PII

PRISON INMATE INVENTORY

An Inventory of Scientific Findings

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PREFACE

Prison Inmate Inventory (PII) research and development began in 1990 and has continued. The PII is designed to meet the needs of inmate screening and assessment. The copyrighted PII database ensures continued research and development. The PII is a brief, easily administered and automated (computer scored) test that is designed for determining appropriate inmate supervision levels, assessing inmate risk, identifying needs, substance (alcohol and other drugs) abuse assessment, establishing a standardized inmate database and facilitating inmate understanding. It includes true/false and multiple choice items and can be completed in 35 minutes. The PII contains 10 empirically based scales: Truthfulness, Adjustment, Alcohol, Drugs, Antisocial, Violence, Self-esteem, Distress, Judgment and Stress Coping Abilities. The PII has been researched on inmates, college students, outpatients, inpatients, job applicants, chemical dependency clients, probationers and others.

The PII report explains client's attained scores and makes specific intervention and treatment recommendations. It also presents Truth-Corrected scores, significant items, a concise "structured interview" and much more. The PII report is designed for supervision level and parole use. In addition to treatment recommendations, this report presents specific recommendations. It is a risk and needs assessment instrument. This document summarizes much of the validity and reliability research that contributed to PII development. The PII has demonstrated reliability, validity and accuracy. It correlates impressively with both experienced staff judgment and other recognized tests.

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

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

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INTRODUCTION

PRISON INMATE INVENTORY

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

The Prison Inmate Inventory (PII) was developed to help meet the needs of inmate screening and assessment. The PII is designed to help establish inmate supervision levels, facilitate inmate risk and needs assessment prior to changes in classification, status, level of supervision, treatment or release, and assess chemical dependency and substance (alcohol and other drugs) abuse. PII reports are particularly useful at supervision and parole hearings. In these reports quantitative information is obtained by empirically based measures (scales) which independently generate risk (percentile) scores. Scale development is based upon nearly 20 years of research. In addition, explanatory paragraphs describe attained scores and contain specific score-related recommendations. And each scale is presented graphically in the PII profile.

PRISON INMATE INVENTORY
MEASURES OR SCALES

1. Truthfulness Scale
2. Adjustment Scale
3. Alcohol Scale
4. Drugs Scale
5. Antisocial Scale
6. Violence Scale
7. Distress Scale
8. Judgment Scale
9. Self-esteem Scale
10. Stress Coping Abilities Scale

The PII is a brief, easily administered and interpreted substance abuse screening or assessment instrument. The PII represents the latest developments in psychometric techniques and computerized technology. The PII can be administered on a computer (IBM-PC compatibles) screen or by using paper-pencil test booklets. Regardless of how the PII is administered, all tests are scored and interpreted with a computer which generates PII reports.

The PII requires approximately 35 minutes for completion and is appropriate for high school ages through adulthood. The PII is composed of True-False and multiple-choice items. It can be administered individually or in groups. The language is direct, non-offensive and uncomplicated. Automated scoring and interpretive procedures help insure objectivity and accuracy. The PII is to be used in conjunction with a review of available records, a focused interview and experienced staff judgment.

The PII was designed to provide carefully developed measures (called scales) of several behavioral patterns and traits of interest to those working with inmates. The measures (scales) chosen for inclusion in the PII further the understanding of the inmate. In addition, they provide important information on the client's test taking attitude, emotional/behavioral adjustment, and much more.

UNIQUE FEATURES

Truth Correction: A sophisticated psychometric technique permitted by computerized technology involves "truth-corrected" scores which are calculated individually for PII scales. Since it would be naive to assume everybody responds truthfully while completing any self-report test, the Truthfulness Scale was developed. **The Truthfulness Scale establishes how honest or truthful a person is while completing the PII.** Correlation's between the Truthfulness Scale and all other scales permit identification of error variance associated with untruthfulness. This error variance can then be added back into scale scores, resulting in more accurate "Truth-Corrected" scores. Unidentified denial or untruthfulness produces inaccurate and distorted results. Raw scores may only reflect what the inmate wants you to know. Truth-Corrected scores reveal what the inmate is trying to hide. **Truth-Corrected scores are more accurate than raw scores.**

Risk Range Percentile Scores: Each PII scale is scored independently of the other scales. PII scale scoring equations combine inmate pattern of responding to scale items, Truthfulness Scale and prior history that is contained on the PII answer sheet. The Truthfulness Scale applies a truth-correction factor so that each scale score is referred to as a Truth-Corrected scale score. These Truth-Corrected scale scores are converted to the percentile scores that are reported in the inmate PII report.

PII scale percentile scores represent "degree of severity." Degree of severity is defined for scales as follows: **Low Risk** (zero to 39th percentile), **Medium Risk** (40th to 69th percentile), **Problem Risk** (70th to 89th percentile), and **Severe Problem** or **Maximum Risk** (90th to 100th percentile).

Standardization data is statistically analyzed where percentile scale scores are derived from obtained scale scores from inmate populations. The cumulative distributions of truth-corrected scale scores determine the cut-off scores for each of the four risk range and severity categories. Individual scale score calculations are automatically performed and results are presented in the PII report numerically (percentile), by attained risk category (narrative) and graphically (PII profile).

PII Database: Every time a PII is scored the test data is automatically stored on the diskette for inclusion in the PII database. This applies to PII diskettes used anywhere in the United States and Canada. When the preset number of tests are administered (or used up) on a PII diskette, the diskette is returned for replacement and the test data contained on these used diskettes is input, in a confidential (no names) manner, into the PII database for later analysis. This database is statistically analyzed annually, at which time future PII diskettes are adjusted to reflect demographic changes or trends that might have occurred. This unique and proprietary database also enables the formulation of annual summary reports that are descriptive of the populations tested. Summary reports provide important testing information, for budgeting, planning, management and program description.

Confidentiality (Delete Client Names): Many agencies and programs are rightfully concerned about protecting their client's confidentiality. The proprietary Delete Client Names option is provided to allow deletion of inmate names from test diskettes prior to their being returned to Risk & Needs Assessment. This is optional and once the names have been deleted they are gone and cannot be retrieved. Deleting inmate names does not delete demographic information or test data. It only deletes the inmate names

when the option is used. The option is available at any time and can be used whether the diskette is full or not. Once the inmate names are deleted there can no further editing of inmate names. This ensures inmate confidentiality.

* * PII SCALES DESCRIPTION * *

PII scales were developed from large item pools. Three Ph.D. level psychologists familiar with each scale selected initial PII items. Initial item selection was a rational process based upon clearly understood definitions of each scale. Subsequently, items and scales were analyzed for final test selection. The original pool of potential test items was analyzed and the items with the best statistical properties were retained. **Final test and item selection was based on each item's statistical properties**.

Empirically based PII scales were then developed by statistically relating scale items configurations to the prison inmate population. The PII was normed against the prison inmate population. Thus the PII has been researched, standardized and validated on prison inmates. It is important that users of the PII familiarize themselves with the definition of each scale. For that purpose a description of each PII scale follows.

Truthfulness Scale: This scale is designed to measure how truthful the inmate is while completing the Prison Inmate Inventory (PII). A high risk Truthfulness Scale score may invalidate other empirically based scales.

All interview and self-report information is subject to the dangers of untrue answers due to defensiveness, guardedness or even deliberate falsification. The straightforward nature of **any** self-report questionnaire or interview procedure may appear to some people as intrusive--giving rise to denial and even distortion. This is of particular concern in a prison environment where inmates often attempt to minimize their problems and/or concerns in an effort to obtain early release. The Truthfulness Scale helps identify these self-protective, recalcitrant and guarded inmates who minimize or even conceal information. In addition, the Truthfulness Scale identifies respondents with impaired (below the sixth grade) reading abilities.

The Truthfulness Scale goes beyond establishing the truthfulness of the inmate. The correlation between the Truthfulness Scale and each other PII scale has been established to provide **truth corrected** scale scores. In brief, the error variance associated with untruthfulness is identified and added back into Truth-Corrected scores. **Truth-Corrected scale scores are more accurate than raw scores.** A high Truthfulness Scale score (at or above the 90th percentile) invalidates all scale scores.

This type of a Validity or Truthfulness Scale is a **necessary** requirement for **any** test used to establish inmate risk and needs. Since the outcome of a person's test score can affect their level of supervision or even contribute to decisions regarding parole or early release--it would be naive to believe that all respondents answer all questions truthfully. **All interview and self-report tests are subject to the dangers of untrue answers and even deliberate falsification.** The Truthfulness Scale identifies these self-protective, recalcitrant and guarded people who minimize or even conceal information. Inmates can be expected to substantially under-report their problems and concerns.

Self-Esteem Scale: This consists of terms which are rated on a four-point scale to describe the inmate's self-esteem. This procedure is a rapid means of self-rating wherein the inmate describes his own self-esteem in words commonly used in everyday life.

Self-esteem refers to a person's perception of himself or herself. It reflects an explicit valuing and appraisal of oneself. Self-esteem incorporates an attitude of acceptance-approval versus rejection-disapproval of oneself. Included are one's attitudes, feelings, beliefs and perceptions of oneself. **The Self-Esteem Scale is descriptive of the person one believes oneself to be.**

One of the earliest systematic applications of the antonym checklist methodology was that of Hartshorne and May (1930), who established 80 pairs of antonyms representing four types of conduct: honesty, service, persistence and inhibition. In 1936 Allport and Odbert published their monograph on trait names. R. B. Cattell (1943, 1946) in his first factorial studies of personality structure identified 12 "primary source traits of personality". By the end of 1952, the Adjective Checklist was in its current 300 item format. Although trait ratings can be useful, distinctions among traits can become blurred as more traits are included. Also unilateral selection of adjectives may not be sufficiently sensitive to individual nuances or differences between one person and another.

For these reasons PII Self-Esteem terms were derived in a rational manner for one trait, i.e., Self-Esteem, and a four-point rating scale was developed for rating each term. Self-Esteem was selected as the construct to be measured because of its relevance in the corrections and therapeutic community. Final Self-Esteem item selection was based on each item's statistical properties.

The monograph by William Fitts, Ph.D. and William Hamner, Ph.D. (Nashville Mental Health Center, July 1969) emphasizes "that the way an individual views and interacts with the world around him is partly a function of the way he views himself; that his behavior is a reflection or expression of his self-concept; that his self-concept is influenced by his behavior and his own reactions to himself." There is a constant interaction between self-concept and behavior. The theory states "persons whose behavior is antisocial, delinquent and criminal should also have deviant self-concepts...it is not enough that we understand and control behavior. We must also understand their self-concepts and find ways to facilitate self-concept change." In this monograph the authors conclude: the typical public offender has a negative self-concept, he does not maintain normal Self-Esteem, he has poor stress coping abilities, and has strong indications of general maladjustment or psychopathology. "He sees himself as bad or worthless and he acts accordingly."

Self-concept and Self-esteem appear to be equivalent terms and are used interchangeably in the PII. Well-integrated Self-esteem appears to be related to problem-free adjustment.

Self-esteem has been studied in relation to rehabilitation (W. Fitts, 1972), psychopathology (W. Fitts, 1972) and self-actualization (W. Fitts, 1971). Self-esteem is a significant factor in positive attitude change, rehabilitation and sustaining a more appropriate behavioral adjustment. An individual's Self-esteem partially predicts recidivism. "Subjects who two years later were non-recidivants, showed marked self-concept changes during treatment" (W. Fitts, 1969). Correctional rehabilitation programs no longer ignore the inmate's self concept or Self-esteem. **Recidivists tend to have negative Self-esteem.**

Without Self-esteem there would be no self-evaluation in terms of prevailing mores. There would be no remorse regarding mistakes, pride in accomplishments or conflict regarding future plans. Self-esteem evolves as it is learned. We learn to approve, praise or pardon our own actions, just as we learn to disapprove, feel guilt or condemn other actions. In summary, individuals react to themselves and evaluate their own behavior.

Alcohol Scale: This empirically based scale is a measure of the inmate's alcohol proneness and alcohol-related problems. Frequency and magnitude of alcohol use or abuse are important factors to be considered

when assessing inmate adjustment. Alcohol is a major licit or legal substance in society. Many inmates bring their alcohol-related problems to prison.

Alcoholism is a relapse-oriented disease. Some inmates work through their substance (alcohol) abuse problems in Alcoholics Anonymous (AA) meetings. Others do not. A drinking problem can erode rehabilitation, adjustment and increase recidivism risk. Identification of alcohol proneness and drinking problems can begin the recovery process. Statistics demonstrate that many inmates have had drinking and alcohol related problems.

Drugs Scale: This scale is an independent measure of the inmate's drug abuse and drug-related problems. Without a Drugs scale, many drug abusers would remain undetected. Increased public awareness of drug (marijuana, cocaine, crack, heroin, etc.) abuse emphasizes the importance of including an independent measure of drug use or abuse in inmate assessment.

Drug abuse is also a relapse-oriented disease. Many convicted offenders bring their drug habits to prison with them. Some find Narcotics Anonymous (NA) or Cocaine Anonymous (CA) helpful. Others do not. Identification of drug abuse or drug-related problems can be the first step in recovery. Statistics reveal that many inmates have had drug use and drug abuse problems prior to incarceration.

The Prison Inmate Inventory (PII) differentiates between "alcohol" and "drug" abuse or licit versus illicit substances. In prison both alcohol and other drugs are illicit substances. Both substance categories represent important areas of concern in the prison environment.

Distress Scale: Anxiety refers to tension, stress or pressure. Anxiety is an unpleasant emotional state characterized by non-directed apprehension or fear. Most definitions of anxiety include a sympathetically induced feeling associated with a sense of threat. General symptoms such as nervousness, apprehension and tension are included in the definition of anxiety.

Depression refers to a dejected or self-depreciating emotional state that varies from normal to pathological proportions. General symptoms such as melancholy and dysphoric mood are included in this definition, as are thoughts of suicide and other cognitive as well as somatic correlates of depression. In general, depression is defined as a condition of restlessness and despair.

