PI

PAROLEE INVENTORY:

An Inventory of Scientific Findings

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INTRODUCTION

PAROLEE INVENTORY (PI)

Parole departments need meaningful parolee information. Staff want more than just alcohol or drug disclosures. In addition to substance abuse, they need to know if the parolee is truthful, cooperative, has emotional problems, manifests antisocial attitudes or is violent. The Parolee Inventory is designed specifically for parole department use.

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

SAQ-Adult Probation and Prison Inmate Inventory (PII) research and development began in 1980 and has continued to the present. These two assessment tests are applicable to the Parolee Inventory because the tests are designed for the same population. The SAQ and PII are for intake, screening and intervention decisions, whereas the PI is used for parole decisions. The proprietary PI database ensures continued research and development of the PI.

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

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

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

PI MEASURES (SCALES)

Users of the Parolee Inventory (PI) should be familiar with each PI scale. A description of each PI scale follows.

SEVEN PI SCALES (MEASURES)

1. **Truthfulness Scale:** measures the truthfulness of the parolee while they were completing the PI. This scale identifies guarded and self-protective parolees who minimize their problems or attempt to fake their results.

2. **Antisocial Scale:** measures antisocial behavior, e.g., lying, callous, irresponsible and unsociable attitudes and behavior. These individuals can be harmful to the welfare of people and are often described as hostile or unsociable.

3. **Violence Scale:** measures use of physical force to injure, damage or destroy. This scale identifies parolees who are dangerous to self or others.

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

5. **Stress Coping Abilities Scale:** measures how well the parolee copes with stress. Stress exacerbates emotional, attitudinal and behavioral problems. Severe stress coping problems are indicative or emotional and mental health problems.

6. **Alcohol Scale:** measures parolee's alcohol proneness and alcohol-related problems. Alcohol refers to beer, wine or other liquor.

7. **Drug Scale:** measures parolee's drug abuse proneness and drug-related problems. Drugs refers to marijuana, cocaine, crack, barbiturates, amphetamines and heroin.

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

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

PI RESEARCH

STRESS QUOTIENT

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

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

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

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

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

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

Validation Study 3: In this study (1981) the relationship between the SQ Scale and the Holmes & Rahe Social Readjustment Rating Scale (SRRS) was investigated. The SRRS, which is comprised of a self-rating of stressful life events, has been shown to be a valid measure of stress. Three correlation analyses were done. SRRS scores were correlated with SQ scores and separately with two components of the SQ scale: Coping Skill (CS) scores and Stress (S) scores. It was hypothesized that the SQ and SRRS correlation would be negative, since subjects with lower SQ scores would be more likely to either

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

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

In a subsequent study the relationship between factor Q4 (Free Floating Anxiety) on the 16 PF Test and S (Stress) on the SQ scale was investigated. High Q4 scores reflect free floating anxiety and tension, whereas high S scores measure experienced stress. A high positive correlation between Q4 and S was predicted. There were 22 of the original 34 subjects included in this analysis since the remainder of the original files 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 or Stress Coping Abilities Scale.

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

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

Validation Study 8: Chemical dependency inpatients were used in a validation study (1985) to determine the relation between MMPI scales as criterion measures and the Stress Quotient (SQ) Scale or Stress Coping Abilities Scale. The SQ is inversely related to other MMPI scales, consequently, negative correlation's 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 or Stress Coping Abilities Scale as a valid measure of stress coping abilities.

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

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

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

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

PAROLEE INVENTORY RESEARCH

PI research is reported in a chronological format, reporting studies as they occurred. This gives the reader the opportunity to see how the PI 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 PI scale consideration. Consensual agreement among three Ph.D. level psychologists and other experienced chemical dependency counselors familiar with PI 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 PI was then objectively standardized and normed on substance abuse populations.

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

11. Validation of the PI Truthfulness Scale

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

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

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

Method

Seventy-eight Arizona State University college students (1985) enrolled in an introductory psychology class were randomly assigned to one of two groups. Group 1 comprised the “Honest” group and Group 2 comprised the “Fakers” group. Group 1 was instructed to be honest and truthful while completing the PI. Group 2 was instructed to "fake good" while completing the PI, but to respond "in such a manner that their faking good would not be detected." The PI, which included the six PI scales, was administered to the subjects and the Truthfulness Scale was embedded in the PI 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 PI. The results of this study reveals that the Truthfulness Scale accurately detects "Fakers" from those students that took the PI honestly.

12. Validation of Five PI Scales Using Criterion Measures

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

Method

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

Results and Discussion

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

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

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

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

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

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

The **Stress Coping Ability Scale** is inversely related to MMPI scales which accounts for the negative 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 coping Ability Scale correlates most significantly with the Taylor Manifest Anxiety (r = -0.78) Scale, the Psychasthenia (r=-0.68) Scale and the Social Alienation (r=-0.67) Scale.

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

13. Inter-item Reliability of the Parolee Inventory

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

Method

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

Results and Discussion

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

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

Table 2. Inter-item reliability, coefficient alpha. (1985)

Outpatients, Substance Abuse Inpatients and Job Applicants (N = 389)

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

Table 3. Within-test reliability, F statistic.
All F statistics are significant at p<.001.

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

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

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

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

Because each sample may have scored differently from the other two samples, the data for all subjects were combined. For example, job applicants may score low on the Alcohol Scale and inpatient clients may score high. By combining the data, scale scores would likely be distributed from low to high and result in even better coefficient alphas than each sample separately. Table 4 presents the inter-item reliability analysis of all of these independent studies (N = 1 00, N = 100, N = 189) combined (N = 389).

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

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

All F statistics are significant at p<.001.

PI SCALES MEASURES	N ITEMS	COEFFICIENT ALPHA	F VALUE
Truthfulness Scale	21	0.82	96.93
Alcohol Scale	21	0.94	26.68
Drugs Scale	21	0.88	79.71
Resistance Scale	21	0.77	53.03
Stress Coping Abilities	40	0.85	150.78

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

Method

One hundred and eighty-nine (189) job applicants (1985) were administered both the PI and the Polygraph examination. Tests were given in a counterbalanced order, half of the applicants were given the PI first and the other half of the applicants were administered the polygraph first. The subjects were administered the PI 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 PI scales indicated there was a significant positive correlation between the Truthfulness Scale and Polygraph exam ($r = 0.23$, $p<.001$). Similarly, significant positive relationships were observed between the Polygraph exam and the Alcohol Scale ($r = 0.54$, $p<.001$) and the Drug Scale ($r = 0.56$, $p<.001$).

