

Adult Pretrial Test:

An Inventory of Scientific Findings

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PREFACE

Adult Pretrial Test (APT) research and development began in 1997 and has continued. The APT is designed to meet the needs of court screening and assessment. The copyrighted APT database ensures continued research and development. The APT is a brief, easily administered and automated (computer scored) test that is designed for adult misdemeanor and felony courts, drug courts and substance (alcohol and other drugs) abuse assessment. It includes true/false and multiple choice items and can be completed in 35 minutes. The APT contains six empirically based scales: Validity (Truthfulness), Alcohol Severity, Drugs Severity, Antisocial Reaction, Lethality (Violence) and Stress Quotient. In addition, the APT includes a classification scale called the Substance Dependency/Abuse Scale which contains paraphrased and reformatted DSM-IV criteria for substance dependence and substance abuse. The APT has been researched on college students, outpatients, inpatients, job applicants, chemical dependency clients, probationers and others.

The APT report explains client's attained scores and makes specific intervention and treatment recommendations. It also presents Truth-Corrected scores, significant items, a concise "structured interview" and much more. The APT report is designed for adult court, probation and parole use. In addition to treatment recommendations, this report presents specific recommendations. The recommendations for the Alcohol Severity Scale and Drugs Severity Scale are compatible with recommendations of the American Society of Addiction Medicine (ASAM). It is a risk and needs assessment instrument. This document summarizes much of the validity and reliability research that contributed to APT development. The APT has demonstrated reliability, validity and accuracy. It correlates impressively with both experienced staff judgment and other recognized tests.

APT tests can be given directly on the computer screen or in paper-pencil test booklet format. All tests are computer scored on-site. APT reports are available within three minutes of test completion. Diskettes contain all of the software needed to score tests, build a database and print reports. The APT Windows version also has an optional human voice audio presentation that presents the test on the computer screen with accompanying auditory presentation of the text seen on the computer screen.

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

INTRODUCTION

ADULT PRETRIAL TEST (APT)

Increased public awareness of substance (alcohol and other drugs) abuse as a nationwide health problem has clarified the need for identification and treatment of these disorders. Rising health care costs have placed increasing responsibilities on all persons working with substance abusers. Workers in the field must now document and substantiate their intervention and treatment. Patients, clients, their families, probation departments, the courts, diversion programs, corrections programs and funding agencies are now requiring substantiation and documentation of staff decision making. Substance (alcohol and other drugs) abuse and dependency problems must now be measured in terms of degree of severity, with quantitative statements substantiating intervention and treatment.

The Adult Pretrial Test (APT) was developed to help meet the needs of court screening and assessment. The APT is designed for adult chemical dependency and substance (alcohol and other drugs) abuse assessment. The APT is particularly useful in drug courts, family courts, municipal courts and county courts. It can be used to evaluate misdemeanor or felony charged defendants. APT reports are particularly useful at pre-sentence hearings. In these reports quantitative information is 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. Alcohol Severity Scale and Drugs Severity Scale risk-related recommendations are compatible with ASAM recommended treatment levels. And each scale is presented graphically in the APT profile.

Information on the APT is available in the APT Orientation & Training Manual. Computer scoring information is contained in the APT Computer Operating Guide. Each of these manuals can be obtained upon request.

APT MEASURES (SCALES)

Users of the APT should be familiar with each APT scale. A description of each APT scale follows.

APT SCALES

1. Validity (Truthfulness) Scale: measures the truthfulness of the defendant while they were completing the APT. This scale identifies self-protective, defensive or guarded people who minimize or even fake answers.

2. Alcohol Severity Scale: measures the severity of alcohol abuse while identifying alcohol-related problems. Alcoholism is a significant problem in our society.

3. Drugs Severity Scale: measures drug (e.g., marijuana, cocaine, crack, heroin, etc.) abuse problems. Increased awareness of illicit (or illegal) substance abuse and its effects on defendants' lives is a growing concern. This scale is independent of the Alcohol Severity Scale.

4. Antisocial Reaction Scale: measures antisocial attitudes and behavior. It identifies defendants that are opposed to society and are aggressive, destructive and irresponsible. In general antisocial people are opposed to existing social organization and moral codes.

5. Lethality (Violence) Scale: measures the defendant's use of physical force to injure, damage, or destroy. It identifies individuals that are dangerous to themselves and others.

6. Stress Quotient Scale: measures a person's experienced stress level in comparison to that person's ability to cope with stress.

7. Substance Abuse/Dependency Scale: Substance (alcohol and /or other drugs) users are classified with DSM-IV criteria as abusers, dependent or non-pathological users.

The following studies summarize research conducted on a variety of defendants, e.g., adult offenders, probationers and community corrections clients.

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

APT RESEARCH

STRESS QUOTIENT

The Stress Quotient (SQ) 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 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 Scale is a valid measure of stress coping. The

Stress Quotient 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 Scale is correlated with these measures it would indicate that the SQ 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 Quotient 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 Scale is a reliable measure. These results support the Stress Quotient 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 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 Scale as a valid measure of stress coping abilities in adult 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 were 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 correlation's 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 correlation's 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 correlation's 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 correlation's between MMPI scales (ES, MAS, Pt) and the SQ scale components (CS, S) support the construct validity of the SQ Scale.

Reliability Study 6: The reliability of the Stress Quotient (SQ) 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) 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. 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 (-.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 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 as a valid measure of stress coping abilities.

The studies cited above demonstrate empirical relationships between the SQ Scale and other established measures of stress, anxiety and coping skills. This research demonstrates that the Stress Quotient (SQ) 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.

ADULT PRETRIAL TEST RESEARCH

The Adult Pretrial Test (APT) is designed for court use. The APT has a long history of research and development, much of which is contained in the following summary. APT research is reported in a chronological format, reporting studies as they occurred. This gives the reader the opportunity to see how the APT 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 APT scale consideration. Consensual agreement among three Ph.D. level psychologists and other experienced chemical dependency counselors familiar with 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 APT was then objectively standardized and normed on adult drug court offender populations.

10. A Study of APT 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 insures APT 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 APT in a paper-pencil test format. One week later they were re-tested with the APT 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 APT. Test-retest consistency was very high and indicates that the APT scores are reproducible and reliable over a one week interval.

11. Validation of the Validity (Truthfulness) Scale

The Validity (Truthfulness) Scale in the APT is an important psychometric scale as these scores establish how truthful the respondent was while completing the APT. Truthfulness Scale scores determine whether or not APT profiles are accurate and are integral to the calculation of Truth-Corrected APT scale scores. In the following studies Validity and Truthfulness are used interchangeably to refer to the Validity (Truthfulness) Scale.

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."

This preliminary study used the 21 Truthfulness Scale items in the APT 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 test. Group 2 was instructed to "fake good" while completing the test, but to respond "in such a manner that their faking good would not be detected." The test, which included the APT Truthfulness Scale, was administered to the subjects and the Truthfulness Scale was embedded in the test 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 test. The results of this study demonstrate that the Validity (Truthfulness) Scale accurately detects "Fakers" from those students that took the test honestly.