The Distress Scale consists of items symptomatic of anxiety and depression. The two symptom clusters--anxiety and depression--represent the most commonly reported symptoms of distress in counseling and psychotherapy settings. The blending of these symptom clusters is clear in the definition of dysphoria, i.e., a generalized feeling of anxiety, restlessness and depression.

The Distress Scale provides a quantitative score that varies directly with the inmate's self-reported symptoms. Severity of symptoms is measured by the inmate's multiple choice answer, i.e., rare or never, sometimes, often or very often. As noted earlier, the term "distress" includes anxiety and depression, consequently distress refers to unhappiness, discontent, dissatisfaction, worry, apprehension, fear, etc.

Distress represents the major reason people seek help or are referred for professional counseling. Anxiety and depression symptoms are not mutually exclusive; any given case may be difficult to differentiate because people usually have multiple problems and concerns. For these reasons, symptoms of anxiety and depression were combined into one measure, i.e., the Distress Scale. It is important to measure the degree of severity of perceived distress because of its broad applicability to intervention, outcome and adjustment.

Judgment Scale: This empirically based scale consists of items that incorporate understanding and comprehension. Understanding refers to a person's logical and comprehension abilities. Judgment refers to a person's ability to compare facts or ideas, to understand their relationships, and to draw correct

conclusions. When establishing levels of supervision or considering an inmate for parole, it is important to understand whether or not the inmate's judgment is sound or impaired. The Judgment Scale enables assessment of the inmate's practical knowledge and social judgment prior to initiating changes in classification, status, level of supervision or treatment.

The Judgment Scale was standardized on a representative sample of inmates, consequently Judgment Scale risk ranges are based on the sampled prison inmate population. This procedure insures accurate representation of Judgment Scale scores among inmates.

Judgment provides the individual with a self-regulatory mechanism. With judgment the inmate is able to object or agree to what he and others are about to do. In this context, judgment offers the individual an alternative to modify the course of his ongoing behavior.

Without judgment, human beings cannot develop self-evaluation in terms of prevailing mores regarding "right" and "wrong". There wouldn't be pride or remorse, nor conflict either before or after one's actions. Guilt would not be possible. Human beings react to what they think, which becomes a symbolic system by means of which people are able to regulate their own behavior. In brief, judgment is necessary for a person to evaluate his or her situation and decide upon future action.

Thus, the inmate's judgment is an important factor to be considered when establishing his or her level of supervision, status or making early release decisions. Inmates "risk" would be higher if he (or she) manifests poor or impaired judgment. In contrast, inmates with good judgment would be considered less of a "risk".

Stress Coping Abilities Scale: This empirically based scale is a measure of the inmate's experienced stress level in comparison to that person's ability to cope with stress. Stress refers to tension, pressure or anxiety. Stress is an increasingly significant concept in our society. The National Institute for Occupational Safety and Health (NIOSH) evaluated the health records of 22,000 workers in 130 organizations. Their conclusion: **"stress affects workers in all types of jobs at all levels; unskilled laborers are equally susceptible as are top-line executives".**

How effectively people cope with stress determines whether or not stress is a significant factor in their lives. Two concepts, i.e., stress and coping ability, dominate the literature on stress. The Stress Coping Abilities Scale includes measures of both of these concepts. The better an individual's coping skills, compared to their experienced stress, the lower their stress coping score. In contrast, if a person is experiencing more stress than he or she can cope with, the higher the stress coping score.

Stress exacerbates other symptoms of emotional, attitudinal, substance abuse and adjustment-related problems. The Stress Coping Abilities Scale is highly correlated with many of the clinical scales on the Minnesota Multiphasic Personality Inventory or MMPI. **A score on the Stress Coping Abilities Scale at or above the 90th percentile indicates the presence of an identifiable or perhaps diagnosable psychological, psychiatric, or mental health problem.** Thus, in addition to assessing a person's stress coping abilities, this scale provides a non-threatening and non-intrusive "mental health" assessment.

Inmates handle stress differently, e.g., one inmate may handle incarceration well, whereas another inmate may be overwhelmed. The Stress Coping Abilities Scale identifies the problem prone individual that is not coping effectively with stress.

Adjustment Scale: Inmate adjustment is defined in terms of historical risk and risk during incarceration. The historical risk consists of the inmate’s criminal history, pre-incarceration adjustment, attitude and early arrest record. The Adjustment Scale also incorporates items referring to the inmate's current prison adjustment, attitude and problems. This assesses the adjustment the inmate represents in terms of

incarceration status, compliance and adjustment problems. The inmate's arrest and probation history contribute to the adjustment assessment.

It is important to understand that the Prison Inmate Inventory (PII) is standardized on the inmate population itself. This means that percentile scores are based on a representative sample of prison inmate test scores. PII scores are established in comparison to all other inmates tested. These attained scores and their risk-related classifications **are based upon much more than one person's subjective opinion.**

The interview has been widely used as a risk and needs evaluation technique and a diagnostic procedure for many years, despite its paradoxical lack of demonstrated reliability and validity (Peace Officer Standards and Training, California, 1984). The literature that has reviewed the interview offers virtually no quantitative support for its validity as a predictor (POST, 1984). Interview and rating procedures must protect against bias, subjectivity, favoritism and inequity. Sometimes this is difficult to achieve in interview due to limited information, variable staff training, work pressures and time demands.

It is recommended that PII test data be integrated with other available information in formulating supervision and early release decisions. For example, Corrections Officer recommendations, parole board interviews, record reviews, etc., when combined with PII test data, provide a more complete picture of the inmate.

Antisocial Scale: This scale measures antisocial behavior e.g., lying, uncaring, irresponsible, dysocial, etc. Antisocial behavior can be incapacitating in society. The term antisocial usually means harmful to society, unsociable and hostile. Antisocial individuals seem to be chronically in trouble with society. Antisocial tendencies often manifest themselves in lack of loyalty, problems with authority, and problems with society.

Antisocial individuals often avoid associating with others. Most definitions of antisocial refer to a person being harmful to the welfare of people generally. A synonym is unsocial. Most definitions refer to a history of chronic antisocial behavior in which the rights of others are violated. Often there is markedly impaired capacity to sustain lasting, close, warm and responsible relationships with family, friends and loved ones.

Violence Scale: This empirically based scale measures the tendency of an inmate to use physical force to injure, damage or destroy. This scale establishes whether or not the inmate is a danger to self or others.

Although conflict and its consequences are inescapable parts of human existence, individuals differ widely in both the ease in developing conflict, and in the nature and severity of its results. The Violence Scale identifies the extreme, i.e., the inmate that is considered dangerous or potentially violent. Pathologically violent inmates are a threat to themselves, others and society.

Violence is often defined as physical force used so as to injure, damage or destroy. This includes intense, often devastating or explosively powerful force or behavior. Other adjectives include extreme, intense, very strong, furious, etc.

COMPARISON OF RATING FORMS VERSUS SELF-REPORT: Many "inmate rating" procedures have been used over the years. Inmate rating is highly influenced by the rater's knowledge of the inmate, the rater's training in rating procedure, adequate time for accurate ratings, and absence of bias or prejudice. Some inmate rating forms require information that might not be available, e.g., inmates pre-incarceration adjustment, inmate emotional stability or psychopathology and even opinions about the inmate's sex life. Much of this "rater knowledge" goes beyond inmate observation and requires access to inmate records and

time consuming review. In many cases questions have been raised about inter-rater reliability, validity, accuracy and fairness.

In contrast, self-report tests do not involve a lot of staff time, as the inmate completes the test himself or herself. Truthfulness Scale addresses the problem of some respondents not telling the truth. Truth-Corrected scores are more accurate than raw scores. In the past, many evaluators "turned off" on self-report tests because they were too easy to fake. The PII Truthfulness Scale and Truth-Corrected scores have addressed this problem. Now computerized self-report tests provide accuracy in addition to saving staff time and budgeted dollars.

RESEARCH STUDIES

The Prison Inmate Inventory (PII) validation studies were conducted with established Minnesota Multiphasic Personality Inventory (MMPI) scales as well as Polygraph examinations and other reports. Reliability and validity studies have been conducted on substance abuse inpatients, outpatients, college students, job applicants, defendants, diversion program attendees, probationers, inmates and counseling patients. The PII has been studied in prisons, adult court settings and probation departments.

Empirically based PII scales (or measures) were developed by statistically relating scale item configurations to known substance (alcohol and other drugs) abuse groups. The PII was then normed against an adult prison population. A summary of much of this PII research follows.

This document first presents the earlier studies that investigated the Stress Coping Abilities Scale. Validation studies are presented next followed by reliability studies. The research represented in this document is reported chronologically -- as it occurred. Chronological presentation enables the reader to follow the evolution of the PII into a state-of-the-art assessment instrument. More recent studies (toward the end of this document) are most representative of current PII statistics.

PII risk level classification categories are presented below. These percentages are based on PII respondent scale scores. This permits comparison of predicted percentages with obtained percentages for each risk range category.

PREDICTED RISK RANGE PERCENTAGES FOR EACH PII SCALE		
RISK CATEGORY	RISK RANGE	**PREDICTED PERCENTAGE**
Low Risk	zero to 39th percentile	**39%**
Medium Risk	40 to 69th percentile	**30%**
Problem Risk	70 to 89th percentile	**20%**
Severe Problem	90 to 100th percentile	**11%**

Predicted percentages for each scales risk range category can be compared to actually attained percentile scores. This comparison helps understand the accuracy of the PII. 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.

Analysis of the accuracy of PII risk range percentile scores involves comparing the risk range percentile scores obtained from inmate PII 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, is compared to these predicted percentages.

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**.

PII SCALES RESEARCH

The Prison Inmate Inventory (PII) is designed for inmate risk and needs assessment. The PII has a long history of research and development, much of which is contained in the following summary. PII research is reported in a chronological format, reporting studies as they occurred. This gives the reader the opportunity to see how the PII 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 PII scale consideration. Consensual agreement among three Ph.D. level psychologists and other experienced chemical dependency counselors familiar with scale definitions reduced the initial item pool markedly. Final item selection was empirical - comparing statistically related item configurations to known substance abuse groups. Items chosen had acceptable inter-item reliability coefficients and correlated highest with their respective scales. Final

item selection was based on each item's statistical properties. The PII was then objectively standardized and normed on prison inmate populations.

10. Validation of the Truthfulness Scale

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

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

Method

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

Results

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

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

11. Validation of Four PII Scales using Criterion Measures

In general terms, a test is valid if it measures what it is supposed to measure. The process of confirming this statement is called validating a test. A common practice when validating a test is to compute a correlation between it and another (criterion) test that purports to measure the same thing and that has been previously validated. For the purpose of this study, the four PII scales (Truthfulness, Alcohol, Drugs, 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 PII 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. The Drugs Scale was validated with the

MacAndrew and Psychopathic Deviant scales. The Stress Coping Abilities Scale was validated with the Taylor Manifest Anxiety, Psychasthenia, Social Maladjustment and Social Alienation scales.

Method

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

Results and Discussion

Product-moment correlation coefficients were calculated between PII scales and MMPI scales. These results are summarized in Table 1. Correlation results presented in Table 1 show that all PII 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 PII scales (N = 100)

MMPI SCALES	PII SCALES (MEASURES)			
(MEASURES)	Truthfulness	Alcohol	Drugs	Stress Coping
L (Lie) Scale	0.72	-0.38	-0.41	0.53
Psychopathic Deviant	-0.37	0.52	0.54	-0.59
Psychasthenia	-0.34	0.38	0.41	-0.68
Social Maladjustment	-0.25	0.34	0.26	-0.54
Authority Conflict	-0.43	0.31	0.47	-0.46
Manifest Hostility	-0.45	0.34	0.47	-0.58
Taylor Manifest Anxiety	-0.58	0.47	0.46	-0.78
MacAndrew	-0.40	0.58	0.62	-0.33
Social Alienation	-0.47	0.35	0.45	-0.67

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

The **Truthfulness Scale** correlates significantly with all of the represented MMPI scales in Table 1. Of particular interest is this scale's highly significant positive correlation with the MMPI Lie (L) Scale. A high L Scale score on the MMPI invalidates other MMPI scale scores due to untruthfulness. This helps in understanding why the Truthfulness Scale is significantly, but negatively, correlated with the other represented MMPI scales. Similarly, the MMPI L Scale correlates significantly, but negatively, with the other PII 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 **Drugs Scale** correlates significantly with the MacAndrew ($r = 0.62$) Scale and the Psychopathic Deviant ($r = 0.54$) Scale.

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

12. Relationships Between Selected PII 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 PII scales were chosen for this study; Truthfulness Scale, Alcohol Scale and Drugs Scale. The Truthfulness Scale was chosen because it is used in the PII to measure the truthfulness or honesty of the respondent while completing the PII. The Alcohol and Drugs scales are well suited for comparison with the polygraph exam because of the situation specific nature of the scales. Alcohol and Drugs scale items are direct and relate specifically to alcohol and drug use. The comparison with the Truthfulness Scale is less direct because of the subtle nature of the Truthfulness Scale items as used in the PII. The Truthfulness Scale is affected by the respondent's attitude, emotional stability and tendencies to fake good. It was expected that the Alcohol and Drugs 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 PII scales and the Polygraph examination. Tests were given in a counterbalanced order, half of the applicants were given the PII scales first and the other half of the applicants were administered the polygraph first. The subjects were administered the PII scales and polygraph exam in the same room in the same session with the examiner present for both tests.

Results

The product-moment correlation results between the Polygraph exam and PII 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 Drugs Scale ($r = 0.56$, $p<.001$).

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

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

13. Validation of PII Scales in a Sample of Substance Abuse Inpatients

The PII is an inmate risk and needs assessment instrument that incorporates measures of chemical dependency and substance (alcohol and other drugs) abuse. It is designed for use in prison and corrections settings. The PII is a specific test designed for specific inmate populations. The present study (1987) was conducted to validate the PII 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 PII 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 Drugs Scale was validated with MMPI MacAndrew Scale and Psychopathic Deviate-Obvious. 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 PII scales because they measure similar attributes.