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

These results are important because the Polygraph exam is a direct measure obtained from the individual being tested rather than a rating by someone else. This is similar to self-report such as utilized in the PI.

The fact that there was a very strong relationship between Polygraph results and PI scales shows that this type of information can be obtained accurately in self-report instruments.

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

15. Validation of PI Scales

The PI is an adult parolee assessment instrument. It is designed for use in parole departments. The PI is a specific test designed for a specific population. The present study (1987) was conducted to validate PI 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 PI scales. The Truthfulness Scale was validated with MMPI L Scale, F Scale and K Scale. The Alcohol Scale was validated with MMPI MacAndrew Scale (MAC) and Psychopathic Deviate-Obvious (PD-O). The Drug Scale was validated with MMPI MacAndrew Scale and Psychopathic Deviate-Obvious. The Resistance Scale was validated with MMPI Ego Strength (ES), Social Responsibility (RE), Social Maladjustment (SOC), Social Alienation (PD4), Social Alienation (SCIA), Authority Conflict (AUT) and Suspiciousness (TSC-III). The Stress Coping Abilities Scale was validated with MMPI Psychasthenia (PT), Anxiety (A), Taylor Manifest Anxiety (MAS) and Tension/Worry (TSC-VII). The MMPI scales were chosen to compare to the PI scales because they measure similar attributes.

Method

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

Results and Discussion

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

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

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

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

MMPI SCALES (MEASURES)	PI SCALES (MEASURES)				
	Truthfulness	**Alcohol**	**Drug**	**Resistance**	**Stress Coping**
L	0.60	-0.24	-0.15	-0.23	-0.30
F	-0.34	0.32	0.32	0.56	0.49
K	0.39	-0.28	-0.29	-0.61	-0.51
MAC	-0.30	0.35	0.37	0.19	0.28
PD-O	-0.35	0.22	0.33	0.52	0.53
PD2	-0.26	0.18	0.17	0.07	0.07
PD	-0.33	0.21	0.33	0.19	0.39
HOS	-0.45	0.25	0.33	0.55	0.46
TSC-V	-0.46	0.34	0.28	0.59	0.58
ES	0.25	-0.27	-0.25	-0.48	-0.51
RE	0.41	-0.27	-0.34	-0.88	-0.45
SOC	-0.19	0.17	0.08	0.34	0.39
PD4	-0.41	0.20	0.28	0.63	0.55
SCIA	-0.36	0.27	0.32	0.58	0.39
AUT	-0.21	0.20	0.30	0.52	0.18
TSC-III	-0.22	0.26	0.28	0.57	0.45
PT	-0.39	0.27	0.24	0.27	0.58
A	-0.41	0.31	0.31	0.53	0.68
MAS	-0.44	0.25	0.18	0.39	0.65
TSC-VII	-0.41	0.33	0.29	0.51	0.66

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

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

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

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

Where MMPI scales are closely related (by definition) to PI scales the correlation coefficients were highly significant. For example, the PI Truthfulness Scale and the MMPI L Scale both measure

tendencies to fake good, and the correlation was very highly significant at r = .60. The correlation between Resistance Scale and MMPI Social Responsibility Scale was r = -.88, and the correlation between Stress Coping Abilities Scale and MMPI Tension/Worry Scale was r = -.66. This study supports the validity of the PI.

16. Replication of PI Reliability in a Sample of Inpatient Clients

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

Method and Results

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

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

PI SCALES MEASURES	N ITEMS	COEFFICIENT ALPHA	F VALUE	P VALUE P<
Truthfulness Scale	21	0.79	13.28	0.001
Alcohol Scale	21	0.92	24.39	0.001
Drugs Scale	21	0.87	22.23	0.001
Resistance Scale	21	0.81	10.92	0.001
Stress Coping Abilities	40	0.99	27.77	0.001

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

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

17. Validation of PI Scales Using the DRI as the Criterion Measure

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

The PI is designed for adult parolee assessment. It contains seven measures or scales: Truthfulness, Antisocial, Violence, Alcohol, Drugs, Resistance and Stress Coping Abilities. Four of these PI 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 Coping Abilities.

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

Method

The PI and DRI were administered in group settings to 154 DWI offender inmates, in counter balanced order, at Arizona State Department of Corrections (ADOC) facilities. All of the 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 PI and the DRI. Although all inmates volunteered to participate in this study, inmate motivation varied.

Results and Discussion

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

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

DRI versus PI Scales	Agreement Coefficients
Truthfulness Scale	.6405
Alcohol Scale	.3483
Drugs Scale	.3383
Stress Coping Abilities	.7642

It was noted that inmate motivation varied widely. This is evident in the Stress Coping Abilities correlation coefficient of .7642. Even though this is a highly significant correlation (p<.001), the Agreement Coefficient could be expected to be even higher because these were identical scales consisting of the same 40 items. It is

reasonable to conclude that low motivation on the part of many inmate volunteers contributed to lower Agreement Coefficients. Inmate volunteers were serving DWI-related sentences and these tests had no bearing on their incarcerated status or sentences. However, in spite of widely varied inmate motivation, Agreement Coefficients for all five sets of scale comparisons were highly significant.

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

18. A Study of Sex Differences in the Parolee Inventory

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

Method

There were three subject samples with a total N of 1,586 included in the present study (1990). Group 1 consisted of 446 adult probationers. Group 2 consisted of 294 probationers and Group 3 consisted of 846 adult probationers. The Parolee Inventory was administered to each probationer individually as part of routine adult offender evaluation programs at each location.

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

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

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

Results and Discussion

Reliability coefficient alpha results are presented in Table 8.