12. Validation of Four APT 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, the four APT scales (Truthfulness, Alcohol Severity, Drugs Severity and Stress Quotient) 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 APT scales were validated with MMPI scales as follows. The Truthfulness Scale was validated with the L Scale. The Alcohol Severity Scale was validated with the MacAndrew Scale. The Drugs Severity Scale was validated with the MacAndrew and Psychopathic Deviant scales. The Stress Quotient Scale was validated with the Taylor Manifest Anxiety, Psychasthenia, Social Maladjustment and Social Alienation scales.

Method

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

Results and Discussion

Product-moment correlation coefficients were calculated between APT scales and MMPI scales. These results are summarized in Table 1. Correlation results presented in Table 1 show that all APT 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 APT scales**

<u>MMPI SCALES (MEASURES)</u>	<u>APT SCALES (MEASURES)</u>			
	Truthfulness	Alcohol	Drugs	Stress Quotient
L (Lie) Scale	0.72	-0.38	-0.41	0.53
Psychopathic Deviant	-0.37	0.52	0.54	-0.59
Psychasthenia	-0.34	0.38	0.41	-0.68
Social Maladjustment	-0.25	0.34	0.26	-0.54
Authority Conflict	-0.43	0.31	0.47	-0.46
Manifest Hostility	-0.45	0.34	0.47	-0.58
Taylor Manifest Anxiety	-0.58	0.47	0.46	-0.78
MacAndrew	-0.40	0.58	0.62	-0.33
Social Alienation	-0.47	0.35	0.45	-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 APT scales.

The **Alcohol Severity Scale** correlates significantly with all represented MMPI scales. This is consistent with the conceptual definition of the Alcohol Severity 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 correlation's 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 **Drugs Severity Scale** correlates significantly with the MacAndrew ($r = 0.62$) Scale and the Psychopathic Deviant ($r = 0.54$) Scale.

The **Stress Quotient Scale** is inversely related to MMPI scales which accounts for the negative correlation's 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 Quotient 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 APT scales. All of the APT scales were highly correlated with the MMPI criterion scale they were tested against. The large correlation coefficients support the validity of the APT. All product-moment correlation coefficients testing the relation between APT scales and MMPI scales were significant at the $p < .001$ level.

13. Relationships Between Selected APT 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 APT scales were chosen for this study; Validity (Truthfulness) Scale, Alcohol Severity Scale and Drugs Severity Scale. The Truthfulness Scale was chosen because it is used in the APT to measure the truthfulness or honesty of the respondent while completing the APT. The Alcohol Severity and Drugs Severity scales are well suited for comparison with the polygraph exam because of the situation specific nature of the scales. Alcohol Severity and Drugs Severity scale items are direct and relate specifically to alcohol and drug use. The comparison with the Truthfulness Scale is less direct because of the subtle nature of the Truthfulness Scale items as used in the APT. The Truthfulness Scale is affected by the respondent's attitude, emotional stability and tendencies to fake good. It was expected that the Alcohol Severity and Drugs Severity 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 APT scales and the Polygraph examination. Tests were given in a counterbalanced order, half of the applicants were given the APT scales first and the other half of the applicants were administered the polygraph first. The subjects were administered the APT scales 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 APT 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 Severity Scale ($r = 0.54$, $p < .001$) and the Drugs Severity Scale ($r = 0.56$, $p < .001$).

In summary, this study supports the validity of the APT Truthfulness, Alcohol Severity and Drugs Severity scales. There were strong positive relationships between the selected APT scales and the Polygraph examination. The highly significant product-moment correlations between APT scales and Polygraph examinations demonstrates the validity of the APT Truthfulness, Alcohol Severity and Drugs Severity 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 APT. The fact that there was a very strong relationship between Polygraph results and APT scales shows that this type of information can be obtained accurately in self-report instruments.

These results indicate that the APT Truthfulness Scale is an accurate measure of the respondent's truthfulness or honesty while completing the APT. 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 APT 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 APT is a valid assessment instrument.

14. Validation of APT Scales in a Sample of Substance Abuse Inpatients

The APT is an adult chemical dependency and substance (alcohol and other drugs) abuse assessment instrument. It is designed for use in court-related settings, diversion programs and probation departments. The APT is a specific test designed for specific defendant populations. The present study (1987) was conducted to validate the APT 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 APT scales. The Validity (Truthfulness) Scale was validated with MMPI L Scale, F Scale and K Scale. The Alcohol Severity Scale was validated with MMPI MacAndrew Scale (MAC) and Psychopathic Deviate-Obvious (PD-O). The Drugs Severity Scale was validated with MMPI MacAndrew Scale and Psychopathic Deviate-Obvious. The Stress Quotient 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 APT scales because they measure similar attributes.

Method

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

Results and Discussion

The product-moment correlation results are summarized in Table 2. Since this study is important in understanding APT validity, each APT 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 Severity 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 **Drugs Severity Scale** correlates significantly in predicted directions with selected MMPI criterion scales: MAC (MacAndrew scale, $p < .001$), and PD-O (Psychopathic Deviate Obvious, $p < .001$).

The **Stress Quotient 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, $p < .001$).

**Table 2. APT-MMPI Product-moment Correlations (1987)
Inpatients, Chemical Dependency Facilities (N = 212)**

MMPI SCALES (MEASURES)	APT SCALES (MEASURES)			
	Truthfulness	Alcohol	Drugs	Stress Quotient
L	0.60	-0.24	-0.15	-0.30
F	-0.34	0.32	0.32	0.49
K	0.39	-0.28	-0.29	-0.51
MAC	-0.30	0.35	0.37	0.28
PD-O	-0.35	0.22	0.33	0.53
PD2	-0.26	0.18	0.17	0.07
PD	-0.33	0.21	0.33	0.39
HOS	-0.45	0.25	0.33	0.46
TSC-V	-0.46	0.34	0.28	0.58
ES	0.25	-0.27	-0.25	-0.51
RE	0.41	-0.27	-0.34	-0.45
SOC	-0.19	0.17	0.08	0.39
PD4	-0.41	0.20	0.28	0.55
SCIA	-0.36	0.27	0.32	0.39
PT	-0.39	0.27	0.24	0.58
A	-0.41	0.31	0.31	0.68
MAS	-0.44	0.25	0.18	0.65
TSC-VII	-0.41	0.33	0.29	0.66

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

The APT Alcohol Severity and Drugs Severity scales are direct measures of alcohol and drug use or 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 Severity and Drugs Severity scales could be affected by the lack of a truthfulness measure which is a deficiency of the MacAndrew Scale. However, the correlation coefficients were still significant.

Where MMPI scales are closely related (by definition) to APT scales the correlation coefficients were highly significant. For example, the APT 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 the Stress Quotient Scale and MMPI Tension/Worry Scale was $r = -.66$. This study supports the validity of these four scales of the Adult Pretrial Test (APT).