Method

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

Results and Discussion

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

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

Table 2. PII-MMPI Product-moment Correlations (1987)

Inpatients, Chemical Dependency Facilities (N = 212)				
MMPI SCALES	**PII SCALES (MEASURES)**			
(MEASURES)	**Truthfulness**	**Alcohol**	**Drugs**	**Stress Coping**
L	0.60	-0.24	-0.15	-0.30
F	-0.34	0.32	0.32	0.49
K	0.39	-0.28	-0.29	-0.51
MAC	-0.30	0.35	0.37	0.28
PD-O	-0.35	0.22	0.33	0.53
PD2	-0.26	0.18	0.17	0.07
PD	-0.33	0.21	0.33	0.39
HOS	-0.45	0.25	0.33	0.46
TSC-V	-0.46	0.34	0.28	0.58
ES	0.25	-0.27	-0.25	-0.51
RE	0.41	-0.27	-0.34	-0.45
SOC	-0.19	0.17	0.08	0.39
PD4	-0.41	0.20	0.28	0.55
SCIA	-0.36	0.27	0.32	0.39
PT	-0.39	0.27	0.24	0.58
A	-0.41	0.31	0.31	0.68
MAS	-0.44	0.25	0.18	0.65
TSC-VII	-0.41	0.33	0.29	0.66

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

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

Where MMPI scales are closely related (by definition) to PII scales the correlation coefficients were highly significant. For example, the PII 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 the Stress Coping Abilities Scale and MMPI Tension/Worry Scale was $r = -.66$. This study supports the validity of the Prison Inmate Inventory (PII).

14. Reliability of PII Scales in a Large Sample of Convicted DUI Offenders

This study (1989) was conducted to evaluate the reliability of the PII Truthfulness Scale, Alcohol Scale, Drugs and Stress Coping Abilities Scale. There were 1,487 convicted DUI offenders included in the study. This study provides a large sample for studying 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 accuracy, objectivity, practicality, cost-effectiveness and accessibility.

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

Method and Results

The PII scales were administered to 1,487 convicted DUI offenders. Cronbach's Alpha and the Standardized Alpha were computed as a measure of internal reliability. The results are presented in Table 3.

Table 3. Reliability coefficient alphas. DUI Offenders (N=1,487)
All coefficient alphas are significant at p<.001.

PII Scales	Cronbach Alpha	Standardized Alpha
Truthfulness Scale	.82	.82
Alcohol Scale	.91	.92
Drugs Scale	.84	.86
Stress Coping Abilities Scale	.90	.91

These results strongly support the reliability of the PII scales investigated in this study. All coefficient alphas were highly significant at p<.001. The PII scales have high internal consistency as measured by Cronbach and standardized coefficient alphas.

PII RESEARCH

PII research studies are reported chronologically (as they were done). Consequently the most recent PII research is presented under the most recent years. Over time PII statistical properties (reliability, validity and accuracy) continue to improve. Thus, the studies represented herein represent the evolution of the PII into a state-of-the-art domestic violence offender assessment instrument.

15. Reliability Study of the PII in a Sample of Prison Inmates

This study (1991) was conducted to evaluate the reliability of the Prison Inmate Inventory (PII) on a sample of prison inmates. In 1991 the PII contained 219 test items in 10 measures or scales. The PII scales included: Truthfulness, Self-Esteem, Alcohol, Drugs, Distress, Judgment, Stress Coping Abilities, Historical Risk, Current Risk, and Total Risk. The purpose of the study was to test the reliability of the PII and to standardize the PII on prison inmates.

Within-test reliability measures to what extent a test with multiple scales measuring different factors, measures each factor independent of the other scales in the test. It also measures to what extent items in each scale consistently measure the particular characteristic that scale was designed to measure. The most common method of reporting within scale inter-item reliability is with coefficient alpha.

Method and Results

The PII was administered to 397 prison inmates. All inmates were male except for one female. The demographic composition of this sample is as follows: Age: 16 to 25 years (8.8%); 26 to 35 years (64.7%); 36 to 45 years (16.4%); 46 to 55 years (10.1%). Ethnicity: Caucasian (75.1%); Black (18.1%); Hispanic (2.8%); Asian (0.5%); American Indian (3.3%); and Other (0.3%). Education: 8th grade or less (1.0%); Some High School (1.0%); GED (4.0%); Business/Technical School (22.7%); College Graduates (27.2%); and Graduate/Professional Degrees (23.4%). Marital Status: Single (47.9%); Married (13.4%); Divorced (25.7%); Separated (1.5%); and Widowed (0.5%).

Reliability coefficient alphas are presented in Table 4. There were 397 prison inmates tested.

Table 4. Reliability coefficient alpha. Prison inmates (N = 397, 1991) All coefficient alphas are significant at p<.001.

PII Scales	Coefficient Alpha
Truthfulness Scale	.85
Self Esteem Scale	.94
Alcohol Scale	.90
Drugs Scale	.84
Distress Scale	.87
Judgment Scale	.81
Stress Coping Abilities Scale	.91
Historical Risk Scale	.80
Current Risk Scale	.82
Total Risk Scale	.81

These results strongly support the reliability of the PII. All coefficient alphas were significant at p<.001. All PII scales were found to be significantly independent of the other PII scales as shown by the highly significant within-test coefficient alphas. The obtained Cronbach Coefficient Alphas--a widely used test of inter-item reliability with parallel models--demonstrate that each PII scale measures essentially one factor or characteristic and all scales show high inter-item congruency. In other words, each PII scale measures one factor, yet the factor being measured is different from scale to scale. PII scales have acceptable and empirically demonstrated reliability, as demonstrated by the coefficient alphas cited above. These results indicate that the PII is a reliable test instrument for prison inmate assessment.

16. Reliability of the PII in a Sample of Australian Prison Inmates

This study (1994) was conducted in Australian and involved administration of the Prison Inmate Inventory (PII) to Australian prison inmates. Inmates completed the PII after they had been admitted and processed. Most of this sample were incarcerated for more than six months. The purpose of this study was to evaluate the reliability of the PII on a sample of Australian prison inmates.

Method and Results

The PII was administered to 402 Australian male prison inmates. The demographic composition of this sample is summarized as follows: Age: 16 to 20 years (26.1%); 21 to 25 years (38.1%); 26 to 30 years (13.2%); 31 to 35 years (10.9%); 36 to 40 years (4.7%); 41 to 45 years (3.0%); 46 to 50 years (2.0%); 51 to 55 years (1.0%); 56 to 60 years (0.7%); 61 to 65 years (0.2%). Ethnicity: Caucasian (75.1%); Black (5.7%); Hispanic (0.7%); Asian (9.7%); and Other (8.5%). Education: 8th Grade or less (21.1%); Some High School (60.0%); GED (2.2%); High School Graduate (10.9%), Some College (2.0%); Technical

School (1.2%); College Graduate (1.2%); and Professional School (1.2%). Marital Status: Single (66.9%); Married (28.4%); Divorced (4.0%); Separated (0.5%); and Widowed (0.2%).

Inmate profiles are further described in terms of court-related history of criminal behavior. Nearly half of the inmates were convicted of their first crime at the age of 17 years or younger. Eighty percent of the inmates had been convicted of a crime by the age of 23 years. Over one-third of the inmates (39.6%) had been convicted of a violent crime, a crime involving force, or the threat of force. Nearly half of the inmates (49.5%) reported having served prior prison sentences. During the past ten years, more than one-third of the inmates (37.1%) were in jail or prison two or more years.

Reliability coefficient alphas are presented in Table 5.

Reliability refers to an instrument's consistency of results regardless of who uses it. This means that the results must be objective, verifiable and reproducible. Ideally the test must also be practical, economical and accessible. PII results are objective, verifiable and reproducible. Computer scoring ensures accuracy, objectivity and practicality.

Table 5. Reliability coefficient alphas. Australian prison inmates (N = 402,1994). All coefficient alphas are significant at p<.001.

PII Scales	Coefficient Alpha
Truthfulness Scale	.86
Historical Risk Scale	.78
Current Risk Scale	.80
Total Risk Scale	.79
Self-Esteem Scale	.93
Alcohol Scale	.85
Drugs Scale	.84
Judgment Scale	.84
Distress Scale	.86
Stress Coping Abilities Scale	.91

These results support the reliability of the PII. However, they reflect some cultural differences which may have resulted in lower coefficient alphas. Distributions were adjusted accordingly for the Australian sample.

17. Reliability of the PII with the Antisocial and Violence Scales

It was decided to collapse the three measures of risk (Historical, Current and Total risk) into one risk measure. The rational was to shorten these items while concurrently increasing the magnitude of the Risk Scales coefficient alpha. And, on the basis of feedback received from prison staff in Australia and the United States, it was decided to include two new scales. These new scales are the Antisocial Scale and the Violence Scale. Each of these scales represents important areas of inquiry for comprehensive and meaningful inmate assessment. Future studies will incorporate the PII that includes the Violence Scale and the Antisocial Scale.

This study (1994) was conducted to evaluate the reliability of the new Risk Scale and the additional Antisocial and Violence scales.

Method and Results

The PII was administered to 692 prison inmates. There were 678 males (98%) and 14 females (2%). The demographic composition of this sample is as follows: Age: 19 and younger (1.7%); 20 through 29 (42.6%); 30 through 39 (37.6%); 40 through 49 (15.2%); 50 through 59 (2.5%). Ethnicity: Caucasian (56.8%); Black (36.3%); Hispanic (1.2%); Asian (1.0%); American Indian (3.0%) and Other (1.3%). Marital Status: Single (56.4%); Married (18.8%); Divorced (19.4%) and Widowed (0.7%). Education: 9th Grade or less (15.3%); 10th and 11 Grade (28.5%); High School Graduate or GED (37.6%); Partially Complete College (17.2%) and College Graduate (0.4%).

Court-related history includes the following: Number of Misdemeanors: None (27.3%); One (14.3%); Two (14.0%); Three (11.4%); Four (6.1%); Five (5.9%); Six or more (18.2%). Number of Felonies: None (1.6%); One (22.7%); Two (20.5%); Three (17.2%); Four (9.7%); Five (8.2%); Six or more (18.6%). Number of Times on Parole: None (50.1%); Once (28.8%); Twice (2.4%); Three times (4.3%); Four times (1.7%); Five times (0.7%); Six or more times (0.7%). Number of Parole Revocations: None (62.4%); Once (23.0%); Twice (8.2%); Three times (1.7%); Four times (1.4%); Five times (1.0%); Six or more times (1.0). Number of Times Sentenced to Prison: Once (46.0%); Twice (28.9%); Three times (15.3%); Four times (3.8%); Five times (2.9%); Six or more times (2.2%).

Reliability coefficient alphas are presented in Table 6.

Table 6. Reliability coefficient alphas. Prison inmates (N = 692, 1994). All coefficient alphas significant at p<.001.

PII Scales	Coefficient Alpha
Truthfulness Scale	.85
Antisocial Scale	.84
Violence Scale	.86
Alcohol Scale	.89
Drugs Scale	.90
Judgment Scale	.79
Distress Scale	.85
Self-Esteem Scale	.88
Stress Coping Abilities Scale	.90
Risk Scale	.80

This study strongly supports the reliability of the PII. All coefficient alphas were highly significant at p<.001. The PII is a reliable instrument with impressive internal consistency.

The Risk Scale was tightened up by collapsing “historical risk”, “current risk”, and “total risk” into one measure designated “Risk”. This was achieved by selecting the risk items from these three risk scales that had the best statistical properties. The revised Risk Scale is used in future PII applications and research.

This study (N=692) also introduced the Antisocial Scale and Violence Scale. These scales were developed independently and incorporated in the PII after discussions with corrections personnel indicated that these areas of inquiry were very desirable in inmate populations. These modifications resulted in a more focused Risk Scale and a more comprehensive PII assessment instrument.

18. Reliability and Accuracy of the PII in Three Samples of Prison Inmates

This study (1995) was done to further test the reliability of the PII and to review the accuracy of PII 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 PII 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 PII risk range percentile scores involves comparing the risk range percentile scores obtained from inmate PII 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 Missouri 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 PII scales are presented in Table 7.

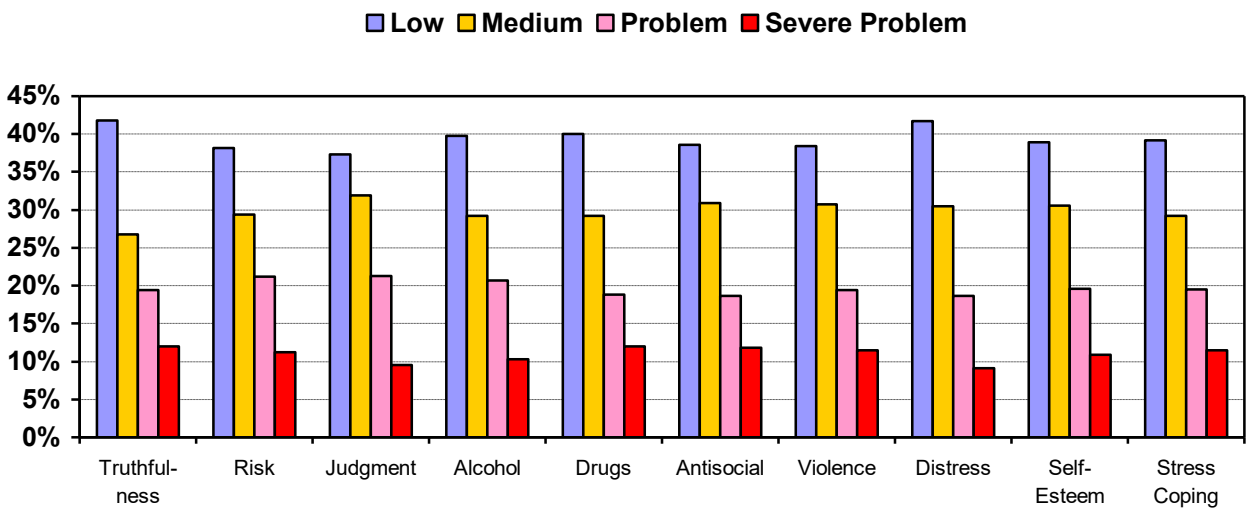
Table 7. Reliability coefficient alphas. Prison inmates (Total N = 6,050, 1995)
All coefficient alphas are significant at p<.001.