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

PI SCALES	Group 1 446 Probationers	Group 2 294 Probationers	Group 3 846 Probationers
Truthfulness Scale	.81	.83	.84
Alcohol Scale	.87	.86	.87
Drugs Scale	.89	.87	.86
Resistance Scale	.80	.80	.82
Stress Coping Abilities Scale	.91	.93	.94

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

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

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

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

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

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

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

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

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

19. PI Reliability Study in Different Samples

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

Method

There were three groups of adult probationers, total N = 1,665, included in this study (1991). Group 1 consisted of 1,299 clients. Group 2 consisted of 177 clients. Group 3 consisted of 253 clients. Group 1 consisted of 1149 (88.5%) men and 150 (11.5%) women. Age group by gender is summarized as follows: Under 16 (2 males, 5 females, total 7); 16 to 25 (649 males, 64 females, total 713); 26 to 35 (277 males, 48 females, total 325); 36 to 45 (180 males, 23 females, total 203); 46 to 55 (26 males, 7 females, total 33); over 55 (15 males, 3 females, total 18). Ethnicity is summarized as follows: Caucasian (897 males, 126 females, total 1023); Black (234 males, 23 females, total 257); Hispanic (6 males, 0 females); American Indian (5 males); and Asian (7 males, 1 female, total 8). Education level is as follows: Less than 8th grade (103 males, 13 females, total 116); Some High School (478 males, 47 females, total 525); GED (132 males, 17 females, total 149); High School Graduates (283 males, 43 females, total 326); Business/Technical School (125 males, 26 females, total 151); Some College (8 males, 2 females, total 10); College Graduate (14 males, 1 female, total 15) and Professional/Graduate Degree (6 males, 1 female, total 7).

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

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

Results and Discussion

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

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

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

The results of this study demonstrate the reliability (internal consistency) of the PI. Reliability coefficient alphas for all PI scales are very high. These results strongly support the reliability of the Parolee Inventory.

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

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

PI	Mean Scale Score		SIGNIFICANCE
SCALE	Males	Females	LEVEL
Alcohol Scale	9.30	13.94	P<.05
Drug Scale	8.78	12.34	P<.05

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

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

20. Validation of the PI in a Sample of Adult Probationers

The present study (1992) was conducted to validate the Parolee Inventory (PI) with adult probation clients with criterion measures from selected Minnesota Multiphasic Personality Inventory (MMPI) scales. This study was done to provide validation of the PI 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 PI and MMPI were administered in counterbalanced order. Product-moment correlations were calculated between PI scales and selected MMPI scales. The MMPI scales used for criterion measures were as follows. The Truthfulness Scale was validated with the MMPI L Scale, F Scale and K Scale. The Alcohol Scale was validated with the MMPI MacAndrew Scale and PD Scale. The Drug Scale was validated with the MMPI MacAndrew Scale and PD Scale. The Resistance Scale was validated with the MMPI SOC Scale, SCIA Scale, AUT Scale and TSC-III Scale. The Stress Coping Abilities Scale was validated with the MMPI PT Scale, MAS Scale and TSC-VII Scale.

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

Results and Discussion

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

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

MMPI SCALES	Truthfulness	Alcohol	Drugs	Resistance	Stress Coping
L	.511**	.022	-.186*	.089	-.065
F	-.293**	.379**	.269*	.276**	.462**
K	.458**	-.201*	-.151	-.077	- .319**
PD	-.241**	.312**	.190*	.065	.491**
PT	-.279**	.202*	.115	.069	.470**
MAS	-.394**	.288**	.151	.031	.536**
MAC	.005	.051	.090	.127	.076
SOC	-.335**	.273**	.174	.033	.329**
AUT	-.321**	.238**	.173	.262**	.217*
HOS	-.465**	.197*	.159	.176	.266**
TSC-III	-.373**	.195*	.061	.209*	.247**
TSC-V	-.457**	.322**	.195*	.140	.402**
TSC-VII	-.431**	.222*	.168	.052	.446**
PD2	-.161	.165	.161	.031	.105
SC1 A	-.377**	.283**	.171	.249**	.447**

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

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

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

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

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

The present study supports the validity of the PI in a sample of adult probationers. PI 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 short coming of the MMPI MAC Scale (MacAndrew) is that it is a discriminant scale that discriminates between known substance abusers and non-abusers. However, none of the MacAndrew items relate to alcohol or drugs per se. The PI Alcohol and Drug scales are correlated with the PD Scale which has been shown do be valid for substance abusers and adult probationers.

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

21. A Study of PI Reliability in a Sample of Probationers

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

Method and Results

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

AGE GROUP			ETHNICITY			EDUCATION		
Under 16 years:	1,	0.3%	Caucasian:	228,	74.5%	8th grade or less:	11,	3.6%
16 to 25 years:	146,	47.7%	Black:	66,	21.6%	Some High School:	71,	23.2%
26 to 35 years:	112,	36.6%	Hispanic:	3,	1.0%	GED:	24,	7.8%
36 to 45 years:	34,	11.1%	Asian:	3,	1.0%	High School Grad.:	114,	37.3%
46 to 55 years:	10,	3.3%	Am. Indian:	5,	1.6%	Some College:	69,	22.5%
Over 55 years:	3,	1.0%	Other:	1,	0.3%	Business/Tech. Degree:	8,	2.6%
						College Graduate:	7,	2.3%
						Grad/Prof. Degree:	2,	0.7%

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

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

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

PI SCALES	Coefficient Alpha
Truthfulness Scales	.89
Alcohol Scale	.93
Drug Scale	.90
Resistance Scale	.85
Stress Coping Abilities	.92

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

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

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

Methods and Results

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

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

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

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

Group 5 consisted of 1,042 adult probationers. There were 835 (80.1%) males and 207 (19.9%) females. This sample is described as follows: Age: 18 years or younger (10.8%); 19 to 29 (43.8%); 30 to 39 (31.0%); 40 to 49 (10.5%); 50 to 59 (3.3%); and 60 & over (0.7%). Ethnicity: Caucasian (73..6%); Black (23.2%); Asian (0.3%); American Indian (1.2%); Hispanic (1.5%); and Other (0.1%). Education: 8th grade or less (7.9%); Partially Completed High School (36.5%); High School Graduate (34.2%); Partially Completed College (7.9%); College Graduate (0.8%); and Professional/ Graduate School (12.8%). Marital Status: Single (57.5%); Married (18.9%); Divorced (16.7%); Separated (6.0%); and Widowed (0.5%). Employment Status: Employed (50.6%); Unemployed (49.2%).

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

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

Table 14. Reliability coefficient alphas for five probationer samples (1993, N = 4,000).
All coefficient alphas are significant at p<.001.