15. Validation of APT Scales Using DRI Scales as the Criterion Measures

A study was conducted in 1988 that was designed to examine relationships (correlations) between the Adult Pretrial Test (APT) and the Driver Risk Inventory (DRI) 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 APT is designed for adult chemical (alcohol and other drugs) dependency assessment. It contains six measures or scales: Validity (Truthfulness), Alcohol Severity, Drugs Severity, Antisocial Reaction, Lethality (Violence) and Stress Quotient. Four of these six APT 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, Drugs, Driver Risk and Stress Quotient.

Although the scales designated Truthfulness, Alcohol, and Drugs are independent and differ in the APT and DRI, they were designed to measure similar behaviors or traits. Thus, although essentially composed of different test questions in the APT and DRI test booklets, these comparable measures or scales do have similarity. The Stress Quotient Scale in both APT and DRI contains the same 30 test items.

Method

The APT and DRI scales 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 subject 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 ethnicity's. 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 APT and DRI scales. Although all inmates volunteered to participate in this study, inmate motivation varied.

Results and Discussion

The results of this study are presented in Table 3. The results demonstrate highly significant relationships between the analogues APT and DRI scales. The DRI has been shown to be a valid measure of substance (alcohol and drug) abuse in DUI/DWI offenders, hence, these correlation results support the validity of the APT as a valid measure of substance abuse.

It was noted that inmate motivation varied widely. This is evident in the Stress Quotient correlation coefficient of .764. 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 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.

These results are important for another reason. This study extends the APT normative (standardization sample) population to include inmates and incarcerated individuals who are serving their sentences in

maximum security facilities. The validity of the APT has been demonstrated on a sample of incarcerated substance (alcohol and other drugs) abuse offenders.

Table 3. Product-moment correlations 1988 study of DWI inmates (N = 154).
All product-moment correlations are significant at p<.001.

<u>DRI versus</u> <u>APT Scales</u>	<u>Agreement</u> <u>Coefficients</u>
Truthfulness Scale	.641
Alcohol Scale	.348
Drugs Scale	.338
Stress Quotient	.764

16. Validation of APT Scales in a Sample of Vocational Rehabilitation Clients

The Adult Pretrial Test (APT) was investigated in a sample of individuals who are not generally associated with substance abuse but who have other handicaps. The participants in the present study (1991) were Vocational Rehabilitation clients. These are individuals who have some form of handicap and require assistance in obtaining and/or maintaining employment.

Selected scales in the Minnesota Multiphasic Personality Inventory (MMPI) were used as criterion measures for the different Adult Pretrial Test (APT) scales. Comparisons to previous validating studies which used substance (alcohol and other drugs) abuse subjects will be made to determine the applicability of the APT to various adult samples.

Method

The subjects used in the present study consisted of 74 Vocational Rehabilitation clients. The APT and MMPI scales were administered in counterbalanced order. Product-moment correlations were calculated between APT scales and selected criterion MMPI scales. The Truthfulness Scale was validated with the MMPI L Scale, F Scale and K Scale. The Alcohol Severity Scale was validated with the MMPI MacAndrew Scale (MAC) and Psychopathic Deviate (PD). The Drugs Severity Scale was validated the MMPI MacAndrew Scale, Psychopathic Deviate. The Stress Quotient Scale was validated with the MMPI Psychasthenia (PT), Taylor Manifest Anxiety (MAS) and Tension (TSC-VII).

Result and Discussion

There were 74 Vocational Rehabilitation clients used in the study. There were 49 males and 25 females. Age was distributed (frequency given in parentheses) as follows: 18 to 21 years (11), 22 to 25 years (7), 26-29 years (11), 30-33 years (14), 34-37 years (10), 42-45 years (9), 46-49 years (8), 50 or more years (4). Six education categories were represented: 8th grade or less (11), Partially completed High School (18), GED (14), High School Graduate (21), Some College (6), College Graduate (4). There were 47 Caucasians, 12 Blacks, 8 Hispanics, 6 American Indians and 1 other ethnicity. The correlation results are summarized in Table 4. For clarity, APT scales are summarized individually and their MMPI scale correlations discussed.

The **Truthfulness Scale** was significantly correlated with the MMPI scales that are associated with truthfulness measures. The APT Truthfulness Scale was significantly correlated with the MMPI L Scale ($p<.001$), F scale ($p<.01$) and K scale ($p<.01$). When a person attains elevated L, F or K scales on the MMPI, other MMPI scale scores are invalidated. Similarly, an elevated Truthfulness Scale score on the APT invalidates other APT scale scores.

The **Alcohol Severity Scale** was significantly correlated with the MMPI MacAndrew Scale ($p < .01$) and the PD scale (Psychopathic Deviate, $p < .001$). High MMPI PD and MAC scores are often associated with substance abuse. The **Drugs Severity Scale** was significantly correlated with the PD Scale (Psychopathic Deviate, $p < .01$). The APT Drugs Severity scale did not correlate significantly with the MMPI MacAndrew Scale. Substance (alcohol and other drugs) abusers have a close identity with their substance of choice. Without independent scales on the MacAndrew Scale for alcohol and drugs, many substance abusers would remain undetected. The MacAndrew Scale does not have its own truthfulness scale. The low correlation between APT Drugs Severity Scale and MacAndrew Scale may have been due to lying or faking on the MacAndrew Scale.

**Table 4. Product-moment correlations.
Vocational Rehabilitation Clients (1991, N=74)**

<u>MMPI SCALES</u>	<u>APT SCALES</u>			<u>Stress Quotient</u>
	<u>Truthfulness</u>	<u>Alcohol</u>	<u>Drugs</u>	
L	.493**	.001	-.141	-.105
F	-.344*	.435**	.334*	.440**
K	.344*	-.257	-.079	-.308*
PD	-.109	.454**	.292*	.568**
MAC	-.177	.303*	.145	.168
TSC-VII	.480**	.295*	.189	.441**
PT	-.135	.273*	.244	.501**
MAS	-.245	.396**	.240	.574**

NOTE: level of significance, * $< .01$, ** $< .001$

The **Stress Quotient Scale** correlates most significantly with the MMPI MAS (Taylor Manifest Anxiety, $r = .574$, $p < .001$), PT (Psychasthenia, $r = .501$, $p < .001$) and TSC-VII (Tension, $r = .568$, $p < .001$). These findings are consistent with earlier research.

These results are consistent with earlier research involving the administration of both the APT and MMPI scales in that APT scales are significantly correlated in expected directions with criterion MMPI scales. These findings support the validity of the APT.

Comparisons between the present study and previous research that tested substance abusers (inpatient clients at chemical dependency facilities) shows some interesting results which may reflect sample differences. As stated above, there was a somewhat lower correlation between the Truthfulness Scale and L Scale. There was a higher correlation between the Drugs Severity Scale and MacAndrew Scale in the substance abuser study and a lower correlation between the Alcohol Severity Scale and Psychopathic Deviate Scale.