PII 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
Risk Scale	.85	.85	.84
Judgment Scale	.85	.85	.85
Alcohol Scale	.95	.94	.94
Drugs Scale	.94	.95	.94
Distress Scale	.86	.88	.88
Self-Esteem Scale	.94	.94	.94
Stress Coping Abilities Scale	.91	.92	.92

These results support the reliability (internal consistency) of the PII. All coefficient alphas were highly significant at p<.001 for all PII scales. One can be confident that similar PII results will be obtained upon repetition. Reliability reflects the degree to which measurement is free from random error or influence. PII scales have impressive internal consistency.

The analysis of inmate risk assessment is based upon scores attained by inmates as reported in the PII. The percentage of inmates falling into each risk range for each PII scale for Group 2 (Missouri, N= 1,782) is presented in Table 8.

Table 8. Inmate Risk Assessment for Group 2 (Missouri, 1996, N=1,782)



	Truthful-ness	Risk	Judgment	Alcohol	Drugs	Antisocial	Violence	Distress	Self-Esteem	Stress Coping
Risk Range	%	%	%	%	%	%	%	%	%	%
Low	41.8	38.2	37.3	39.8	40.0	38.6	38.4	41.7	38.9	39.2
Medium	26.8	29.4	31.9	29.2	29.2	30.9	30.7	30.5	30.6	29.2
Problem	19.4	21.2	21.3	20.7	18.8	18.7	19.4	18.7	19.6	19.5
Severe Problem	12.0	11.2	9.5	10.3	12.0	11.8	11.5	9.1	10.9	11.5

These results show that obtained risk range percentile scores closely approximate the predicted risk range scores for each of the 10 PII scales presented in Table 8. On every PII scale the discrepancy between obtained and predicted risk range percentages were within 2.8 percentage points. The Risk, Drugs and Antisocial Scales were all within 1.3 percentage points of predicted. The Alcohol, Violence, Self-Esteem and Stress Coping Abilities scales were within 0.8 percent of predicted. **This is very accurate inmate risk assessment.**

19. Reliability of the PII in a Large Sample of Prison Inmates

In 1996 a large prison inmate assessment program was added to the Prison Inmate Inventory database. This study was conducted to evaluate the reliability of the PII in this new sample of prison inmates. The study included 8,769 prison inmates. Of these 8,769 inmates, 7,989 were male (91.1%) and 780 female (8.9%). The demographic composition of this sample is as follows: Age: 19 and younger (10.9%); 20 through 29 (46.3%); 30 through 39 (29.8%); 40 through 49 (10.6%); 50 through 59 (2.0%); 60 and older (0.4%). Education: 8th grade or less (2.5%); 9th grade (15.7%); 10th and 11th grade (29.4%); High School Graduate or G.E.D. (39.5%); Partially Completed College (9.0%); College Graduate (2.2%); Advanced Degree (0.4%). Ethnicity: Caucasian (53.3%); Black (42.1%); Hispanic (0.7%); Asian (0.9%); Native American (1.3%); Other (1.0%). Marital Status: Single (65.9%); Married (13.5%); Divorced (13.9%); Separated (4.6%); Widowed (0.7%).

The reliability coefficient alphas are presented in Table 9.

Table 9. Reliability coefficient alphas. Prison inmates (N=8,769, 1996) All coefficient alphas are significant at p<.001.	
PII Scales	**Coefficient Alpha**
Truthfulness Scale	.87
Self-Esteem Scale	.94
Judgment Scale	.86
Antisocial Scale	.85
Violence Scale	.85
Risk Scale	.84
Distress Scale	.87
Alcohol Scale	.93
Drugs Scale	.94
Stress Coping Abilities Scale	.91

These results support the internal consistency (reliability) of the PII for this large prison inmate sample. All coefficient alphas were significant at p<.001. These results are similar to those reported earlier on other inmate populations. Similar results will be obtained upon replication or retest. The PII is an objective, reliable and accurate inmate assessment or screening instrument.

20. Validity, Reliability and Scale Risk Range Accuracy of the PII

This study (1997) was conducted to test the validity, reliability and accuracy of the Prison Inmate Inventory (PII) assessment instrument. Two statistics procedures were used in the present study to test the validity of the PII. 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 inmate who had been sentenced to prison once and a multiple offender was defined as an inmate who had one or more prison sentences. 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 Drugs Scale. The answer sheet item "number of times sentenced to prison" 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 PII by using contingency tables defined by scale scores and either treatment or number of arrests. Treatment was used with the Alcohol Scale and Drugs Scale, and number of arrests was used with the Violence Scale.

Risk range percentile scores are calculated for each PII 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 PII risk range percentile scores involves comparing the risk range percentile scores obtained from inmate PII 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

The PII was administered to 4,757 prison inmates. There were 4,440 males (93.3%) and 317 (6.7%) females. The demographic composition of this sample is as follows: Age: 19 and younger (12.2%); 20 through 29 (41.7%); 30 through 39 (29%); 40 through 49 (13.3%); 50 through 59 (2.8%); 60 and older (1%). Education: 8th grade or less (2.8%); 9th grade (16.3%); 10th and 11th grade (31.4%); High School Graduate or G.E.D. (38.4%); Partially Completed College (8.8%); College Graduate (2%); Advanced Degree (0.3%). Ethnicity: Caucasian (55.1%); Black (41.3%); Hispanic (0.5%); Asian (1.1%); Native American (1.2%); Other (0.8%). Marital Status: Single (66.9%); Married (14.4%); Divorced (13.6%); Separated (3.9%); Widowed (1.2%).

Reliability coefficient alphas are presented in Table 10 for this sample of 4,757 prison inmates.

Table 10. Reliability coefficient alphas. Prison inmates (N=4,757, 1997) All coefficient alphas are significant at p<.001.

PII Scales	Coefficient Alpha
Truthfulness Scale	.87
Self-Esteem Scale	.94
Judgment Scale	.80
Antisocial Scale	.80
Violence Scale	.86
Risk Scale	.80
Distress Scale	.88
Alcohol Scale	.94
Drugs Scale	.95
Stress Coping Abilities Scale	.92

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

T-tests were calculated for all PII scales to assess possible sex differences in the prison inmates. Significant gender differences were demonstrated on eight of the 10 PII scales, i.e., Truthfulness, Risk, Judgment,

Alcohol, Drugs, Violence, Distress and Stress Coping Abilities scales. These results are presented in Table 11.

Table 11. Sex differences in the prison inmate sample (1997, N = 4,757).

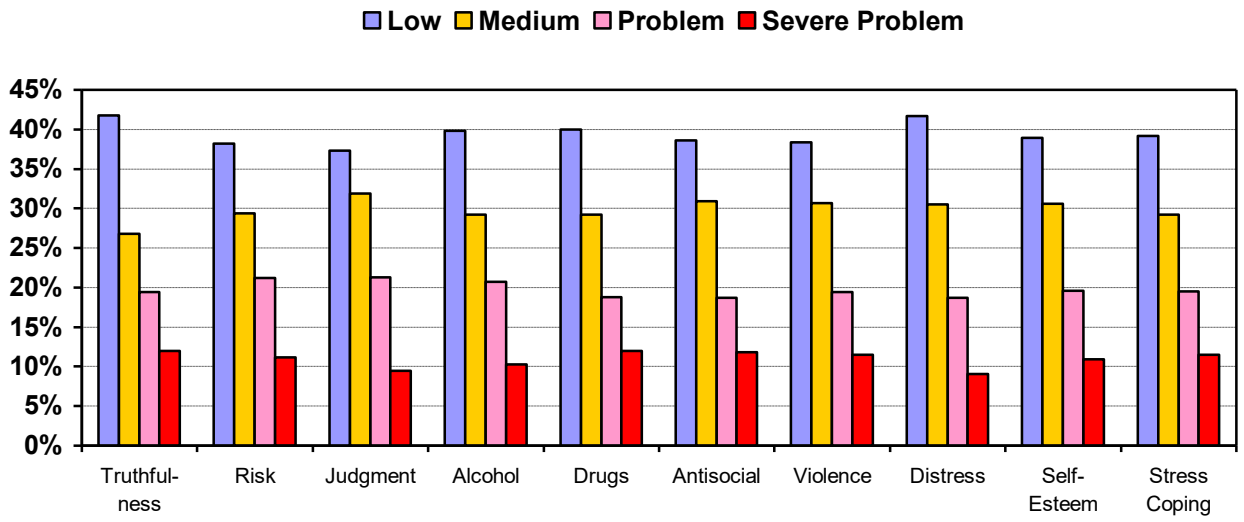
PII	Mean Scale Score			Significance
SCALE	Males	Females	t value	Level
Truthfulness Scale	7.78	6.53	3.98	p<.001
Risk Scale	22.25	21.19	2.30	p=.02
Judgment Scale	5.57	4.95	3.15	p<.002
Alcohol Scale	13.85	12.42	2.12	p=.035
Drugs Scale	18.26	21.97	4.66	p<.001
Violence Scale	10.93	9.92	2.40	p=.016
Distress Scale	7.52	8.24	2.03	p=.042
Stress Coping Abilities	103.30	96.19	3.11	p=.002

Significant sex differences were not observed on the Antisocial and Self-Esteem scales, consequently separate male and female scoring procedures were established for the Truthfulness, Risk, Judgment, Alcohol, Drugs, Violence, Distress and Stress Coping Abilities scales.

Higher male scores were found on the Truthfulness, Risk, Judgment, Alcohol and Violence scales. These scales likely reflects more straightforward admissions by men. Females scored higher than males on the Drugs, Distress and Stress Coping Abilities scales. Females were likely more willing than males to divulge this type of information.

The analysis of inmate risk assessment is based upon raw risk scores attained by inmates on the PII. The percentage of inmates falling into each risk range for each PII scale (N= 4,757) is presented in Table 12.

Table 12. Inmate Risk Assessment (1997, N=4,757)



	Truthful-ness	Risk	Judgment	Alcohol	Drugs	Antisocial	Violence	Distress	Self-Esteem	Stress Coping
Risk Range	%	%	%	%	%	%	%	%	%	%
Low	41.8	38.2	37.3	39.8	40.0	38.6	38.4	41.7	38.9	39.2
Medium	26.8	29.4	31.9	29.2	29.2	30.9	30.7	30.5	30.6	29.2
Problem	19.4	21.2	21.3	20.7	18.8	18.7	19.4	18.7	19.6	19.5
Severe Problem	12.0	11.2	9.5	10.3	12.0	11.8	11.5	9.1	10.9	11.5

The t-test comparisons between first offenders and multiple offenders (prior prison term) for each scale is presented in Tables 13 through 15.

Table 13. T-test comparisons between first offenders and multiple offenders. Offender status defined by number of times sentenced to prison. (1997, N=4,757)

PII Scale	First Offenders Mean (N=2,818)	Multiple Offenders Mean (N=1,939)	T-value	Level of significance
Truthfulness Scale	8.12	7.11	t = 6.56	p<.001
Risk Scale	19.22	26.48	t = 34.73	p<.001
Judgment Scale	5.66	5.33	t = 2.80	p=.005
Alcohol Scale	12.33	15.83	t = 9.48	p<.001
Drugs Scale	16.36	21.63	t = 13.04	p<.001
Antisocial Scale	7.28	8.38	t = 7.89	p<.001
Violence Scale	10.35	11.61	t = 5.76	p<.001
Distress Scale	7.66	7.42	t = 1.36	n.s.
Self-Esteem	34.47	31.29	t = 4.84	p<.001
Stress Coping Abilities	104.79	99.98	t = 3.88	p<.001

Table 14. T-test comparison of Alcohol Scale between first offenders and multiple offenders. Offender status defined by number of alcohol arrests.

PII Scale	First Offenders Mean (N=3.659)	Multiple Offenders Mean (N=1,098)	T-value	Level of significance
Alcohol Scale	9.66	27.41	t = 43.70	p<.001

Table 15. T-test comparison of Drugs Scale between first offenders and multiple offenders. Offender status defined by number of drug arrests.

PII Scale	First Offenders Mean (N=3,598)	Multiple Offenders Mean (N=1,159)	T-value	Level of significance
Drugs Scale	14.51	30.91	t = 41.27	p<.001

These t-test results support the discriminant validity of the PII. All t-test comparisons between first offenders and multiple offenders were significant at p<.001. All but the Truthfulness and Judgment scales showed that multiple offenders had higher scale scores than first offenders. The Distress Scale showed there were no significant differences. 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.

T-test results of the Risk 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 Risk Scale. T-test results of the Alcohol Scale and Drugs 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, Drugs Scale and Risk Scale.

The test of predictive validity for the Alcohol Scale is presented in Table 16. Inmates 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 inmates responses to PII test items.

Table 16. 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)	1,695 (.86)	50 (.04)	1,745
Problem or Severe Problem Risk (70 to 100th percentile)	285 (.14	1,214 (.96)	1,499
	1,980	1,264	3,244

These results show that for the 1,264 inmates who reported having had alcohol treatment, 1,214 inmates, or **96 percent**, had Alcohol Scale scores at or above the 70th percentile. Similarly, of the 1,980 inmates who did not have alcohol treatment, 1,695 inmates or **86 percent** had Alcohol Scale scores in the Low Risk or no problem range. This lower percentage is reasonable because inmates could have a drinking problem without having been in treatment. Combining these results gives an overall accuracy of the Alcohol Scale of 90 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.