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

23. Validation of the PI Violence Scale with a Polygraph Examination

In 1994 two additional scales were included in the PI. The new scales include the **Antisocial Scale** and the **Violence Scale**. The Antisocial Scale measures antisocial behavior, lying, irresponsibility, disloyalty, uncaring, remorseless, emotionally blunted and irresponsible behavior. The Violence Scale measures physical force to injure, damage or destroy. The Violence Scale identifies people that are dangerous to themselves and others. The Parolee Inventory contains seven scales: Truthfulness Scale, Alcohol Scale, Drug Scale, Resistance Scale, Antisocial Scale, Violence Scale, and Stress Coping Abilities Scale. This study (1994) was conducted to evaluate the validity of the Violence Scale.

Method and Results

One hundred and seven (107) halfway house male resident volunteers participated in the study. The Violence Scale and a Polygraph "violence" examination were alternately administered. The Product-moment correlation coefficient of $r = .25$ was significant at $p<.01$. This means the PI Violence Scale and

polygraph examination on violence were in agreement most of the time. The significant correlation was in the predicted direction. This study supports the validity of the Violence Scale.

24. Validation of the PI Antisocial and Violence Scales

The present study (1994) utilized selected MMPI scales as criterion measures to validate the Antisocial Scale and Violence Scale. Ninety-seven (97) male chemical dependency outpatients were alternately administered the MMPI and the two PI scales. The results demonstrated that the Antisocial 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 and Violence Scales.

25. Reliability of the PI

In 1994 the Parolee Inventory was developed to include two important areas of assessment. **The two new scales that were added to the PI are the Antisocial Scale and the Violence Scale.** The Antisocial Scale measures antisocial behavior, lying, irresponsibility, disloyalty, uncaring, remorseless, emotionally blunted and irresponsible behavior. The Violence Scale measures physical force to injure, damage or destroy. The Violence Scale identifies people that are dangerous to themselves and others. The purpose of the present study (1994) was to test the reliability of the PI. Three subject samples are included in the study and they total 4,067 probationers.

Method

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

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

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

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

Results

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

These results support the reliability of the Antisocial Scale and Violence Scale of the PI. Coefficient alphas for the Antisocial and Violence scales are highly significant at p<.001. Coefficient alphas for all scales are highly significant. These results support the reliability of the PI.

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

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

26. Reliability and Accuracy of the PI in Three Samples of Prison Inmates

This study (1995) was done to further test the reliability of the PI and to review the accuracy of PI risk assessment. Three inmate samples were included in the study. The samples were from similar inmate assessment programs but came from different parts of the country.

Risk range percentile scores are calculated for each PI scale. These risk range percentile scores are derived from scoring equations based on responses to scale items. Truth-Corrections and prior criminal history information, 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 PI risk range percentile scores involves comparing the risk range percentile scores obtained from inmate PI test results to the predicted risk range percentages as defined above. The percentages of inmates 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 inmates falling in each of the four risk ranges, based on their risk range percentile scores, was compared to these predicted percentages.

Method and Results

There were three samples of inmates included in this study. The total number of inmates included in the study was 6,050. **The participants in Group 1 consisted of 1,454 prison inmates.** There were 1,408 males (96.8%) and 46 females (3.2%). The demographic composition of this sample is as follows: Age: 16 to 20 years (28.6%); 21 to 30 years (37.3%); 31 to 40 years (26.2%); 41 to 50 years (6.8%); 51 and older (0.9%). Ethnicity: Caucasian (52.3%); Black (44.6%); Hispanic (0.6%); Asian (0.6%); American Indian (1.4%);

Other (0.2%). Education: 9th Grade or less (17.0%); Partially Completed High School (29.1%); High School Graduate or GED (40.6%); Partially Completed College (10.3%); College Graduate (2.3%); and Advance Degrees (0.6%). Marital Status: Single (68.9%); Married (12.7%); Divorced (13.2%); Separated (4.3%); and Widowed (0.6%).

Court related history includes the following. Number of misdemeanor arrests: None (17.7%); One (12.9%); Two (14.4%); Three (9.9%); Four (8.6%); Five (7.4%); Six or more (17.6%). Number of times on probation: None (18.8%); Once (45.3%); Twice (23.1%); Three times (7.2%); Four times (2.2%); Five times (1.7%); Six or more times (0.2%). Number of probation revocations: None (38.9%); One (45.1%); Two (10.8%); Three (2.5%); Four (1.1%); Five (0.3%); Six or more (1.0%). Number of times on parole: None (64.0%); Once (22.8%); Twice (7.2%); Three times (3.7%); Four times (1.2%); Five times (0.3%); Six or more times (0.6%). Number of parole revocations: None (72.2%); One (17.6%); Two (5.6%); Three (2.1%); Four (1.0%); Five (0.5%); Six or more (0.8%).

Group 2 consisted of 1,782 prison inmates at 11 institutional test sites. There were 1,602 males (89.9%) and 180 females (10.1%). The demographic composition of this sample is as follows: Age: 16 to 20 years (30.6%); 21 to 30 years (34.9%); 31 to 40 years (25.3%); 41 to 50 years (7.6%); 51 and older (1.5%). Ethnicity: Caucasian (50.7%); Black (44.6%); Hispanic (0.6%); Asian (0.9%); American Indian (0.8%); Other (1.0%). Marital Status: Single (67.4%); Married (12.7%); Divorced (12.1%); Separated (4.1%); Widowed (0.6%). Education: 9th Grade and less (20%); 10th Grade through 11th Grade (27%); High School or GED (42.5%); Partially Completed College (9.2%); College Graduate (0.2%).

Group 3 consisted of 2,814 prison inmates. Of this sample of 2, 814 inmates, 2,691 were males (95.6%) and 123 were females (4.4%). The demographic composition of this sample is as follows. Age: 19 and younger (11.5%); 20 through 29 (45.3%); 30 through 39 (31.1%); 40 through 49 (9.9%); 50 through 59 (1.7%); 60 and older (0.5%). Education: 8th grade or less (2.1%); 8th through 9th grade (15.7%); 10th and 11th grade (30.8%); High School Graduate or G.E.D. (39.9%); Partially Completed College (7.6%); College Graduate (2.1%); Graduate Degree (0.6%). Ethnicity: Caucasian (53.1%); Black (42.4%); Hispanic (1.5%); Asian (1.2%); Native American (1.1%); Other (0.6%). Marital Status: Single (68.1%); Married (13.3%); Divorced (13.2%); Separated (3.6%); Widowed (0.9%).