17. Validation of APT Scales in a Sample of Adult Probationers

The present study (1992) was conducted to validate the Adult Pretrial Test (APT) with adult probation clients with criterion measures from selected Minnesota Multiphasic Personality Inventory (MMPI) scales. This study was done to provide validation of APT scales 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 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 APT and MMPI scales were administered in counterbalanced order. Product-moment correlations were calculated between APT 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 Severity Scale was validated with the MMPI MacAndrew Scale and PD Scale. The Drugs Severity Scale was validated with the MMPI MacAndrew Scale and PD Scale. The Stress Quotient 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), **TSC-VII** (Tension).

Results and Discussion

The results of this study (1992, N = 171) are summarized in Table 5.

**Table 5. Product-moment correlations.
Adult Probation Clients (1992, N=171)**

MMPI SCALES	Truthfulness	Alcohol	Drugs	Stress Quotient
L	.511**	.022	-.186*	-.065
F	-.293**	.379**	.269*	.462**
K	.458**	-.201*	-.151	-.319**
PD	-.241**	.312**	.190*	.491**
PT	-.279**	.202*	.115	.470**
MAS	-.394**	.288**	.151	.536**
MAC	.005	.051	.090	.076
TSC-VII	-.431**	.222*	.168	.446**

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 APT Truthfulness Scale. This supports the validity of the APT Truthfulness Scale.

The **Alcohol Severity Scale** correlates significantly with the MMPI PD Scale. The correlation with the MAC Scale was not significant. Similarly, The **Drugs Severity Scale** correlates significantly with the MMPI PD Scale but not with the MAC Scale. These results support the validity of the APT Alcohol Severity Scale and Drugs Severity Scale while raising questions concerning the MacAndrew's (MAC) lack of a Truthfulness Scale.

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

This study supports the validity of APT scales in a sample of adult probationers. APT 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. And the MacAndrew Scale lacks a Truthfulness Scale. The APT Alcohol Severity and Drugs Severity scales correlate with the PD Scale which has been shown to be a valid measure of substance abusers and substance abusing adult probationers.

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

18. Validation of the APT Lethality (Violence) Scale with a Polygraph Examination

The Lethality (Violence) Scale measures physical force to injure, damage or destroy. The Violence Scale identifies people that are dangerous to themselves and others. This study (1994) was conducted to evaluate the validity of the Violence Scale in the APT.

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 the APT Lethality (Violence) Scale and polygraph examination on violence were in agreement most of the time. This significant correlation was in the predicted direction. This study supports the validity of the Violence Scale.

19. Validation of the Antisocial Reaction and Lethality (Violence) Scales

The present study (1994) utilized selected MMPI scales as criterion measures to validate the Antisocial Reaction Scale and Lethality (Violence) Scale. Ninety-seven (97) male chemical dependency outpatients were alternately administered the MMPI and the Antisocial Reaction and Violence scales. The results demonstrated that the Antisocial Reaction Scale correlated significantly, in the expected direction, with the following MMPI scales: Psychopathic Deviant (PD, $r = 0.48$), Social Alienation (SCIA, $r = 0.46$) and Social Maladjustment (SOC, $r = 0.51$). 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 Antisocial Reaction and Lethality (Violence) Scales.

20. Reliability Study of APT Scales in Two Samples of Probationers

This study (1997) was conducted to test the reliability of the APT scales in two samples of probationers. 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 measure 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 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 6.

**Table 6. Reliability coefficient alphas (1997, $N = 3,181$).
All coefficient alphas are significant at $p < .001$.**

APT SCALES	1 Probationers <u>N = 850</u>	2 Probationers <u>N = 2,331</u>
Truthfulness Scale	.87	.88
Alcohol Severity Scale	.95	.95
Drugs Severity Scale	.93	.92
Antisocial Reaction Scale	.81	.80
Lethality (Violence) Scale	.87	.85
Stress Quotient Scale	.93	.92

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

21. Validation of the Substance Dependency/Abuse Scale and Other APT Scales

The Substance Dependency/Abuse Scale incorporates the seven DSM-IV criteria for substance dependency classification and the four DSM-IV criteria for substance abuse classification. Also, equivalent items were added to the Alcohol Severity and Drugs Severity scales. When a person admits to three or more of the seven DSM-IV criteria for substance dependence they are classified as dependent. Similarly, when a person admits to one or more of the four DSM-IV criteria for substance abuse they are classified as abuse. A study (1997) conducted by Dr. Fred Marsteller of Emory University and Dr. Donald Davignon of Behavior Data Systems entitled “A Validation Study of the DRI-II in a Large Sample of DUI Offenders” investigated the validity of this Substance Dependency/Abuse Scale along with the predictive accuracy of the Alcohol Severity and Drugs Severity scales in identifying offenders classified as dependent or abuse.

The APT Truthfulness Scale, Alcohol Severity Scale and Drugs Severity Scale, as well as the Substance Dependency/Abuse Scale, were validated using criterion measures selected for this study. The following tests were done: the Truthfulness Scale was validated with the MMPI-2 L Scale. The Alcohol Severity Scale was validated with the MMPI-2 MacAndrew Scale. The Drugs Severity Scale was validated with the Drug Abuse Screening Test (DAST). The Substance Dependency/Abuse Scale was validated with a DSM-IV substance use dependency scale devised for this study.

Method

For concurrent validity comparisons the following tests were incorporated into a 159 item “criterion test.” MMPI-2 L Scale, MacAndrew, Drug Abuse Screening Test (DAST), MMPI F Scale, and the DSM-IV substance dependency items. All criterion test items were written in a True/False format. The MMPI-2 F Scale was included in the criterion test because it indicates a haphazard approach to testing or a wish to put self in a bad light. The APT scales and the criterion test were administered in counterbalanced order to all participants as part of their normal DUI screening procedure.

There were 1,014 DUI offenders included in the present study. There were 811 males (80%) and 203 females (20%). The offenders are broadly defined as Caucasian (83.3%), between the ages of 21 and 40 (65.7%), High School graduate or better (75.2%) and single (49.4%).

Results and Discussion

Product-moment correlation coefficients are presented in Table 7. Intraclass correlations were also computed but the correlations were identical to the product-moment correlations to the second decimal place when the product-moment correlations were positive and the intraclass correlation is undefined when the product-moment correlations were negative.

Table 7. Product-moment correlations. DUI Offenders (1997, N = 1,014)
All product-moment correlations shown are significant at p<.001.

<u>APT Scales</u>	<u>MMPI-2 L</u>	<u>MacAndrew</u>	<u>DAST</u>	<u>DSM-IV</u>
Truthfulness	.668	-.371	-.289	-.324
Alcohol Severity	-.154	.291	.508	.625
Drugs Severity	n.s.	.152	.618	.276
Dependency/Abuse	-.251	.352	.371	.964

The correlation between the **Truthfulness Scale** and the MMPI-2 L Scale is highly significant ($r = .668$, $p < .001$) and in the expected positive direction. It is rare to find correlation coefficients in validation testing above .60. Usually they are much lower. These results support the validity of the APT Truthfulness Scale.

