</b>	13.1
Stress Coping Abilities	43.3	24.3	13.5	19.0

As displayed in Table 45, most of the obtained percentages of offenders in each risk category were consistent with expected percentages. Consistency is defined by obtained percentages being less than 10% away from the expected percentages, in either direction. The exceptions with mostly with higher Moderate Risk or Severe Problem scores on the Alcohol, Drugs, Resistance, and Violence Scales. Inconsistencies like this could be the result of having a moderately small sample size (<1000 tests). Overall, this provides evidentiary support for the accuracy of the OAI.

### SUMMARY

In conclusion, this document is not intended as an exhaustive compilation of OAI research. Yet, it does summarize many studies and statistics that support the reliability and validity of the OAI. Based on this research, the OAI presents an increasingly, accurate picture of substance (alcohol and other drugs) abusers and the risk they represent. The OAI provides a sound, empirical foundation for responsible decision making.

As observed at the beginning of this research summary, OAI evolved from the SAQ. Research studies are presented chronologically, as they were completed. This gives the reader the opportunity to observe the evolution of the OAI into a state-of-the-art, risk and needs assessment instrument. Recent studies demonstrate the impressive reliability and accuracy of the OAI.

Summarized research demonstrates that the OAI is a reliable, valid, and accurate instrument for client assessment. It is reasonable to conclude that the OAI does what it purports to do. The OAI acquires a vast amount of relevant information for staff review, prior to decision making. Empirically-based scales are objective and accurate. Assessment has shifted from subjective opinions to objective accountability.

The OAI is not a personality test, nor is it a clinical diagnostic instrument. Yet, it is much more than just another alcohol or drug test. The OAI is an adult, risk and needs assessment instrument.

The OAI research strongly supports the reliability, validity, and accuracy of the OAI. Reliability coefficient alphas were significant at  $p < .001$  for all OAI scales. T-test comparisons between first offenders and multiple offenders support discriminant validity of the Alcohol Scale, Drug Scale, Resistance Scale, Violence Scale, and Stress Coping Abilities Scale, because multiple offenders scored, significantly, higher on the different scales than first offenders. Predictive validity of the Alcohol Scale, Drug Scale, and Violence Scale was shown

by the accuracy with which the scales identified problem risk behavior (having had treatment or having had an arrest). The research summarized, herein, strongly supports the reliability, validity, and accuracy of the Offender Assessment Index.

Areas for future research are many and complex. OAI research continues to evaluate age, gender, ethnicity, and education. Consistent with the foregoing, we encourage more research on demographic, cultural, and environmental factors impacting on client adjustment, risk, and need.

People interested in conducting OAI - related research should contact Risk & Needs Assessment, Inc. Please include a research outline containing design methodology, contemplated statistical analysis, and the anticipated completion date. Students must include their faculty advisors name, address, and telephone number. Faculty advisors and/or research principles will be contacted prior to Risk & Needs Assessment, Inc.'s decision, regarding proceeding.

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