Reliability coefficient alphas (internal consistency) of PI scales are presented in Table 16.

Table 16. Reliability coefficient alphas. Prison inmates (Total N = 6,050, 1995)
All coefficient alphas are significant at p<.001.

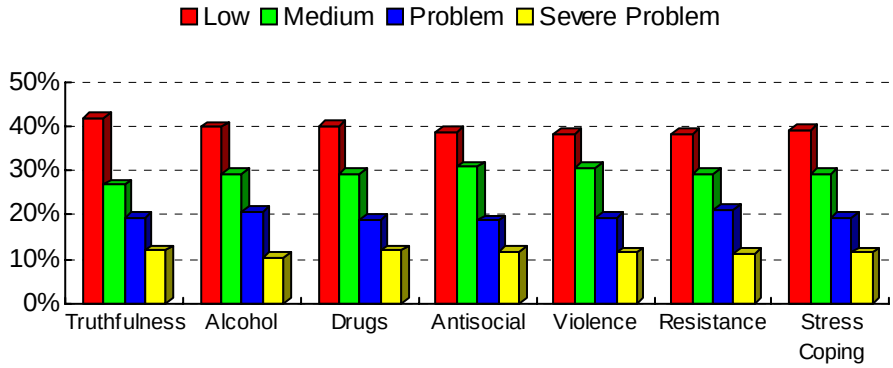
PI Scales	1 Prison Inmates N = 1,454	2 Prison Inmates N = 1,782	3 Prison Inmates N = 2,814
Truthfulness Scale	.88	.89	.88
Antisocial Scale	.85	.85	.85
Violence Scale	.88	.87	.86
Resistance Scale	.85	.85	.84
Alcohol Scale	.95	.94	.94
Drug Scale	.94	.95	.94
Stress Coping Abilities Scale	.91	.92	.92

These results support the reliability (internal consistency) of the PI. All coefficient alphas were highly significant at p<.001 for all PI scales. One can be confident that similar PI results will be obtained upon

repetition. Reliability reflects the degree to which measurement is free from random error or influence. PI scales have impressive internal consistency.

The analysis of inmate risk assessment is based upon scores attained by inmates as reported in the PI. The percentage of inmates falling into each risk range for each PI scale for Group 2 (N= 1,782) is presented in Table 17.

Table 17. Inmate Risk Assessment for Group 2 (1996, N=1,782)



	Truthful-ness	Alcohol	Drugs	Antisocial	Violence	Resistance	Stress Coping
Risk Range	%	%	%	%	%	%	%
Low	41.8	39.8	40.0	38.6	38.4	38.2	39.2
Medium	26.8	29.2	29.2	30.9	30.7	29.4	29.2
Problem	19.4	20.7	18.8	18.7	19.4	21.2	19.5
Severe Problem	12.0	10.3	12.0	11.8	11.5	11.2	11.5

These results show that obtained risk range percentile scores closely approximate the predicted risk range scores for each of the 7 PI scales presented in Table 17. On every PI scale the discrepancy between obtained and predicted risk range percentages were within 2.8 percentage points. The Resistance, Drugs and Antisocial Scales were all within 1.3 percentage points of predicted. The Alcohol, Violence and Stress Coping Abilities scales were within 0.8 percent of predicted. **This is very accurate inmate risk assessment.**

27. PI Reliability in Large Samples of Probationers

In 1996 two large probationer assessment programs were added to the PI database. A study (1996) was conducted to determine the reliability of the PI in these two new probationer samples. **The first group contained 15,203 probationers.** Although completed in 1996, this study used the PI. Demographic composition of Group 1 is as follows. Of the 15,203 probationers 12,424 (81.7%) were male and 2,772 (18.2%) were female. Age: 18 or younger (10.3%); 19 to 29 (43.0%); 30 to 39 (31.5%); 40 to 49 (11.8%); 50 to 59 (2.5%) and 60 or older (0.7%). Ethnicity: Caucasian (64.5%); Black (32.6%); Hispanic (1.1%); Asian (0.3%); Native American (0.7%) and Other (0.4%). Education: 8th grade or less (7.1%); Partially Completed High School (34.9%); High School Graduate (44.7%); Partially Completed College (9.3%); College Graduate (2.0%) and Professional/Advanced Degree (0.3%). Employment: Employed (54.4%) and Unemployed (45.1%).

Group 2 consisted of 9,247 probationers. Of these 9,247 probationers, 7,582 (82%) were male and 1,665 (18%) were female. Demographic composition of Group2 is as follows. Age: 18 or younger (9.7%); 19 to 29 (43.0%); 30 to 39 (32.2%); 40 to 49 (11.8%); 50 to 59 (2.7%) and 60 or older (0.7%). Ethnicity: Caucasian (64.9%); Black (32.3%); Hispanic (1.2%) Asian (0.2%); Native American (0.7%) and Other (0.3%). Education: 8th grade or less (7.3%); Partially Completed High School (34.6%); High School Graduate (44.6%); Partially Completed College (9.1%); College Graduate (2.0%) and Professional/Advanced Degree (0.4%). Employment: Employed (52.8%) and Unemployed (46.8%)

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

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

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

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

28. PI Reliability in Two Samples of Probationers

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

Group 2 consisted of 2,284 probationers. Of these 2,284 probationers, 1,842 (80.6%) were male and 442 (19.4%) were female. Demographic composition of Group2 is as follows. Age: 19 or younger (16.1%); 20 to 29 (39.5%); 30 to 39 (29.5%); 40 to 49 (11.9%); 50 to 59 (2.2%) and 60 or older (0.8%). Ethnicity: Caucasian (56.7%); Black (25%); Hispanic (14.5%); Asian (0.4%); Native American (1.5%) and Other (1.8%). Education: 8th grade or less (9.8%); Partially Completed High School (32.9%); High School Graduate (41.8%); Partially Completed College (10.1%) and College Graduate (3.3%). Marital Status: Single (58.5%); Married (21.9%); Divorced (12.5%); Separated (6.2%) and Widowed (0.8%).

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

These results support the reliability of the PI for these two probationer samples. These results are similar to those reported earlier on other client populations. An exception is the lower coefficient alpha of the Antisocial Scale. Both probationer samples had lower coefficient alphas on the Antisocial Scale. This may indicate that

probationer attitude toward social norms may vary across different geographical regions. All coefficient alphas are significant at p<.001. These results support the reliability of the PI.