The **Alcohol Severity Scale** correlates significantly with the MacAndrew Scale ($r = .291, p < .001$), in the predicted direction. The MacAndrew Alcoholism Scale (MacAndrew, 1965) was derived from the MMPI as a measure of alcoholism. The MacAndrew Scale used in this study is the revised version applicable to the current version of the MMPI, the MMPI-2. MacAndrew Scale items were selected because, as a group, they successfully discriminated alcoholics from non-alcoholics in validation samples. The MacAndrew Scale items have little face validity with respect to alcohol use, with only one item referring directly to alcohol. The opinion of researchers using the MacAndrew Scale is that it reflects both a) behaviors and symptoms which are common among alcoholics. The Alcohol Severity Scale measures alcohol use and identifies alcohol-related problems. The Alcohol Severity Scale items specifically refer to alcohol use and alcohol-related symptoms. The correlation between the Alcohol Severity Scale and the MacAndrew Scale was significant and in the positive direction.

The relatively small correlation coefficient with the MacAndrew Scale may reflect several differences between the scales. The MacAndrew Scale was developed to detect alcoholism per se. Its items are generally not directly related to alcohol use and alcohol-related problems, but refer instead to secondary symptoms and characteristics which have successfully discriminated alcoholics from non-alcoholics in clinical validation samples. The MacAndrew Scale was also devised to identify alcoholism among White males (Greene, 1991) and females and ethnic minorities have been shown to respond differently from White males.

The Alcohol Severity Scale is very direct in asking about alcohol use and alcohol-use related symptoms. It is also designed to assess alcohol-related problems across a broad range of severity, not just differentiate alcoholics from non-alcoholics. Furthermore, the Alcohol Severity Scale incorporates truth-correction, whereas the MacAndrew Scale does not.

The **Drugs Severity Scale** correlates significantly with the DAST ($r = .618, p < .001$), in the predicted direction. The DAST is a drug use questionnaire that directly refers to drug use and abuse. It was designed to screen clinical populations for significant drug abuse problems. The Drugs Severity Scale measures drug (marijuana, crack, cocaine, barbiturates, amphetamines, heroin) use and abuse problems. The Drugs Severity Scale provides assessment across the full spectrum, while the DAST focuses on major problems or extreme cases. These results support the validity of the Drugs Severity Scale. The Drugs Severity Scale accurately measures illicit drug use and abuse. Again, the truth-corrected scores of the Drugs Severity Scale may reduce the correlation with the DAST which is not truth-corrected.

There was a high positive correlation between the **Substance Dependency/Abuse Scale** and the DSM-IV Criterion items ($r = .964, p < .001$). This high correlation reflects their very strong overlap. This result supports the validity of the Substance Dependency/Abuse Scale. This finding suggests that clients answer DSM-IV substance dependency criteria items in the same way they answer Substance Dependency/Abuse Scale items (and their equivalents).

These results support the validity of the APT scales used in this study. There were very strong positive correlations between the APT scales and the criterion scales used to test the different APT scales.

To assess the ability of the different scales used in this study to distinguish among subjects rated as “no classification”, “substance abuse” or “substance dependent” based on the criterion DSM-IV scale, ANOVAs comparing the mean scores for each scale among the classification groups were computed.

The question addressed here is whether the different scales used in this study can discriminate among the classification groups. Mean scale scores for each classification group is presented in Table 8.

The ANOVA comparison among the “no classification”, “abuse” and “dependence” groups found that for each scale, the classification groups were very significantly different (all p 's<.001). It is noteworthy that for the Alcohol Severity Scale, the differences among the “classification” groups are larger than those for the MacAndrew Scale. This finding supports the conclusion that the Alcohol Severity Scale accurately discriminates between “classification” categories and does so better than the MacAndrew Scale.

Table 8. Mean scale scores for each classification group. DUI Offenders (1997, N = 1,014). ANOVA comparisons between groups are significantly different at p <.001.

	<u>no classification</u>	<u>abuse</u>	<u>dependent</u>
Truthfulness Scale	12.7	9.1	8.1
MMPI-2 L Scale	7.3	5.7	5.0
Alcohol Severity Scale	9.4	12.5	28.7
MacAndrew Scale	20.2	21.7	24.0
Drugs Severity Scale	4.1	3.8	8.5
DAST	3.4	4.1	7.2

Each of the APT scales (Truthfulness, Alcohol Severity, Drugs Severity and Substance Dependency/Abuse) correlate highly significantly with their respective criterion tests. These large correlation coefficients support the validity of APT scales. ANOVA results support the discriminant validity of the APT scales.

Greene, R.L. (1991). The MMPI-2/MMPI: An Interpretive Manual. Boston: Allyn and Bacon.

22. Validity, Reliability and Scale Risk Range Accuracy Study of the APT in Drug Court Clients

The APT is designed for court use. The APT measures substance (alcohol and drugs) use and abuse. The present study (1998) was conducted to analyze the reliability of the APT in a drug court sample. The study also involved analysis of risk assessment and summary of client self-perceptions of alcohol and drug problems.

Two statistics procedures were used in the present study to test the validity of the Adult Pretrial Test. 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 Severity Scale. Similarly, number of drug arrests was used for the Drugs Severity Scale. The answer sheet item “total number of times arrested” was used to categorize offenders as either first offenders or multiple offenders for the Lethality (Violence) and Antisocial Reaction scales 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 Severity Scale is a measure of alcohol abuse or severity of abuse. Alcohol Severity 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 Severity 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 Severity Scale) classifies “known” cases (treatment). In the present study predictive validity was evaluated in the Adult Pretrial Test (APT) by using contingency tables defined by scale scores and either treatment or number of arrests. Treatment was used with the Alcohol Severity Scale and Drugs Severity Scale, and violent crime or assault arrests were used with the Violence Scale.

Risk range percentile scores are calculated for each APT scale. These risk range percentile scores are derived from scoring equations based on responses to scale items, Truth-Corrections and prior criminal history information. These scores are 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 APT risk range percentile scores involves comparing the risk range percentile scores obtained from client APT 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 probationers falling in each of the four risk ranges, based on their risk range percentile scores, was compared to these predicted percentages.

Method and Results

The APT was administered to 100 court clients as part of routine evaluation in a municipal substance abuse screening program. There 86 (86%) males and 14 (14%) females. Demographic composition of the subjects was as follows: Age in years: 19 & under (15%); 20-29 (38%); 30-39 (28%); 40-49 (12%); 50-59 (5%); 60 & over (1%). Ethnicity: Caucasian (10.5%); Black (4.2%); Hispanic (78.9%); Native American (5.3%); Other (1.1%). Education: 8th grade or less (9%); Some High School (25%); H.S. graduate (52%); Some college (2%); College graduate (7%). Marital Status: Single (76.1%); Married (18.2%); Divorced (3.4%); Separated (2.3%).

Reliability coefficient alphas are presented in Table 9.