The predictive validity test of the Drugs Scale was done in the same way using drug treatment as the criterion. Of the 1,342 inmates who reported having had drug treatment 1,206 or **90 percent** had Drugs Scale scores in the 70th percentile or higher (Problem Risk and above). Of the 1,923 inmates who did not have treatment 1,683 **(88%)** had Drugs Scale scores in the Low Risk (no problem) range. The overall accuracy of the Drugs Scale in predicting drug treatment was **88 percent**. These results show there is a very strong positive correlation between the Drugs Scale and drug treatment.

A similar procedure done where violent or assault arrest was the criteria used for testing the Violence Scale showed nearly as high accuracy as the Alcohol and Drugs scales with treatment accuracy. For the Violence Scale, **80 percent** of the inmates who had a violent or assault arrest, 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 violent or assault arrests.

Taken together these results strongly support the reliability, validity and accuracy of the PII. **Reliability coefficient alphas were significant at p<.001 for all PII 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 Risk Scale, Alcohol Scale, Drugs Scale, Antisocial Scale, Violence Scale, Self-Esteem and Stress Coping Abilities Scale because multiple offenders scored significantly higher on the different scales than first offenders. Predictive validity of the Alcohol Scale, Drugs 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 90 percent, the Drugs Scale had an accuracy of 88 percent and the Violence Scale had an accuracy of 80 percent.** These results support the reliability, validity and accuracy of the PII.

21. PII Reliability, Validity and Accuracy in a Large Sample of Prison Inmates

This study (1999) was carried out on the current 161-item test and included 7,909 prison inmates. The analyses include PII accuracy for establishing inmate risk, statistical reliability coefficients (alphas) for each PII scale, discriminant validity analyses between first offenders and multiple offenders and predictive validity analyses for identification of problem and non-problem drinkers/drug users.

Method and Results

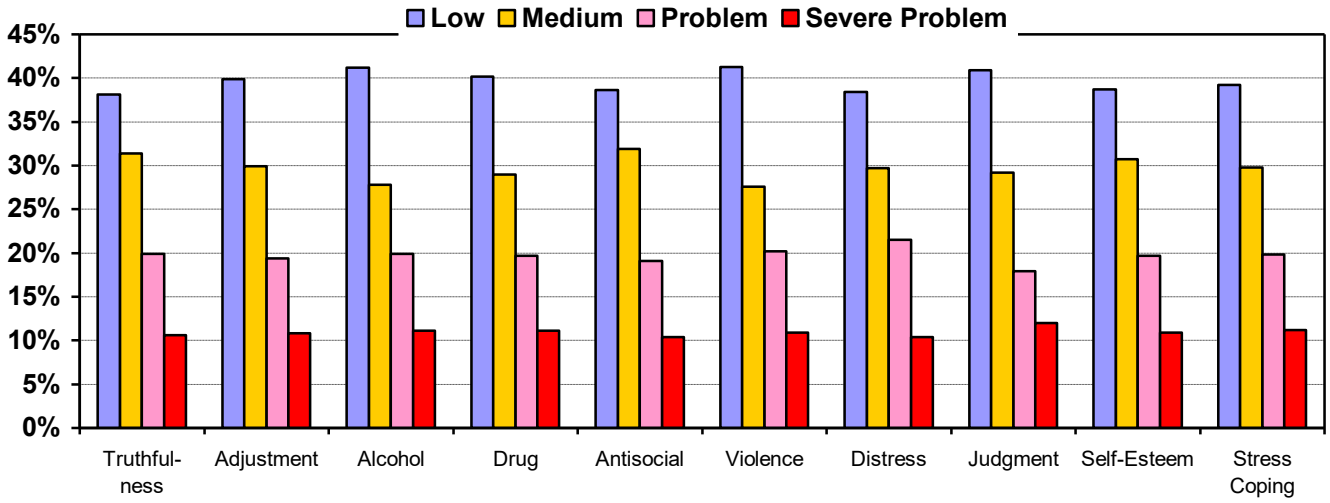
Included in this study (1999) were 7,909 prison inmates. There were 7,010 males (88.6%) and 899 females (11.4%). The demographic composition of this sample is as follows: Age: 19 and younger (3.7%); 20 through 29 (29.6%); 30 through 39 (20.6%); 40 through 49 (10.2%); 50 through 59 (1.8%); 60 and older (0.4%). Education: 8th grade or less (5.7%); Some High School (45.0%); High School Graduate (33.6%); Partially Completed College (12.4%); College Graduate (1.7%); Advanced Degree (1.7%). Ethnicity: Caucasian (43.2%); Black (49.5%); Hispanic (3.2%); Asian (0.2%); Native American (1.5%); Other (2.3%). Marital Status: Single (63.7%); Married (17.9%); Divorced (13.1%); Separated (4.4%); Widowed (0.9%).

For ease in interpreting inmate risk, the PII scoring methodology 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). By definition the expected 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 Prison Inmate Inventory

The PII contains ten measurement (or severity) scales. The percentage of inmates scoring in each of the four risk categories (low, medium, problem and severe problem risk) is compared to the predicted percentage for each of the ten PII scales. Table 17 presents these statistics. The differences between obtained and predicted percentages are presented in parentheses in the table below the graph.

Table 17. Prison Inmate Inventory Scale Risk Ranges (1999, N=7,909)



Scale	Low Risk (39%)		Medium Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness	38.1	(0.9)	31.4	(1.4)	19.9	(0.1)	10.6	(0.4)
Adjustment	39.9	(0.9)	29.9	(0.1)	19.4	(0.6)	10.8	(0.2)
Alcohol	41.2	(2.2)	27.8	(2.2)	19.9	(0.1)	11.1	(0.1)
Drugs	40.2	(1.2)	29.0	(1.0)	19.7	(0.3)	11.1	(0.1)
Antisocial	38.6	(0.4)	31.9	(1.9)	19.1	(0.9)	10.4	(0.6)
Violence	41.3	(2.3)	27.6	(2.4)	20.2	(0.2)	10.9	(0.1)
Distress	38.4	(0.6)	29.7	(0.3)	21.5	(1.5)	10.4	(0.6)
Judgment	40.9	(1.9)	29.2	(0.8)	17.9	(2.1)	12.0	(1.0)
Self-esteem	38.7	(0.3)	30.7	(0.7)	19.7	(0.3)	10.9	(0.1)
Stress Coping	39.2	(0.2)	29.8	(0.2)	19.8	(0.2)	11.2	(0.2)

As shown in the graph and table above, the PII 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 2.4 percentage points of the expected percentages and most (33) were within 1.5 percentage points. Only five obtained percentages were more than 2% from the predicted, and these were within 2.4 percent. These results demonstrate that the PII scale scores accurately identify inmate risk.

Reliability of the Prison Inmate Inventory

Within-test reliability, or inter-item reliability coefficient alphas for the Prison Inmate Inventory are presented in Table 18.

Table 18. Reliability of the Prison Inmate Inventory (1999, N=7,909) All coefficient alphas are significant at p<.001.	
PII SCALES	**Coefficient Alphas**
Truthfulness Scale	.88
Alcohol Scale	.94
Drugs Scale	.95
Antisocial Scale	.83
Violence Scale	.88
Distress Scale	.89
Judgment Scale	.80
Self-esteem Scale	.92
Stress Coping Abilities	.91

Note: The Adjustment Scale is a compilation of and sheet items answer a few test items. The number of test items is insufficient to measure reliability.

As demonstrated above, the Alpha coefficients for all of the Prison Inmate Inventory scales are above the professionally accepted standard of .80. Indeed, the majority of the scales are at or near .90. These results show that the PII is a reliable instrument for inmate risk assessment.

Validity of the Prison Inmate Inventory

The Prison Inmate Inventory scales measure severity and the extent to which inmates have problems. It would be expected, then, that multiple offenders (inmates who have 2 or more arrests) have higher scale scores than first offenders. Therefore **discriminant validity** of the Prison Inmate Inventory is shown by significant differences between first and multiple offenders. In the following analyses the answer sheet item "Total number of times arrested" was used to define first offenders and multiple offenders (2 or more arrests). There were 1,147 first offenders and 6,762 multiple offenders. The Alcohol and Drugs Scales were also analyzed using alcohol and drug arrests. "Number of alcohol arrests" was used for the Alcohol Scale, which had 5,944 first offenders and 1,965 multiple offenders. " Number of drug arrests" was used for the Drugs Scale, which had 5,401 first offenders and 2,508 multiple offenders.

Because "risk" is often defined in terms of severity of problem behavior it is expected that multiple offenders would score significantly higher on PII scales than first offenders. The t-test comparisons between first offenders and multiple offenders for each PII scale are presented in Table 19 (N=7,909). Multiple offenders had two or more arrests as reported on the PII answer sheet.

Table 19. T-test comparisons between first offenders and multiple offenders (1999, N=7,909).				
PII Scale	**First Offenders Mean**	**Multiple Offenders Mean**	**T-value**	**Level of Significance**
Truthfulness Scale	10.12	11.31	t = 6.80	p<.001
Adjustment Scale	22.36	30.62	t = 23.08	p<.001
Alcohol Scale	10.75	17.97	t = 19.59	p<.001
Drugs Scale	16.23	24.45	t = 19.59	p<.001
Antisocial Scale	17.89	26.70	t = 31.90	p<.001
Violence Scale	16.05	20.41	t = 12.19	p<.001
Distress Scale	21.51	22.47	t = 2.33	p=.020
Judgment Scale	11.60	15.19	t = 19.78	p<.001
Self-esteem Scale	5.31	1.97	t = 6.81	p<.001
Stress Coping Abilities	101.63	97.66	t = 2.57	p=.010
*Alcohol Scale	12.50	30.30	t = 55.27	p<.001
*Drugs Scale	19.13	32.14	t = 39.53	p<.001

*Note: Offender status defined by alcohol and drug arrests. Also the Stress Coping Abilities Scale is reversed in that the higher the score the better one copes with stress.

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

As shown in the table above, both the Alcohol Scale and Drugs 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 30.30 while the first offender group mean score was 12.50. The mean Drugs Scale score for the multiple offender group was 32.14 while the first offender group mean score was 19.13.

Predictive validity

To be considered accurate a screening test must accurately identify both problem inmates (drinkers or drug abusers) and non-problem inmates. Accurate tests differentiate problem and non-problem inmates. The PII demonstrates it accurately identifies problem prone drinkers and drug abusers.

The criterion in this analysis for identifying inmates as problem drinkers is having been in alcohol treatment and for identifying problem drug abusers is direct admission of drug dependency. Having been in treatment identifies inmates as having had an alcohol problem. If a person has never had an alcohol problem it is very likely they have not been treated for an alcohol. In the PII treatment and admission of drug dependency information is obtained from the inmate. 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 Drugs 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 Drugs Scale. Non-problem is defined in terms of low risk scores (39^{th} percentile and below) on the Alcohol Scale and/or Drugs Scale. Alcohol treatment information is obtained from inmate answers to PII test item #73 regarding alcohol treatment. Admission of drug dependency is obtained from inmate answers to PII test item #81.

Predictive validity analyses show that the Alcohol and Drugs Scales accurately identify inmates who have had alcohol treatment and/or admit drug dependency. The PII Alcohol Scale is very accurate in

identifying inmates who have alcohol problems. There were 1,604 inmates who reported having been in alcohol treatment and these inmates are classified as problem drinkers. Of these 1,604 inmates, 1,471 inmates, or 91.7 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 981 inmates (23.9%) 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 PII Drugs Scale is also very accurate in identifying inmates who have drug problems. There were 2,110 inmates who admitted being drug dependent, of these, 2,083 inmates, or 98.7 percent, had Drugs Scale scores at or above the 70th percentile. The PII Drugs Scale achieved a very impressive accuracy. These results support the validity of the PII Drugs Scale.

The PII Violence Scale was studied in a similar manner using direct admission of violent behavior as the criterion for violence (PII test item #59, "I am a violent person."). Of the 634 inmates who admitted to being violent an astounding 628 or 99.1 percent of the inmates had Violence Scale scores at or above the 70th percentile. These results support the validity of the PII Violence Scale.

PII Inmate Self-Perceptions

The PII obtains the inmate's own opinions, perceptions and biases of their problems, as well as their motivation for help. The percentages of inmates who agreed with statements indicating they are "at-risk" are presented.

Alcohol and Drug Problems	Males %	Females %
#45. I have a drug problem	40.5	59.4
#21. I have a drinking problem	29.3	24.5
#39. I am concerned that, when I get out of prison, drinking will be a problem for me.	17.6	13.9
#64. I am concerned about using drugs when I get out of prison	31.7	42.4
#140. How would you describe your drinking?		
1. A serious problem	18.9	13.6
2. A moderate problem	10.5	8.9
3. A mild problem	11.6	11.0
#144. How would you describe your drug use?		
1. A serious problem	25.8	38.4
2. A moderate problem	12.0	10.8
3. A mild problem	11.7	12.0
#142. Even though I am in prison, I have a:		
1. Drinking problem	9.4	5.7
2. Drug problem	15.0	31.2
3. Both 1 and 2 (drinking and drugs)	13.5	17.5
#143. Even though I am in prison, I am a recovering:		
1. Alcoholic. Have a drinking problem but do not drink anymore	12.6	6.4
2. Drug abuser. Have a drug problem but do not use drugs anymore	22.4	35.9
3. Both 1 and 2 (recovering alcoholic and drug abuser)	18.8	21.8

#137. How many different substance abuse programs have you been enrolled in?		
1. One	26.8	23.5
2. Two or Three	22.8	23.2
3. Four or more	8.3	11.7

Incarceration

#135. During the last six months, I have been given:		
1. A verbal reprimand	6.9	7.0
2. A written reprimand	4.9	5.8
3. Both 1 and 2	7.8	12.4
#139. During the last six months, I have had conflicts or problems with:		
1. Some inmates	7.7	11.2
2. Some corrections officers	6.5	3.5
3. Both 1 and 2	7.8	11.2
#128. During the last year I have:		
1. Had disciplinary action	15.4	18.5
2. Lost privileges	7.9	11.0
3. Been written up – as a warning	5.9	7.8

Emotional Problems

#59. I am a violent person	9.2	7.5
#131. During the last six months I have been:		
1. Dangerous to myself (suicidal)	5.1	6.6
2. Dangerous to others (homicidal)	4.1	2.2
3. Both 1 and 2 (suicidal and homicidal)	4.0	4.9

SUMMARY

The Prison Inmate Inventory was administered to 7,909 prison inmates. There were 7,010 males (88.6%) and 899 females (11.4%). The inmate population is broadly defined as Black (49.5%) or Caucasian (43.2%), 20 through 39 years of age (75.6%), and education level of partial High School (45%) or High School Graduate (33.6%).