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

PI SCALE	Group 1 N = 1,930	Group 2 N = 2,284
Truthfulness Scale	.88	.88
Alcohol Scale	.93	.93
Drug Scale	.91	.92
Antisocial Scale	.64	.69
Violence Scale	.80	.81
Resistance Scale	.83	.83
Stress Coping Abilities	.93	.93

29. Validity, Reliability and Scale Risk Range Accuracy Study of the PI

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

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

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

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

Risk range percentile scores are calculated for each PI scale. These risk range percentile scores are derived from scoring equations based on responses to scale items, Truth-Corrections and prior criminal history information, 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 PI risk range percentile scores involves comparing the risk range percentile scores obtained from PI test results to the predicted risk range percentages as defined above. The percentages of clients expected to fall into each risk range is the following: Low Risk **(39%)**, Medium Risk **(30%)**, Problem Risk **(20%)** and Severe Problem or Maximum Risk **(11%)**. The actual percentage of clients falling in each of the four risk ranges, based on their risk range percentile scores, was compared to these predicted percentages.

Method and Results

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

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

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

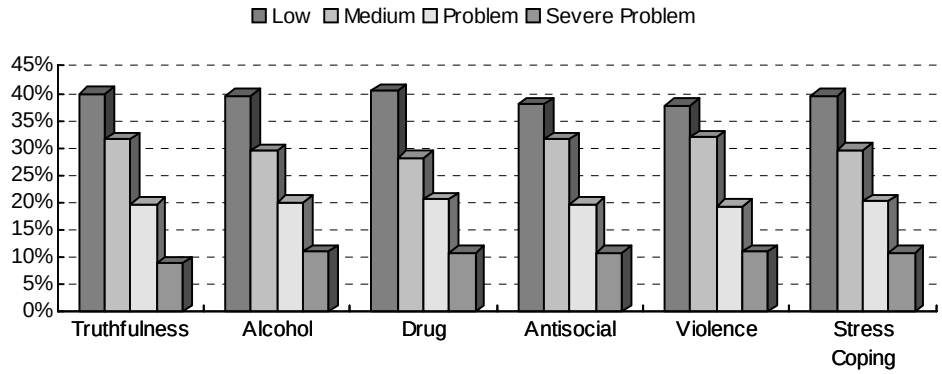
The results of the study support the reliability of the PI. All coefficient alphas are significant at p<.001. All scale reliability coefficients maintained high levels. These results show that the PI is a reliable risk assessment instrument.

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

PI SCALES	Group 1 N = 850	Group 2 N = 2,331
Truthfulness Scale	.87	.88
Alcohol Scale	.95	.95
Drug Scale	.93	.92
Antisocial Scale	.81	.80
Violence Scale	.87	.85
Stress Coping Abilities	.93	.92

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

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



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

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

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

These results show that obtained risk range percentile scores closely approximated the predicted risk range percentile scores for each of the seven PI scales presented in Table 21 for both probationer samples included in the study. **These results indicate that the PI is a very accurate probationer risk assessment instrument.**

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

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

These t-test results support the discriminant validity of the PI. All t-test comparisons between first offenders and multiple offenders were significant at $p<.001$. All but the Truthfulness Scale showed that multiple offenders had higher scale scores than first offenders. The Truthfulness Scale indicated that first offenders had higher scale scores than multiple offenders. This result suggests that first offenders are more likely to "fake good" or minimize than multiple offenders.

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

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

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

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

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

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

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

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

These results show that for the 208 probationers who reported having had alcohol treatment, 199 probationers, or 96 percent, had Alcohol Scale scores at or above the 70th percentile. Similarly, of the 392 probationers who did not have alcohol treatment, 328 probationers or 84 percent had Alcohol Scale scores in the Low Risk or no problem range. This lower percentage is reasonable because probationers could have a drinking problem without having been in treatment. Combining these results gives an overall accuracy of the Alcohol Scale of 88 percent. This is very accurate considering that a highly accepted diagnostic procedure, the mammogram, is about 70 percent accurate. These results show there is a very strong positive correlation between Alcohol Scale scores and alcohol treatment.

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

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

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

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

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

30. Reliability of the PI in Two Samples of Parolees

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

Graduate (43.9%); Partially Completed College (11.1%) and College Graduate (3.6%). Marital Status: Single (57.4%); Married (25.3%); Divorced (12.4%); Separated (4.4%) and Widowed (0.5%).

Group 2 consisted of 1,056 parolees. Of these 1,056 parolees, 823 (77.9%) were male and 233 (22.1%) were female. Demographic composition of Group2 is as follows. Age: 19 or younger (13.7%); 20 to 29 (41.1%); 30 to 39 (28.3%); 40 to 49 (13.6%); 50 to 59 (2.5%) and 60 or older (0.7%). Ethnicity: Caucasian (54.8%); Black (30%); Hispanic (13.3%); Asian (0.3%); Native American (1%) and Other (0.6%). Education: 8th grade or less (8.9%); Partially Completed High School (32.3%); High School Graduate (43.6%); Partially Completed College (8%) and College Graduate (3.2%). Marital Status: Single (56.3%); Married (26.6%); Divorced (11.3%); Separated (5.1%) and Widowed (0.7%).

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

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

PI SCALES	Group 1 N = 3,483	Group 2 N = 1,056
Truthfulness Scale	.88	.88
Alcohol Scale	.94	.95
Drug Scale	.92	.92
Antisocial Scale	.80	.80
Violence Scale	.85	.86
Stress Coping Abilities	.92	.92

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

31. PI Reliability, Validity and Accuracy

This study (2000) was conducted in a state prison system that included 1,141 prison inmates. The same statistical analyses were carried out to compare to previously reported PI research. The analyses included PI scales risk range accuracy, reliability coefficients (alphas) for each PI scale, discriminant validity and predictive validity as discussed in the previous study.

In 2000 two scales were added to the Parolee Inventory. These scales are Distress and Self-esteem. The Distress Scale measures pain (physical and mental), agony and anguish. It assesses pain, worry, sorrow, discomfort and distress. This definition of distress incorporates parolee's chronic anxiety, depression, pain and suffering. The Self-esteem Scale measures a parolee's explicit valuing and appraisal of self. Self-esteem incorporates an attitude of acceptance-approval versus rejection-disapproval. These scales establish the parolee's mental and emotional outlook and help to determine the parolee's likelihood for success outside the institution.