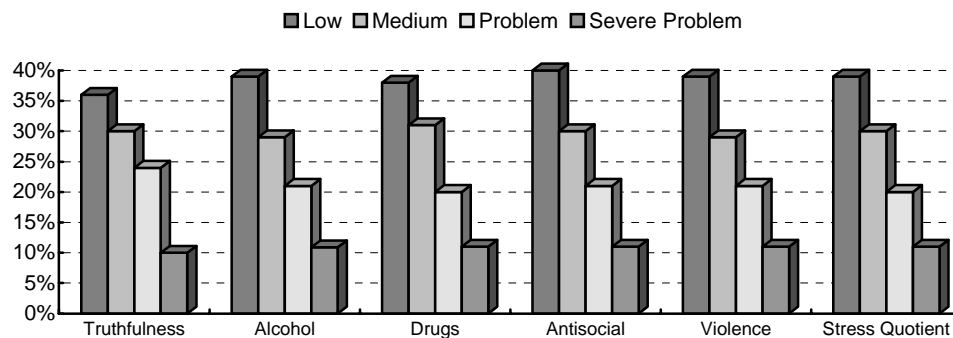
Table 9. Reliability coefficient alphas (1998, N = 100).
All coefficient alphas are significant at p<.001.

<u>APT SCALE</u>	<u>Drug court clients N = 100</u>
Truthfulness Scale	.89
Alcohol Severity Scale	.93
Drugs Severity Scale	.89
Antisocial Reaction Scale	.81
Lethality (Violence) Scale	.85
Stress Quotient Scale	.93

These results support the reliability of the APT. All reliability coefficient alphas were significant at p<.001. The drug court clients used in the present study reveal similar reliability statistics that have been found in probationers used in other studies. The APT is a statistically reliable screening instrument for assessment of court and substance (alcohol and drugs) abuse defendants.

Risk analysis is presented in Table 10.

Table 10. Risk Range Percentile Scores for Drug Court Clients, 1998, N = 100.



<u>Risk Range</u>	<u>Truthfulness</u>	<u>Alcohol</u>	<u>Drugs</u>	<u>Antisocial</u>	<u>Violence</u>	<u>Stress Quotient</u>	<u>Predicted</u>
Low	36.0	39.0	38.0	40.0	39.0	39.0	39%
Medium	30.0	29.0	31.0	30.0	29.0	30.0	30%
Problem	24.0	21.0	20.0	19.0	21.0	20.0	20%
Maximum	10.0	11.0	11.0	11.0	11.0	11.0	11%

These results show that obtained risk range percentile scores closely approximated the predicted risk range percentile scores for each of the six APT scales presented in Table 10 for drug court client sample included in the study. These results indicate that the APT is a very accurate risk assessment instrument for drug court use.

The results of the comparisons between obtained risk percentages and predicted percentages shows that all obtained scale risk range percentile scores were within 4.0 percent of predicted. The largest difference

between obtained and predicted risk range percentages occurred on the Truthfulness Scale. All other scales were within one percentage point of predicted. This is very accurate defendant risk assessment.

The t-test comparisons between first offenders and multiple offenders for each scale is presented in Tables 11 through 13. There were 100 court defendants used in this analysis.

**Table 11. T-test comparisons between first offenders and multiple offenders.
Offender status defined by total number of arrests. (1998, N = 100)**

APT Scale	First Offenders Mean (N=20)	Multiple Offenders Mean (N=80)	T-value	Level of significance
Truthfulness Scale	12.10	12.08	t = 0.02	n.s.
Antisocial Reaction Scale	12.10	22.88	t = 6.29	p<.001
Lethality (Violence) Scale	9.6	18.39	t = 4.36	p<.001
Stress Quotient Scale	142.85	127.29	t = 1.18	n.s.

**Table 12. T-test comparison of Alcohol Severity Scale between first offenders and multiple offenders.
Offender status defined by number of alcohol arrests.**

APT Scale	First Offenders Mean (N=45)	Multiple Offenders Mean (N=55)	T-value	Level of significance
Alcohol Severity Scale	14.27	21.29	t = 2.56	p=.012

**Table 13. T-test comparison of Drugs Severity Scale between first offenders and multiple offenders.
Offender status defined by number of drug arrests.**

APT Scale	First Offenders Mean (N=96)	Multiple Offenders Mean (N=4)	T-value	Level of significance
Drugs Severity Scale	9.97	24.5	t = 2.74	p<.007

These t-test results support the discriminant validity of the APT. All t-test comparisons between first offenders and multiple offenders were significant on the Alcohol Severity, Drugs Severity, Antisocial Reaction and Violence scales. The Truthfulness Scale showed that first offenders and multiple offenders had nearly identical scale scores. This suggests that first and multiple offenders are equally guarded in court-related settings. The mean scale score on the Stress Quotient Scale indicated that first offenders had higher scores on average (better stress coping abilities) than multiple offenders, however, the difference between first and multiple offenders was not significant. The Stress Quotient Scale is non-intrusive and non-threatening. Consequently, respondents responded in a non-defensive manner.

T-test results of the Antisocial Reaction Scale and 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 Antisocial Reaction Scale and Violence Scale.** T-test results of the Alcohol Severity Scale and Drugs Severity 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 Severity Scale, Drugs Severity Scale, Antisocial Reaction Scale and Violence Scale.**

The test of predictive validity for the Alcohol Severity Scale is presented in Table 14. Defendants 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 Severity Scale score at or below the 39th percentile, whereas alcohol-related problematic behavior is defined as an Alcohol Severity Scale score in the 70th or above percentile range. Alcohol treatment information was obtained from defendants responses to APT test items.

Table 14. Predictive validity for the Alcohol Severity Scale using scale scores and alcohol treatment.

Alcohol Severity Scale	Alcohol Treatment		Number in each category
	No treatment	One or more treatments	
Low Risk (zero to 39th percentile)	31 (.82)	8 (.24)	39
Problem or Severe Problem Risk (70 to 100th percentile)	7 (.18)	25 (.76)	32
	38	33	N = 71

These results show that for the 33 defendants who reported having had alcohol treatment, 25 defendants, or 76 percent, had Alcohol Severity Scale scores at or above the 70th percentile. Similarly, of the 38 defendants who did not have alcohol treatment, 31 defendants or 82 percent had Alcohol Severity Scale scores in the Low Risk or no problem range. This percentage is reasonable because probationers could have a drinking problem without having been in treatment. These results show there is a very strong positive correlation between Alcohol Severity Scale scores and alcohol treatment.

The predictive validity test of the Drugs Severity Scale was done in the same way using drug treatment as the criterion. Of the 26 defendants who reported having had drug treatment 21 or 81 percent had Drugs Severity Scale scores in the 70th percentile or higher (Problem Risk and above). Of the 43 defendants who did not have treatment 33 (77%) had Drugs Severity Scale scores in the Low Risk (no problem) range. These results show there is a very strong positive correlation between the Drugs Severity Scale and drug treatment.

For the Violence Scale, 79 percent of the defendants who had been arrested for a violent crime or assault, had Violence Scale scores at or above the 70th percentile. 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 APT. Reliability coefficient alphas were significant at $p < .001$ for all APT scales. T-test comparisons between first offenders and multiple offenders support discriminant validity of the Alcohol Severity Scale, Drugs Severity Scale, Antisocial Reaction Scale and Violence Scale because multiple offenders scored significantly higher on the different scales than first offenders. Predictive validity of the Alcohol Severity Scale, Drugs Severity 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). These results support the reliability, validity and accuracy of the APT.