PII Accuracy, Reliability and Validity

- PII scale risk range percentile scores were accurate to within 2.4 percent of predicted for **all PII scales and all risk ranges**
- All PII scales reliability coefficients were **.80 or higher and most were at or near .90.**
- Discriminant validity analyses show that all PII Scales **significantly discriminate between first and multiple offenders.**
- **Predictive validity analyses show that PII Alcohol, Drugs and Violence Scales accurately identify problem drinkers, drug abusers and dangerous inmates.**
- **PII Alcohol Scale correctly identified 92 percent of problem drinkers.**
- **PII Drugs Scale correctly identified 99 percent of problem drug abusers.**
- **PII Violence Scale correctly identified 99 percent of violent inmates.**

22. PII Reliability, Validity and Accuracy in a Sample of Prison Inmates

This study (2000) was conducted in a southern state prison system that included 2,382 prison inmates. The same statistical analyses were carried out to compare to previously reported PII research. The analyses included PII scales risk range accuracy, reliability coefficients (alphas) for each PII scale, discriminant validity and predictive validity as discussed in the previous study.

Method and Results

Included in this study (2000) were 2,382 prison inmates. There were 2,349 males (98.6%) and 33 females (1.4%). 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 PII 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.

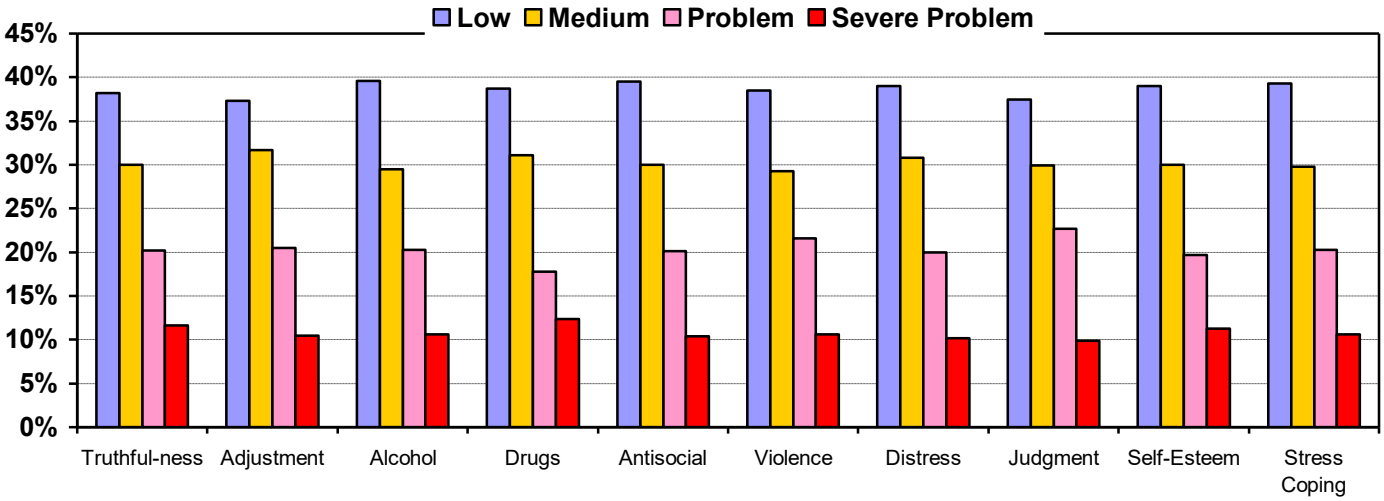
Accuracy of the Prison Inmate Inventory

The PII contains ten 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 ten PII 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 20 presents these statistics. The differences between obtained and predicted percentages are presented in parentheses in the table below the graph.

As shown in the graph and table below, the PII 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 PII scale scores accurately identify inmate risk.

For those inmates who are identified as having problems (Problem-20% and Severe Problem-11% risk ranges or 31% of the inmates), the obtained percentages were extremely accurate. The differences between obtained and predicted percentages are as follows: Truthfulness (0.8), Adjustment (0), Alcohol (0.1), Drugs (0.8), Antisocial (0.5), Violence (1.2), Distress (0.8), Judgment (1.6), Self-esteem (0) and Stress Coping Abilities (0.1). The Problematic risk profiles for all Prison Inmate Inventory scale scores were within 1.6 percent of the predicted percentages. These results further demonstrate the accuracy of the PII.

Table 20. Prison Inmate Inventory Scale Risk Ranges (2000, N=2,382)



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)
Adjustment	37.3	(1.7)	31.7	(1.7)	20.5	(0.5)	10.5	(0.5)
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)
Judgment	37.5	(1.5)	29.9	(0.1)	22.7	(2.7)	9.9	(1.1)
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)

Reliability of the Prison Inmate Inventory

Within-test reliability, or inter-item reliability coefficient alphas for the Prison Inmate Inventory are presented in Table 21.

Table 21. Reliability of the Prison Inmate Inventory (2000, N=2,382)
All coefficient alphas are significant at p<.001.

PII Scales	Coefficient Alphas
Truthfulness Scale	.86
Alcohol Scale	.94
Drugs Scale	.94
Antisocial Scale	.83
Violence Scale	.89
Distress Scale	.87
Judgment Scale	.80
Self-esteem Scale	.87
Stress Coping Abilities	.90

Note: The Adjustment Scale is a compilation of and sheet items answer a few test items. The number of test items is insufficient to measure reliability.

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

Validity of the Prison Inmate Inventory

The Prison Inmate Inventory scales measure severity and the extent to which inmates have problems. Comparisons between first offenders and multiple offenders determine the extent to which PII 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 PII answer sheet item "Total number of times arrested" was used to define first offenders and multiple offenders (2 or more arrests). There were 161 first offenders and 2,221 multiple offenders. The Alcohol and Drugs Scales were also analyzed using alcohol and drug arrests. "Number of alcohol arrests" was used for the Alcohol Scale, which had 1,567 first offenders and 815 multiple offenders. " Number of drug arrests" was used for the Drugs Scale, which had 1,545 first offenders and 837 multiple offenders. The t-test comparisons between first offenders and multiple offenders for each PII scale are presented in Table 22 (N=2,382). Multiple offenders had two or more arrests as reported on the PII answer sheet.

Table 22. T-test comparisons between first offenders and multiple offenders (2000, N=2,382).

PII Scale	First Offenders Mean	Multiple Offenders Mean	T-value	Level of significance
Truthfulness Scale	7.91	9.31	t = 3.17	p<.002
Adjustment Scale	22.38	33.40	t = 12.04	p<.001
*Alcohol Scale	14.64	30.61	t = 30.74	p<.001
*Drugs Scale	25.25	35.59	t = 19.51	p<.001
Antisocial Scale	19.34	28.28	t = 11.72	p<.001
Violence Scale	17.06	21.88	t = 5.15	p<.001
Distress Scale	20.04	22.48	t = 2.59	p=.010
Judgment Scale	11.65	15.88	t = 8.94	p<.001
Self-esteem Scale	8.24	3.78	t = 3.96	p<.001
Stress Coping Abilities	101.65	94.20	t = 2.33	p=.020

*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.

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

Both the Alcohol Scale and Drugs 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 Drugs Scale score for the multiple offender group was 35.59 while the first offender group mean score was 25.25.

Predictive validity

The PII 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 Drugs Scales are compared. It is predicted that inmates with an alcohol treatment history and/or drug dependency will score in the problem risk range (70th percentile and above) on the Alcohol Scale and/or Drugs Scale. Non-problem is defined in terms of low risk scores (39th percentile and below) on the Alcohol Scale and/or Drugs Scale. Alcohol treatment information is obtained from inmate answers to PII test item #73 regarding alcohol treatment. Admission of drug dependency is obtained from inmate answers to PII test item #81.

Predictive validity analyses show that the PII Alcohol Scale is very accurate in identifying inmates who have alcohol problems. There were 550 inmates who reported having been in alcohol treatment and these inmates are classified as problem drinkers. Of these 550 inmates, 517 inmates, or 94 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 218 inmates (19.3%) 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 PII Drugs Scale is also very accurate in identifying inmates who have drug problems. There were 641 inmates who admitted being drug dependent, of these, 624 inmates, or 97.3 percent, had Drugs Scale scores at or above the 70th percentile. These results strongly substantiate the accuracy of the PII Drugs Scale.

The PII Violence Scale was studied in a similar manner using direct admission of violent behavior as the criterion for violence (PII test item #59, "I am a violent person."). Of the 223 inmates who admitted to being violent an astounding 222 or 99.6 percent of the inmates had Violence Scale scores at or above the 70th percentile. These results support the validity of the PII Violence Scale.

Summary of PII Findings

The PII is a very accurate screening or assessment instrument. This was discussed earlier regarding risk range percentile scores for all PII 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 PII identifies inmates with substance (alcohol and other drugs) abuse problems. In addition, the PII also accurately identifies malingerers (Truthfulness Scale), antisocial thinking/behavior (Antisocial Scale), violence (lethality) potential (Violence Scale), problematic attitudes/thinking (Adjustment and Judgment Scales) and the emotionally disturbed (Distress, Self-esteem and Stress Coping Abilities Scales). What does this mean? The PII is both comprehensive and accurate. Comprehensive in the sense that it screens important areas of inquiry. Accurate in the sense that the PII does what it is purported to do - - that is accurately identify inmate risk.

23. PII Reliability, Validity and Accuracy in a Midwestern State Sample of Prison Inmates

This study (2000) included 10,101 prison inmates from a Midwestern state prison system. Both males and females were included in the study. These participants were tested as part of routine program procedures to ensure that all inmates are tested. Most inmates are tested earlier in their prison terms or upon arrival to the prison. The PII is presented in group settings and scan answer sheets are used for data input.

<u>Method and Results</u>
Included in this study (2000) were 10,101 prison inmates. There were 9,567 males (94.8%) and 534

females (5.3%). The demographic composition of this sample is as follows: Age: 19 and younger (6.3%); 20 through 29 (46.7%); 30 through 39 (29.2%); 40 through 49 (14.0%); 50 through 59 (3.1%); 60 and older (0.6%). Education: 8th grade or less (5.4%); Some High School (45.2%); High School Graduate (34.8%); Partially Completed College (11.8%); College Graduate (1.3%); Advanced Degree (1.5%). Ethnicity: Caucasian (41.8%); Black (50.5%); Hispanic (2.8%); Asian (0.1%); Native American (1.8%); Other (3.0%). Marital Status: Single (66.9%); Married (16.8%); Divorced (11.5%); Separated (4.0%); Widowed (0.7%).

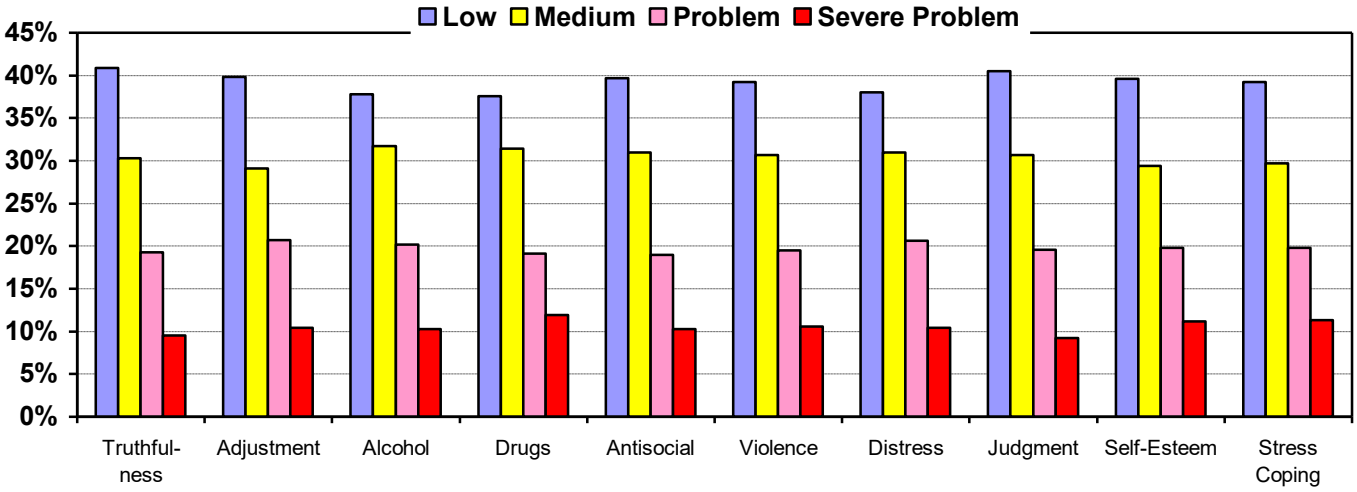
Court-related history information was the following: Age of First Arrest: 10 & under (3.0%); 11-12 (5.9%); 13-14 (12.0%); 15-16 (15.9%); 17-18 (22.5%); 19-20 (12.2%); 21-22 (7.3%); 23-24 (4.1%); 25-29 (7.1%); 30-34 (4.1%); 35 & over (6.0%). Number of Felonies: None (1.2%); One (31.0%); Two (24.0%); Three (15.4%); Four (9.3%); Five (6.7%); Six or more (12.4%). Number of Times on Probation: None (22.9%); Once (36.9%); Twice (23.7%); Three times (9.5%); Four times (3.5%); Five times (1.7%); Six or more times (1.8%). Number of Probation Revocations: None (54.2%); Once (30.6%); Twice (9.7%); Three times (3.0%); Four times (1.0%); Five times (0.6%); Six or more times (1.0%). Number of Times on Parole: None (67.2%); Once (21.4%); Twice (6.4%); Three times (2.8%); Four times (1.4%); Five times (0.3%); Six or more times (0.4%). Number of Parole Revocations: None (79.8%); Once (11.9%); Twice (4.3%); Three times (2.3%); Four times (1.1%); Five times (0.3%); Six or more times (0.2%). Total Number of Arrests: None (2.3%); One (7.6%); Two (10.6%); Three (11.5%); Four (10.8%); Five (10.0%); Six or more (47.3%). Years in Jail or Prison: None (33.8%); One (16.7%); Two (11.1%); Three (8.7%); Four (6.0%); Five (4.7%); Six or more (19.0%). Number of Alcohol Arrests: None (62.2%); One (12.0%); Two (6.6%); Three (4.9%); Four (3.0%); Five (2.6%); Six or more (8.7%). Number of Drug Arrests: None (44.3%); One (22.6%); Two (14.1%); Three (7.6%); Four (4.2%); Five (2.5%); Six or more (4.6%). Number of DUI/DWI Arrests: None (71.1%); One (13.4%); Two (6.6%); Three (3.6%); Four (1.9%); Five (1.3%); Six or more (2.1%). Number of Escape Attempts: None (94.7%); One (4.1%); Two (0.7%); Three (0.2%); Four (0.1%); Five (0.1%); Six or more (0.1%). Number of Months Left to Serve: None (2.4%); 1-2 (9.2%); 3-4 (8.0%); 5-6 (11.9%); 7-8 (10.0%); 9-10 (9.1%); 11-14 (10.1%); 15-22 (9.3%); 23-35 (9.4%); 36-69 (10.5%); 70 or more (10.0%).