Method and Results

Included in this study (2000) were 1,141 prison inmates. All of the inmates were male. The demographic composition of this sample is as follows: Age: 19 and younger (3.9%); 20 through 29 (37.0%); 30 through 39 (35.4%); 40 through 49 (19.8%); 50 through 59 (3.4%); 60 and older (0.5%). Education: 8th grade or less (9.5%); Some High School (33.9%); High School Graduate (45.0%); Partially Completed College (9.8%);

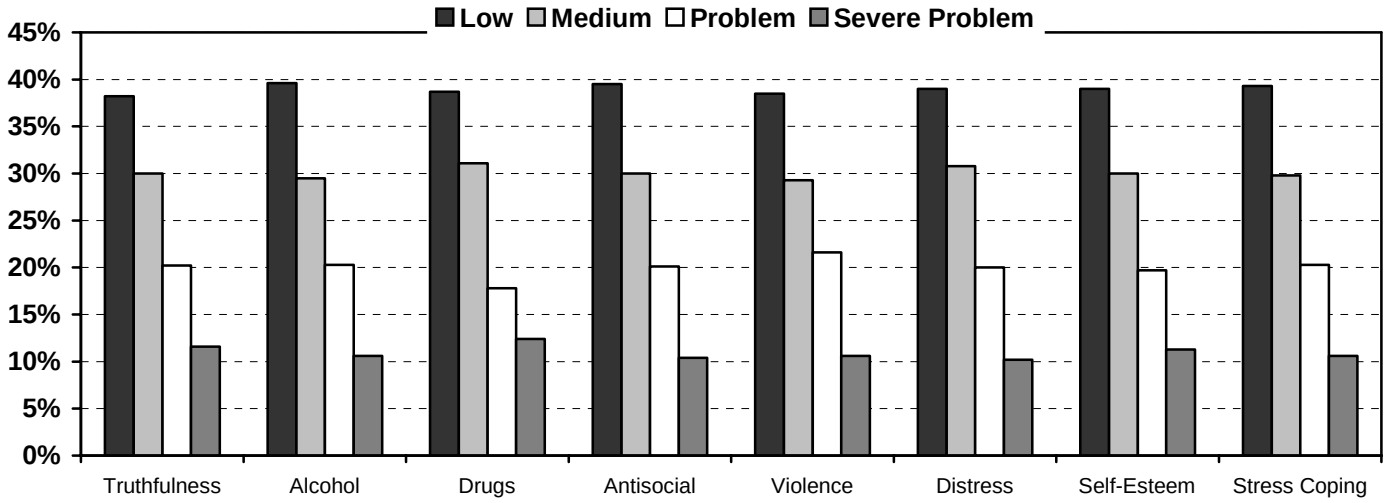
College Graduate (1.1%); Advanced Degree (0.7%). Ethnicity: Caucasian (53.5%); Black (46.1%); Hispanic (0.2%); Asian (0.1%); Native American (0.1%); Other (0.2%). Marital Status: Single (49.8%); Married (48.4%); Divorced (1.2%); Separated (0.5%); Widowed (0.1%).

The PI classifies inmate scale scores into one of four risk ranges: **low risk** (zero to 39th percentile), **medium risk** (40 to 69th percentile), **problem risk** (70 to 89th percentile), and **severe problem risk** (90 to 100th percentile). It is predicted that the percentage of inmates scoring in each risk range (for each scale) is: low risk (**39%**), medium risk (**30%**), problem risk (**20%**), and severe problem risk (**11%**). **Inmates who score at or above the 70th percentile are identified as having problems.** For example, inmates' Alcohol Scale scores of 70 or above identify them as problem drinkers.

Accuracy of the Parolee Inventory

The PI contains eight measurement (or severity) scales. Comparisons between the percentage of inmates scoring in each of the four risk categories (low, medium, problem and severe problem risk) and the predicted percentage for each of the eight PI scales are measures of accuracy. The closer the obtained percentages are to the predicted percentages the more accurate the scale risk range percentages are. Table 27 presents these statistics. The differences between obtained and predicted percentages are presented in parentheses in the table below the graph.

Table 27. Parolee Inventory Scale Risk Ranges (2000, N=1,141)



Scale	Low Risk (39%)		Medium Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness	38.2	(0.8)	30.0	(0.0)	20.2	(0.2)	11.6	(0.6)
Alcohol	39.6	(0.6)	29.5	(0.5)	20.3	(0.3)	10.6	(0.4)
Drugs	38.7	(0.3)	31.1	(1.1)	17.8	(2.2)	12.4	(1.4)
Antisocial	39.5	(0.5)	30.0	(0.0)	20.1	(0.1)	10.4	(0.6)
Violence	38.5	(0.5)	29.3	(0.7)	21.6	(1.6)	10.6	(0.4)
Distress	39.0	(0.0)	30.8	(0.8)	20.0	(0.0)	10.2	(0.8)
Self-esteem	39.0	(0.0)	30.0	(0.0)	19.7	(0.3)	11.3	(0.3)
Stress Coping	39.3	(0.3)	29.8	(0.2)	20.3	(0.3)	10.6	(0.4)

As shown in the graph and table above, the PI scale scores are very accurate. The objectively obtained percentages of inmates falling in each risk range are very close to the predicted percentages for each risk

category. All of the obtained risk range percentages were within 2.7 percentage points of the expected percentages and most (31) were within 1.0 percentage point. Only two obtained percentages were more than 1.7% from the predicted, and these were within 2.7 percent. These results demonstrate that the PI scale scores accurately identify inmate risk.

Reliability of the Parolee Inventory

Within-test reliability, or inter-item reliability coefficient alphas for the Parolee Inventory are presented in Table 28.

Table 28. Reliability of the Parolee Inventory (2000, N=1,141)
All coefficient alphas are significant at p<.001.

PI SCALES	Coefficient Alphas
Truthfulness Scale	.88
Alcohol Scale	.90
Drug Scale	.91
Antisocial Scale	.87
Violence Scale	.89
Distress Scale	.88
Self-esteem Scale	.87
Stress Coping Abilities	.91

As demonstrated above, the Alpha coefficients for all of the Parolee Inventory scales are above or near .90. These results show that the PI was very reliable in this inmate sample.