23. Validation of the APT in Drug Court Clients

This study investigated the APT (1999) in a sample of drug court clients and replicated an earlier study that reported scale accuracy, discriminant and predictive validity, as well as reliability tests. The earlier study

validated the APT on a small sample (N=100) of drug court defendants. The present study sample consisted of a larger sample of 300 drug court defendants.

Within-test **reliability** statistics were performed on the Adult Pretrial Test 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 APT scales are presented.

The two **validity** statistics that were carried out in the previous study are also used to test the validity of the APT. For an explanation of these validation procedures please refer to the study presented above. The first validation procedure compares first offenders and multiple offenders (discriminant validity). Multiple offenders are defined as offenders who reported two or more arrests on their APT answer sheet. For the Alcohol Severity Scale t-test comparisons, alcohol arrests are used to categorize offenders as either a first offender or a multiple offender. For the Drugs Severity Scale, drug arrests are used to categorize offenders and for all other scales, offenders are categorized by total number of times arrested. 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.

The second validation procedure (predictive validity) determines the accuracy of the APT in identifying cases with “known” problems. For this procedure, known cases are defined as clients who have been in treatment for alcohol or drugs, or have been arrested for assault or a violent crime. This procedure is used to validate the Alcohol Severity Scale, Drugs Severity Scale and Lethality (Violence) Scale.

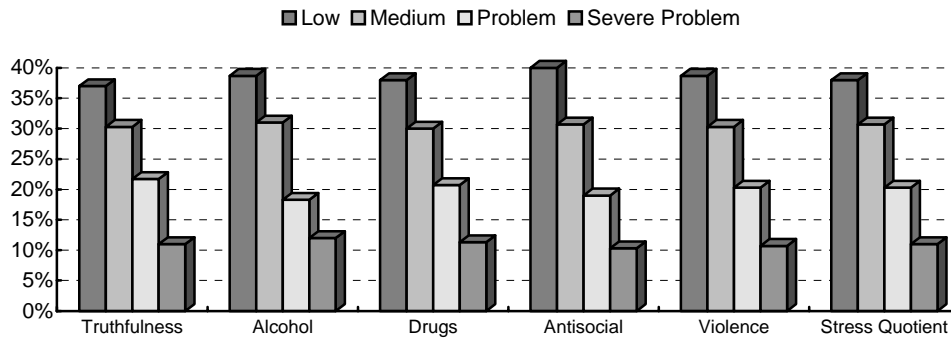
Method and Results

The APT 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%).

Comparisons of obtained APT risk range percentile scores to predicted percentages are presented in the figure and table below. Predicted risk range percentages are presented in the right hand column of Table 15.

Comparisons between obtained risk range percentages and predicted percentages show that all obtained risk range percentile scores were within 2.0 percent of predicted. 21 of the 24 possible risk range percentages (6 scales x 4 risk ranges) were within one percentage point of predicted. This is very accurate defendant risk assessment.

Table 15. Risk Range Percentile Scores for Drug Court Clients, 1999, N = 300.



<u>Risk Range</u>	<u>Truthfulness</u>	<u>Alcohol</u>	<u>Drugs</u>	<u>Antisocial</u>	<u>Violence</u>	<u>Stress Quotient</u>	<u>Predicted</u>
Low	37.0	38.7	38.0	40.0	38.7	38.0	39%
Medium	30.3	31.0	30.0	30.7	30.3	30.7	30%
Problem	21.7	18.3	20.7	19.0	20.3	20.3	20%
Maximum	11.0	12.0	11.3	10.3	10.7	11.0	11%

These results show that obtained risk range percentile scores closely approximated the predicted risk range percentile scores for each of the six APT scales presented in Table 15 for this sample of 300 drug court clients. These results indicate that the APT is a very accurate risk assessment instrument for drug court use.

Reliability coefficient alphas are presented in Table 16.

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

Table 16. Reliability coefficient alphas (1999, N = 300).
All coefficient alphas are significant at p<.001.

<u>APT SCALE</u>	<u>Drug court clients N = 300</u>
Truthfulness Scale	.90
Alcohol Severity Scale	.93
Drugs Severity Scale	.91
Antisocial Reaction Scale	.84
Lethality (Violence) Scale	.89
Stress Quotient Scale	.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.

The t-test comparisons between first offenders and multiple offenders for each scale is presented in Tables 17 through 19. There were 300 drug court defendants used in this discriminant validity analysis.

**Table 17. T-test comparisons between first offenders and multiple offenders.
Offender status defined by total number of arrests. (1999, N = 300)**

<u>APT Scale</u>	<u>First Offenders Mean (N=89)</u>	<u>Multiple Offenders Mean (N=211)</u>	<u>T-value</u>	<u>Level of significance</u>
Truthfulness Scale	12.24	11.57	t = 0.89	n.s.
Antisocial Reaction Scale	11.67	23.58	t = 11.64	p<.001
Lethality (Violence) Scale	8.8	18.71	t = 8.13	p<.001
Stress Quotient Scale	137.99	122.5	t = 2.44	p=.015

**Table 18. T-test comparison of Alcohol Severity Scale between first offenders and multiple offenders.
Offender status defined by number of alcohol arrests.**

<u>APT Scale</u>	<u>First Offenders Mean (N=152)</u>	<u>Multiple Offenders Mean (N=148)</u>	<u>T-value</u>	<u>Level of significance</u>
Alcohol Severity Scale	11.5	23.53	t = 7.97	p<.001

**Table 19. T-test comparison of Drugs Severity Scale between first offenders and multiple offenders.
Offender status defined by number of drug arrests.**

<u>APT Scale</u>	<u>First Offenders Mean (N=287)</u>	<u>Multiple Offenders Mean (N=13)</u>	<u>T-value</u>	<u>Level of significance</u>
Drugs Severity Scale	10.4	31.85	t = 6.83	p<.001

These t-test results support the discriminant validity of the APT. T-test comparisons between first offenders and multiple offenders showed that multiple offenders scored significantly higher than first offenders on the Alcohol Severity, Drugs Severity, Antisocial Reaction, Violence and Stress Quotient scales. The Truthfulness Scale showed that first offenders and multiple offenders did not score significantly different. This suggests that first and multiple offenders are equally guarded in court-related settings.

The very large significant difference between first and multiple offenders strongly support the discriminant validity of the Alcohol Severity Scale, Drugs Severity Scale, Antisocial Reaction Scale and Violence Scale. These results strongly support the APT as a valid instrument for the assessment of drug court defendants.

The test of predictive validity for the Alcohol Severity Scale is presented in the table below. Defendants Alcohol Severity Scale scores are used to determine if the Alcohol Severity Scale can accurately identify defendants who have been in alcohol treatment. Alcohol treatment information is obtained from defendants answers to APT test items (#87 & #155) concerning alcohol treatment. In this analysis, it is predicted that offenders who score at or above the 70th percentile (Problem and Severe Problem risk) would indicate that the defendants had alcohol treatment. Defendants 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 Severity Scale score at or below the 39th percentile, whereas alcohol-related problematic behavior is defined as an Alcohol Severity Scale score in the 70th or above percentile range.