Accuracy of the Prison Inmate Inventory

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 ten PII scales are presented in Table 23. The close approximations of the obtained percentages to predicted percentages are measures of accuracy. The closer the obtained percentages are to the predicted percentages the more accurate the scale risk range percentages are. The differences between obtained and predicted percentages are presented in parentheses in the table below the graph.

As shown in the graph and table below, the PII 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 1.9 percentage points of the expected percentages and most (32) were within 1.0 percentage point. Only three obtained percentages were more than 1.5% from the predicted, and these were within 1.9 percent. These results demonstrate that the PII scale scores accurately identify inmate risk.

Table 23. Prison Inmate Inventory Scale Risk Ranges (2000, N=10,101)



Scale	Low Risk (39%)		Medium Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness	40.9	(1.9)	30.3	(0.3)	19.3	(0.7)	9.5	(1.5)
Adjustment	39.8	(0.8)	29.1	(0.9)	20.7	(0.7)	10.4	(0.6)
Alcohol	37.8	(1.2)	31.7	(1.7)	20.2	(0.2)	10.3	(0.7)
Drugs	37.6	(1.4)	31.4	(1.4)	19.1	(0.9)	11.9	(0.9)
Antisocial	39.7	(0.7)	31.0	(1.0)	19.0	(1.0)	10.3	(0.7)
Violence	39.2	(0.2)	30.7	(0.7)	19.5	(0.5)	10.6	(0.4)
Distress	38.0	(1.0)	31.0	(1.0)	20.6	(0.6)	10.4	(0.6)
Judgment	40.5	(1.5)	30.7	(0.7)	19.6	(0.4)	9.2	(1.8)
Self-esteem	39.6	(0.6)	29.4	(0.6)	19.8	(0.2)	11.2	(0.2)
Stress Coping	39.2	(0.2)	29.7	(0.3)	19.8	(0.2)	11.3	(0.3)

Reliability of the Prison Inmate Inventory

Within-test reliability, or inter-item reliability coefficient alphas for the Prison Inmate Inventory are presented in Table 24.

Table 24. Reliability of the Prison Inmate Inventory (2000, N=10,101)
All coefficient alphas are significant at p<.001.

PII SCALES	Coefficient Alphas
Truthfulness Scale	.88
Alcohol Scale	.94
Drugs Scale	.95
Antisocial Scale	.83
Violence Scale	.89
Distress Scale	.89
Judgment Scale	.80
Self-esteem Scale	.87
Stress Coping Abilities	.91

Note: The Adjustment Scale is a compilation of answer sheet items and a few test items. The number of test items is insufficient to measure reliability.

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

Validity of the Prison Inmate Inventory

PII scale score comparisons between first offenders and multiple offenders determine the extent to which PII scales differentiate between these offenders. It would be expected that multiple offenders (inmates who have 2 or more arrests) would score higher than first offenders. The PII answer sheet item "Total number of times arrested" was used to define first offenders and multiple offenders (2 or more arrests). There were 1,235 first offenders and 8,866 multiple offenders. The Alcohol and Drugs Scales were also analyzed using alcohol and drug arrests. "Number of alcohol arrests" was used for the Alcohol Scale, which had 7,521 first offenders and 2,580 multiple offenders. " Number of drug arrests" was used for the Drugs Scale, which had 6,794 first offenders and 3,307 multiple offenders. The t-test comparisons between first offenders and multiple offenders for each PII scale are presented in Table 25 (N=10,101). Multiple offenders had two or more arrests as reported on the PII answer sheet.

Table 25. T-test comparisons between first offenders and multiple offenders (2000, N=10,101).

PII Scale	First Offenders Mean	Multiple Offenders Mean	T-value	Level of significance
Truthfulness Scale	10.53	11.57	t = 5.67	p<.001
Adjustment Scale	21.22	30.05	t = 26.75	p<.001
*Alcohol Scale	12.06	30.06	t = 63.51	p<.001
*Drugs Scale	18.16	31.40	t = 45.73	p<.001
Antisocial Scale	16.53	26.35	t = 39.68	p<.001
Violence Scale	14.34	19.88	t = 18.40	p<.001
Distress Scale	19.17	21.71	t = 7.19	p<.001
Judgment Scale	10.69	14.69	t = 25.23	p<.001
Self-esteem Scale	8.14	3.46	t = 10.23	p<.001
Stress Coping Abilities	104.88	99.60	t = 3.75	p<.001

*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.

All PII scales demonstrate that multiple offenders score significantly higher than first offenders. The PII accurately differentiates between first offenders and multiple offenders. These results support the validity of the Prison Inmate Inventory.

PII scales measure severity or proneness toward problem behavior. Multiple offenders have a history of arrests and, therefore, can be considered problem prone. Multiple offenders would be expected to have higher PII scale scores than first offenders and the results reported in Table 25 support this conclusion. Offenders who have a history of arrests score higher on PII scales than first time offenders. PII scale scores identify problem prone offenders.

Predictive validity

In separate analyses the PII demonstrates it accurately identifies problem prone drinkers and drug abusers. Inmates who had alcohol treatment or admitted drug dependency were accurately identified by their Alcohol Scale and Drugs Scale scores. 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. Similarly, PII Alcohol and Drugs Scale scores at or above the 70th percentile identify inmates who have alcohol and drug problems, whereas, scores at or below the 39th percentile indicate inmates do not have an

alcohol or drug problem. In this analysis it is predicted that inmates with an alcohol treatment history and/or drug dependency will score in the problem risk range (70th percentile and above) on the Alcohol Scale and/or Drugs Scale. Alcohol treatment information is obtained from inmate answers to PII test item #73 regarding alcohol treatment. Admission of drug dependency is obtained from inmate answers to PII test item #81.

Predictive validity analyses show that the PII Alcohol Scale is very accurate in identifying inmates who have alcohol problems. There were 6,886 inmates who had Alcohol Scale scores in the low risk range (0-39th percentile) and problem risk ranges (70-100th percentile). There were 1,967 inmates who reported having been in alcohol treatment and these inmates are classified as problem drinkers. Of these 1,967 inmates, 1,857 inmates, or 94.4 percent, had Alcohol Scale scores at or above the 70th percentile. The Alcohol Scale correctly identified over 94 percent of the inmates categorized as problem drinkers.

The PII Drugs Scale is also very accurate in identifying inmates who have drug problems. There were 7,040 inmates scoring in the low risk and problem risk ranges. There were 2,649 inmates who admitted being drug dependent, of these, 2,602 inmates, or 98.2 percent, had Drugs Scale scores at or above the 70th percentile. These results validate the PII Drugs Scale.

Violence Scale

The PII Violence Scale was studied in a similar manner using direct admission of violent behavior as the criterion for violence (PII test item #59, "I am a violent person."). There were 6,980 inmates scoring in the low risk and problem risk ranges on the Violence Scale. Of the 816 inmates who admitted to being violent an astounding 811 or 99.4 percent of the inmates had Violence Scale scores at or above the 70th percentile. These results validate the PII Violence Scale.

Conclusion

Taken together these results demonstrate that the PII is a very accurate, reliable and valid assessment instrument for screening prison inmate risk. The PII identifies inmates with substance (alcohol and other drugs) abuse problems, malingerers (Truthfulness Scale), antisocial thinking/behavior (Antisocial Scale), violence (lethality) potential (Violence Scale), problematic attitudes/thinking (Adjustment and Judgment Scales) and the emotionally disturbed (Distress, Self-esteem and Stress Coping Abilities Scales). The PII provides a wealth of information not found in any other assessment instrument.

24. PII Reliability, Validity and Accuracy in a Very Large Sample of Prison Inmates

This study (2000) combined the test data from the three previous studies. There were 20,392 prison inmates included. This study reviewed the same PII statistical properties reported for these three different prison inmate samples.

Combining this data enabled modifying the PII Adjustment Scale and Judgment Scale. PII item analyses suggested that some additional test items could be included in these scales. This resulted in an improvement in the scales reliability. So the PII scoring procedures were modified with changes to the Adjustment and Judgment Scales.

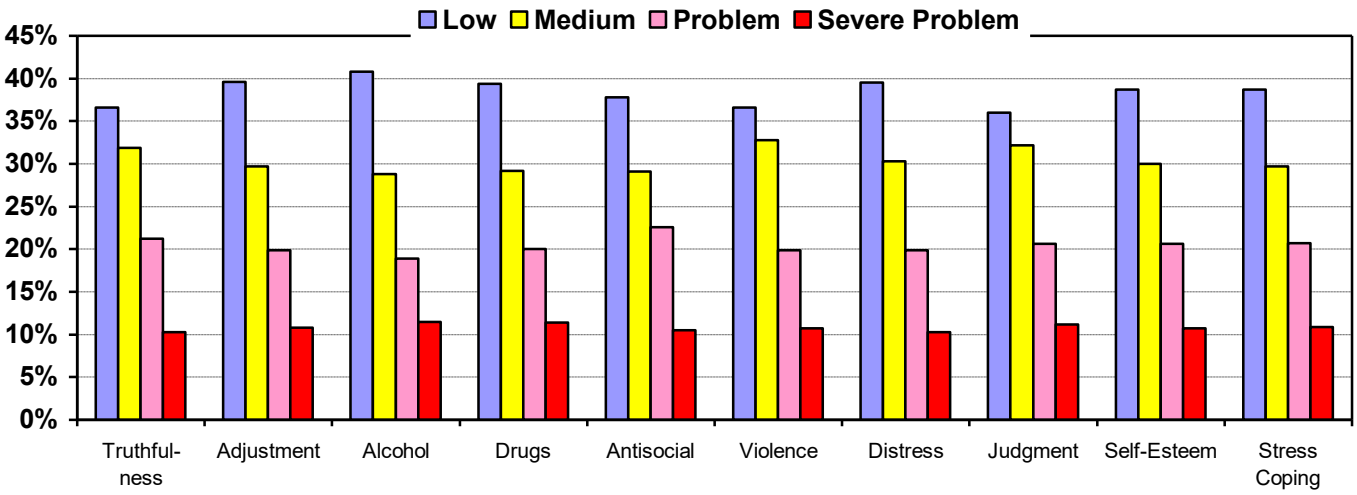
Method and Results

This study (2000) included 20,392 prison inmates. There were 18,926 males (92.8%) and 1,466 females (7.2%). The demographic composition of this sample is as follows: Age: 19 and younger (5.7%); 20 through 29 (32.57%); 30 through 39 (22.6%); 40 through 49 (11.3%); 50 through 59 (2.2%); 60 and

older (0.4%). Education: 8th grade or less (6.0%); Some High School (43.8%); High School Graduate (35.6%); Partially Completed College (11.8%); College Graduate (1.4%); Advanced Degree (1.5%). Ethnicity: Caucasian (43.8%); Black (49.6%); Hispanic (2.6%); Asian (0.2%); Native American (1.5%); Other (2.4%). Marital Status: Single (63.6%); Married (21.0%); Divorced (10.9%); Separated (3.8%); Widowed (0.7%).

Accuracy of the PII

Table 26. Prison Inmate Inventory Scale Risk Ranges (2000, N=20,392)



Scale	Low Risk (39%)		Medium Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness	36.6	(2.4)	31.9	(1.9)	21.2	(1.2)	10.3	(0.7)
Adjustment	39.6	(0.6)	29.7	(0.3)	19.9	(0.1)	10.8	(0.2)
Alcohol	40.8	(1.8)	28.8	(1.2)	18.9	(1.1)	11.5	(0.5)
Drugs	39.4	(0.4)	29.2	(0.8)	20.0	(0.0)	11.4	(0.4)
Antisocial	37.8	(1.2)	29.1	(0.9)	22.6	(2.6)	10.5	(0.5)
Violence	36.6	(2.4)	32.8	(2.8)	19.9	(0.1)	10.7	(0.3)
Distress	39.5	(0.5)	30.3	(0.3)	19.9	(0.1)	10.3	(0.7)
Judgment	36.0	(3.0)	32.2	(2.2)	20.6	(0.6)	11.2	(0.2)
Self-esteem	38.7	(0.3)	30.0	(0.0)	20.6	(0.6)	10.7	(0.3)
Stress Coping	38.7	(0.3)	29.7	(0.3)	20.7	(0.7)	10.9	(0.1)

The PII scale scores for this cumulative sample of prison inmates were very accurate. All of the obtained risk range percentages were within 3.0 percentage points of the expected percentages and most (28 of the 40 comparisons) were within 1.0 percentage point. Only six obtained percentages were more than 1.9% from the predicted, and these were within 3.0 percent. These results demonstrate that the PII scale scores accurately identify inmate risk no matter what prison sample is tested. Even with the inclusion of a variety of inmate samples, PII scale scores remain very accurate. The PII is an accurate inmate risk assessment instrument.