Validity of the Parolee Inventory

The Parolee Inventory scales measure severity and the extent to which inmates have problems. Comparisons between first offenders and multiple offenders determine the extent to which PI scales differentiate between these offenders. It would be expected that multiple offenders (inmates who have 2 or more arrests) have higher scale scores than first offenders. The PI answer sheet item "Total number of times arrested" was used to define first offenders and multiple offenders (2 or more arrests). There were 96 first offenders and 1,045 multiple offenders. The Alcohol and Drug Scales were also analyzed using alcohol and drug arrests. "Number of alcohol arrests" was used for the Alcohol Scale, which had 770 first offenders and 371 multiple offenders. " Number of drug arrests" was used for the Drug Scale, which had 791 first offenders and 350 multiple offenders. The t-test comparisons between first offenders and multiple offenders for each PI scale are presented in Table 29 (N=1,141). Multiple offenders had two or more arrests as reported on the PI answer sheet.

All PI scales demonstrate that multiple offenders score significantly higher than first offenders. The PI accurately differentiated between first offenders and multiple offenders. These results support the validity of the Parolee Inventory.

Table 29. T-test comparisons between first offenders and multiple offenders (2000, N=1,141).

PI Scale	First Offenders Mean	Multiple Offenders Mean	T-value	Level of significance
Truthfulness Scale	8.59	10.40	t = 3.38	p<.001
*Alcohol Scale	12.61	30.78	t = 24.07	p<.001
*Drug Scale	21.72	33.93	t = 14.21	p<.001
Antisocial Scale	18.18	27.63	t = 9.47	p<.001
Violence Scale	16.27	21.17	t = 4.05	p<.001
Distress Scale	20.24	22.33	t = 1.59	n.s.
Self-esteem Scale	7.50	3.86	t = 2.33	p<.020
Stress Coping Abilities	102.73	97.13	t = 1.23	n.s.

*Note: Offender status defined by alcohol and drug arrests. Also the Self-esteem and Stress Coping Abilities Scales are reversed in that the higher the score the lower the risk.

Both the Alcohol Scale and Drug Scale demonstrate even greater differences than total number of arrests in scale scores between first offenders and multiple offenders. Both scales are significant at p<.001. The mean Alcohol Scale score for the multiple offender group was 30.61 while the first offender group mean score was 14.64. The mean Drug Scale score for the multiple offender group was 35.59 while the first offender group mean score was 25.25.

Predictive validity

The PI demonstrates it accurately identifies problem prone drinkers and drug abusers. Having been in alcohol treatment was the criterion for identifying inmates as problem drinkers and direct admission of drug dependency was the criterion for identifying problem drug abusers. Having been in alcohol treatment identifies inmates as having had an alcohol problem and admitting to drug dependency identifies them as having a drug problem. Thus, inmates are separated into two groups, those who had treatment or admit drug dependency and those who have not had treatment or did not admit drug dependency. Then, inmate scores on the Alcohol and Drug Scales are compared. It is predicted that inmates with an alcohol treatment history and/or drug dependency will score in the problem risk range (70^{th} percentile and above) on the Alcohol Scale and/or Drug Scale. Non-problem is defined in terms of low risk scores (39^{th} percentile and below) on the Alcohol Scale and/or Drug Scale. Alcohol treatment information is obtained from inmate answers to PI test item #73 regarding alcohol treatment. Admission of drug dependency is obtained from inmate answers to PI test item #81.

Predictive validity analyses show that the PI Alcohol Scale is very accurate in identifying inmates who have alcohol problems. There were 247 inmates who reported having been in alcohol treatment and these inmates are classified as problem drinkers. Of these 247 inmates, 238 inmates, or 96.4 percent, had Alcohol Scale scores at or above the 70th percentile. The Alcohol Scale correctly identified nearly all of the inmates categorized as problem drinkers. It is interesting to note that 150 inmates (29.7%) had Alcohol Scale scores in the problem risk range and did not have treatment. It is likely that some inmates have alcohol problems but have not been in treatment. For these individuals treatment is recommended.

The PI Drug Scale is also very accurate in identifying inmates who have drug problems. There were 367 inmates who admitted being drug dependent, of these, 367 inmates, or 100 percent, had Drug Scale scores at or above the 70^{th} percentile. These results strongly substantiate the accuracy of the PI Drug Scale.

The PI Violence Scale was studied in a similar manner using direct admission of violent behavior as the criterion for violence (PI test item #59, "I am a violent person."). Of the 99 inmates who admitted to being violent an astounding 99 or 100 percent of the inmates had Violence Scale scores at or above the 70th percentile. These results support the validity of the PI Violence Scale.

Summary of PI Findings

The PI is a very accurate screening or assessment instrument. This was discussed earlier regarding risk range percentile scores for all PI scales, scale score comparisons between problem and non-problem inmates and correct identification of problem drinkers and drug abusers. It can reasonably be assumed that the inclusion of a review of available records and interview with inmates would improve assessment accuracy even further. The PI identifies inmates with substance (alcohol and other drugs) abuse problems. In addition, the PI also accurately identifies malingerers (Truthfulness Scale), antisocial thinking/behavior (Antisocial Scale), violence (lethality) potential (Violence Scale) and the emotionally disturbed (Distress, Self-esteem and Stress Coping Abilities Scales). What does this mean? The PI is both comprehensive and accurate. Comprehensive in the sense that it screens important areas of inquiry. Accurate in the sense that the PI does what it is purported to do - - that is accurately identify inmate risk.

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SUMMARY

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

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

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

The PI research strongly supports the reliability, validity and accuracy of the PI. Reliability coefficient alphas were significant at $p<.001$ for all PI scales. T-test comparisons between first offenders and multiple offenders support discriminant validity of the Alcohol Scale, Drug Scale, Antisocial Scale, Violence Scale and Stress Coping Abilities Scale because multiple offenders scored significantly higher on the different scales than first offenders. Predictive validity of the Alcohol Scale, Drug Scale and Violence Scale was shown by the accuracy with which the scales identified problem risk behavior (having had treatment or having had an arrest). The research summarized herein strongly supports the reliability, validity and accuracy of the Parolee Inventory.

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

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