As an indicator of “known” cases, treatment is not as accurate as a medical diagnosis. However, in assessment screening, treatment information is readily obtained from the client. Unfortunately, it is highly likely that there are defendants who have alcohol problems but who have not been in alcohol treatment. Nevertheless, the ease by which this procedure can be done using the APT database makes it worthwhile.

Table 20. Predictive validity for the Alcohol Severity Scale using scale scores and alcohol treatment.

Alcohol Severity Scale	Alcohol Treatment		Number in each category
	No treatment	One or more treatments	
Low Risk (zero to 39th percentile)	107 (88%)	9 (11%)	116
Problem or Severe Problem Risk (70 to 100th percentile)	15 (12%)	76 (89%)	91
	122 (59%)	85 (41%)	N = 207

These results show that for the 85 defendants who reported having been in alcohol treatment, 76 defendants, or 89 percent, had Alcohol Severity Scale scores at or above the 70th percentile. The APT Alcohol Severity Scale was very accurate in identifying clients with known alcohol problems. In decision-making terms these are called “hits.” Nearly 90 percent of the clients who had alcohol treatment scored in the Problem or Severe Problem risk range on the Alcohol Severity Scale.

Of the 122 defendants who reported no alcohol treatment, 107 defendants or 88 percent had Alcohol Severity Scale scores in the Low Risk or no problem range. These are called “correct rejections.” Combining the results of hits and correct rejections gives an overall accuracy of the Alcohol Severity Scale of **88 percent**. This is very accurate assessment. These results show there is a very strong positive correlation between Alcohol Severity Scale scores and alcohol treatment.

The predictive validity test for the Drugs Severity Scale was done in the same way using drug treatment as the criterion and is presented in the table below. **Of the 78 defendants who reported having been in drug treatment 68 (hits) or 87 percent had Drugs Severity Scale scores in the 70th percentile or higher (Problem Risk and above). The Drugs Severity Scale is 87 percent accurate in identifying clients who have known drug problems as defined by having been in drug treatment.**

Table 21. Predictive validity for the Drugs Severity Scale using scale scores and drug treatment.

Drugs Severity Scale	Drug Treatment		Number in each category
	No treatment	One or more treatments	
Low Risk (zero to 39th percentile)	104 (79%)	10 (13%)	114
Problem or Severe Problem Risk (70 to 100th percentile)	28 (21%)	68 (87%)	96
	132 (63%)	78 (37%)	N = 210

Of the 132 defendants who did not have treatment 104 (correct rejections) or 79 percent had Drugs Severity Scale scores in the Low Risk (no problem) range. This lower percentage is reasonable because

clients could have a drug problem without having been in treatment. These results show there is a very strong positive correlation between the Drugs Severity Scale and drug treatment.

The predictive validity test for the Violence Scale using violent crime arrests (APT items #73 & #161) as the criterion is presented in the table below.

Table 22. Predictive validity for the Violence Scale using scale scores and violent crime arrests.

Violence Scale	Violent Crime Arrests		Number in each category
	No arrests	One or more violent crime arrests	
Low Risk (zero to 39th percentile)	109 (78%)	7 (10%)	116
Problem or Severe Problem Risk (70 to 100th percentile)	31 (22%)	62 (90%)	93
	140 (67%)	69 (33%)	N = 209

Of the 69 defendants who reported an assault or violent crime arrest, 62 (hits) or 90 percent had Violence Scale scores in the Problem or Severe Problem risk range. Of the 140 defendants who did not report violent crime arrests, 109 (correct rejections) or 78 percent had Low Risk Violence Scale scores. These results show there is a very strong positive correlation between the Violence Scale and violent crime arrests. These results provide strong validation of the APT Violence Scale.

These results strongly support the reliability, validity and accuracy of the APT. Reliability coefficient alphas for all APT scales were significant at $p < .001$. T-test comparisons between first offenders and multiple offenders strongly support the discriminant validity of the Alcohol Severity Scale, Drugs Severity Scale, Antisocial Reaction Scale, Violence Scale and Stress Quotient Scale because multiple offenders scored significantly higher on the APT scales than first offenders. Validation of the Alcohol Severity Scale, Drugs Severity Scale and Violence Scale was shown by the accuracy with which the scales identified problem risk behavior (having had treatment or having had a violent crime arrest).

24. Reliability Study of the APT in Drug Court Defendants

This study (2000) investigated the reliability of the APT in drug court defendants. These defendants were administered the APT as part of their court-ordered assessment prior to sentencing. Within-test reliability analyses were performed on the APT scales. The most common method of reporting within-test (scale) inter-item reliability is with coefficient alpha. This study further examines the reliability of the APT.

Method and Results

There were 603 adult defendants included in this study (2000). There were 410 males (68%) and 193 females (32%). Demographic composition of these probationers is as follows: Age: 19 & under (14.2%); 20-29 (34.5%); 30-39 (34.0%); 40-49 (13.1%); 50-59 (3.8%) and 60 & over (0.7%). Ethnicity: Caucasian (44.2%); Black (16.4%); Hispanic (34.9%); Asian (0.5%); Native American (2.9%) and Other (1.2%). Education: Eighth grade or less (8.8%); Some H.S. (31.0%); H.S. graduate (44.8%); Some college (10.6%) and College graduate (4.8%). Marital Status: Single (61.4%); Married (25.3%); Divorced (8.6%); Separated (4.0%) and Widowed (0.7%).

Reliability coefficient alphas are presented in Table 23.

**Table 23. Reliability coefficient alphas (2000, N = 603).
All coefficient alphas are significant at p<.001.**

<u>APT SCALES</u>	<u>Coefficient Alphas</u>
Truthfulness Scale	.91
Alcohol Severity Scale	.94
Drugs Severity Scale	.93
Antisocial Reaction Scale	.86
Lethality (Violence) Scale	.89
Stress Quotient Scale	.94
Substance Abuse/Dependency	.95

The results of this study are consistent with previous research that supported the reliability of the APT scales. All coefficient alphas are significant at $p < .001$. All scale reliability coefficients attained very high levels. These results show that the APT is a reliable risk assessment test for the assessment of drug court defendants.

SUMMARY

In conclusion, this document summarizes many studies and statistics that support the reliability and validity of the APT. Based on this research, the APT presents an accurate picture of substance (alcohol and other drugs) abusers and the risk they represent. The APT provides a sound empirical foundation for responsible decision making.

Summarized research demonstrates that the APT is a reliable, valid and accurate instrument for court defendant assessment. It is reasonable to conclude that the APT does what it purports to do. The APT 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 APT 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 APT is an adult risk and needs assessment instrument.

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

People interested in conducting APT - related research should contact BDS 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 BDS Assessment, Inc. decision regarding proceeding. BDS E-mail address is Bds@bdsltd.com.