Reliability of the Prison Inmate Inventory

Within-test reliability, or inter-item reliability coefficient alphas for the Prison Inmate Inventory are presented in Table 27.

Table 27. Reliability of the Prison Inmate Inventory (2000, N=20,392) All coefficient alphas are significant at p<.001.	
PII SCALES	**Coefficient Alphas**
Truthfulness Scale	.89
Adjustment Scale	.92
Alcohol Scale	.94
Drugs Scale	.95
Antisocial Scale	.83
Violence Scale	.89
Distress Scale	.89
Judgment Scale	.91
Self-esteem Scale	.91
Stress Coping Abilities	.91

The Alpha coefficients for all of the Prison Inmate Inventory scales are above or near .90. Again, the PII is shown to be reliable in a varied sample of prison inmates. These results show that the PII was very reliable in this inmate sample.

Validity of the Prison Inmate Inventory

The same validity analyses were carried on this cumulative sample as was done in the previous studies. PII scale score comparisons between first offenders and multiple offenders were done to study discriminant validity. It would be expected that multiple offenders (inmates who have 2 or more arrests) would score higher than first offenders. The PII answer sheet item "Total number of times arrested" was used to define first offenders and multiple offenders (2 or more arrests). There were 2,543 first offenders and 17,849 multiple offenders. The Alcohol and Drugs Scales were also analyzed using alcohol and drug arrests. "Number of alcohol arrests" was used for the Alcohol Scale, which had 15,032 first offenders and 5,360 multiple offenders. " Number of drug arrests" was used for the Drugs Scale, which had 13,740 first offenders and 6,652 multiple offenders. The t-test comparisons between first offenders and multiple offenders for each PII scale are presented in Table 28 (N=20,392). Multiple offenders had two or more arrests as reported on the PII answer sheet.

Table 28. T-test comparisons between first offenders and multiple offenders (2000, N=20,392).				
PII Scale	**First Offenders Mean**	**Multiple Offenders Mean**	**T-value**	**Level of significance**
Truthfulness Scale	10.18	11.19	t = 8.26	p<.001
Adjustment Scale	21.81	30.68	t = 38.04	p<.001
*Alcohol Scale	12.50	30.23	t = 90.39	p<.001
*Drugs Scale	19.34	32.21	t = 63.46	p<.001
Antisocial Scale	17.32	26.72	t = 52.49	p<.001
Violence Scale	15.28	20.33	t = 22.65	p<.001
Distress Scale	20.28	22.09	t = 6.94	p<.001
Judgment Scale	11.16	15.03	t = 33.27	p<.001
Self-esteem Scale	6.87	2.93	t = 12.36	p<.001
Stress Coping Abilities	103.21	98.19	t = 5.03	p<.001

*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.

Even in this varied sample of prison inmates, all PII scales demonstrate that multiple offenders score significantly higher than first offenders. The PII accurately differentiates between first offenders and multiple offenders. These results support the validity of the Prison Inmate Inventory.

Predictive validity

The predictive validity analyses were explained in previous studies reported above. The PII demonstrates it accurately identifies problem prone drinkers and drug abusers. In these analyses Alcohol and Drugs Scale scores are compared for inmates who have had alcohol treatment or admit to drug dependency. It is predicted that inmates with an alcohol treatment history and/or drug dependency will score in the problem risk range (70th percentile and above) on the Alcohol Scale and/or Drugs Scale. Inmate with Alcohol and Drugs Scale scores in the low risk and problem risk ranges are included. Alcohol treatment information is obtained from inmate answers to PII test item #73 regarding alcohol treatment. Admission of drug dependency is obtained from inmate answers to PII test item #81.

Predictive validity analyses show that the PII Alcohol Scale is very accurate in identifying inmates who have alcohol problems. There were 14,529 inmates who had Alcohol Scale scores in the low risk range (0-39th percentile) and problem risk ranges (70-100th percentile). There were 4,142 inmates who reported having been in alcohol treatment and these inmates are classified as problem drinkers. Of these 4,142 inmates, 3,841 inmates, or 92.7 percent, had Alcohol Scale scores at or above the 70th percentile. The Alcohol Scale correctly identified over 92 percent of the inmates categorized as problem drinkers.

The PII Drugs Scale is also very accurate in identifying inmates who have drug problems. There were 14,427 inmates scoring in the low risk and problem risk ranges. There were 5,532 inmates who admitted being drug dependent, of these, 5,455 inmates, or 98.6 percent, had Drugs Scale scores at or above the 70th percentile. These results validate the PII Drugs Scale.

Violence Scale

The PII Violence Scale was studied in a similar manner using direct admission of violent behavior as the criterion for violence (PII test item #59, "I am a violent person."). There were 13,702 inmates scoring in the low risk and problem risk ranges on the Violence Scale. Of the 1,669 inmates who admitted to being violent an astounding 1,658 or 99.3 percent of the inmates had Violence Scale scores at or above the 70th percentile. These results validate the PII Violence Scale.

Conclusion

The study is important because the prison inmate participants came from several different prison systems in different areas of the country. Taken together these results demonstrate that the PII is a very accurate, reliable and valid assessment instrument for screening prison inmate risk no matter where the PII is used. The PII identifies inmates with substance (alcohol and other drugs) abuse problems, malingerers (Truthfulness Scale), antisocial thinking/behavior (Antisocial Scale), violence (lethality) potential (Violence Scale), problematic attitudes/thinking (Adjustment and Judgment Scales) and the emotionally disturbed (Distress, Self-esteem and Stress Coping Abilities Scales). The PII is a very accurate, reliable and valid prison inmate assessment instrument.

25. PII Reliability, Validity and Accuracy

This study (2001) further examined the statistics of the Prison Inmate Inventory. Prison inmates from a Midwestern state prison system were included in the study. These test results have not been previously reported. Both males and females are tested and most inmates are tested upon their arrival to prison. The PII is presented to inmates in group settings and scanner answer sheets are used for data entry.

Method and Results

Included in this study (2001) were 33,737 prison inmates. There were 31,265 males (92.7%) and 2,472 females (7.3%). The demographic composition of this sample is as follows: Age: 19 and younger

(11.4%); 20 through 29 (43.5%); 30 through 39 (29.0%); 40 through 49 (13.9%); 50 through 59 (1.7%); 60 and older (0.4%). Education: 8th grade or less (5.5%); Some High School (43.9%); High School Graduate (35.1%); Partially Completed College (12.6%); College Graduate (1.7%); Advanced Degree (1.2%). Ethnicity: Caucasian (43.5%); Black (51.0%); Hispanic (1.5%); Asian (0.1%); Native American (1.5%); Other (2.3%). Marital Status: Single (65.1%); Married (16.2%); Divorced (14.4%); Separated (3.2%); Widowed (1.1%).

PII Reliability

Inter-item reliability coefficient alphas for the Prison Inmate Inventory are presented in Table 29.

Table 29. PII Reliability (2001, N = 33,737)

PII SCALES	Coefficient Alphas	Significance Levels
Truthfulness Scale	.88	$p < 0.001$
Alcohol Scale	.94	$p < 0.001$
Drugs Scale	.95	$p < 0.001$
Adjustment Scale	.90	$p < 0.001$
Antisocial Scale	.89	$p < 0.001$
Violence Scale	.88	$p < 0.001$
Distress Scale	.89	$p < 0.001$
Judgment Scale	.90	$p < 0.001$
Self-esteem Scale	.89	$p < 0.001$
Stress Coping Abilities	.91	$p < 0.001$

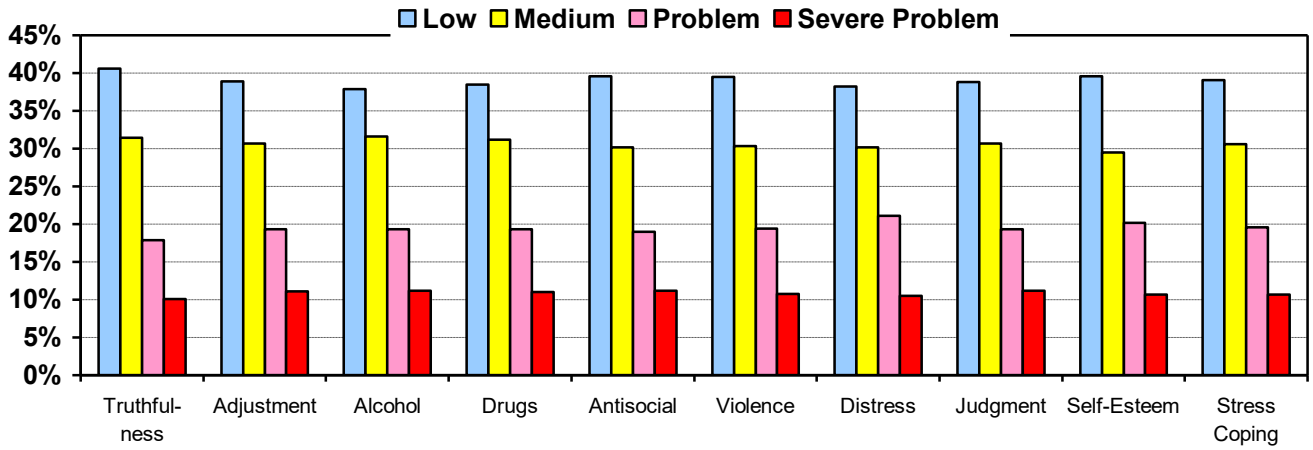
These results demonstrate that the PII is a reliable prison inmate test. Alpha coefficients for all PII scales are above the professionally accepted standard for test reliability of .80.

Accuracy of the Prison Inmate Inventory

Inmate-attained risk range percentages for each PII scale and their predicted percentages are presented in Table 30. The small differences, shown in parentheses in the table, between attained and predicted percentages demonstrate that the scales are accurate. Predicted percentages for each of the four risk range categories are shown in the top row of the table.

As shown in the graph and table below, Low Risk scores for all PII scales are between 37.9 percent and 40.6 percent. The largest difference between attained and predicted is 1.6 percent. This means that Low Risk scores are within 98 percent of the predicted 39 percent. In other words, PII Low Risk scores are 98 percent accurate. Similarly, Medium Risk scores ranged from 29.5 to 31.6 and the largest difference between attained and predicted is again 1.6 percent. Medium Risk scale scores are within 1.6 of their predicted 30 percent and are 98 accurate. Attained Problem Risk scores are within 2.1 percent of their predicted 20 percent. Problem Risk scores are 98 percent accurate. Severe Problem Risk scores are within 0.9 percent of their predicted 11 percent and are 99 percent accurate. It is reasonable to conclude that PII scale scores are 98 percent accurate. These results demonstrate that the PII accurately identifies inmate risk.

Table 30. PII Scale Risk Range Accuracy (2001, N=33,737)



Scale	Low Risk (39%)		Medium Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness	40.6	(1.6)	31.4	(1.4)	17.9	(2.1)	10.1	(0.9)
Adjustment	38.9	(0.1)	30.7	(0.7)	19.3	(0.7)	11.1	(0.1)
Alcohol	37.9	(1.1)	31.6	(1.6)	19.3	(0.7)	11.2	(0.2)
Drugs	38.5	(0.5)	31.2	(1.2)	19.3	(0.7)	11.0	(0.0)
Antisocial	39.6	(0.6)	30.2	(0.2)	19.0	(1.0)	11.2	(0.2)
Violence	39.5	(0.5)	30.3	(0.3)	19.4	(0.6)	10.8	(0.2)
Distress	38.2	(0.8)	30.2	(0.2)	21.1	(1.1)	10.5	(0.5)
Judgment	38.8	(0.2)	30.7	(0.7)	19.3	(0.7)	11.2	(0.2)
Self-esteem	39.6	(0.6)	29.5	(0.5)	20.2	(0.2)	10.7	(0.3)
Stress Coping	39.1	(0.1)	30.6	(0.6)	19.6	(0.4)	10.7	(0.3)

PII Validity

Two database validity analyses are presented below. The first analysis compares PII scale scores between two offender groups, those with four or more arrests and those with less than four arrests. These groups compare scale scores on the basis of severity of problems. Offenders who have been arrested four or more times represent a chronic offender group, that is, they have more severe problems than offenders who have less than four arrests. The second analysis compares inmates on the basis of having had treatment, e.g., alcohol and/or drugs, anger management, counseling, etc. Inmates who have been enrolled in treatment are expected to score in the problem range on PII scales.

PII scale score comparisons between first offenders and multiple offenders are presented in Table 31. PII scales measure problem severity levels. It would be expected that multiple offenders (inmates who have 4 or more arrests) would score significantly higher on PII scales than first offenders. The PII answer sheet item "Total number of times arrested" was used to define first offenders and multiple offenders (4 or more arrests). There were 9,678 first offenders and 24,059 multiple offenders.

Table 31. Comparisons between first offenders and multiple offenders (2001, N=33,737).

PII Scale	First Offenders Mean	Multiple Offenders Mean	T-value	Level of significance
Truthfulness Scale	10.13	11.74	t = 24.32	p<.001
Adjustment Scale	23.56	32.07	t = 64.79	p<.001

Alcohol Scale	10.37	19.65	t = 65.69	p<.001
Drugs Scale	17.44	25.10	t = 47.29	p<.001
Antisocial Scale	18.09	29.12	t = 113.95	p<.001
Violence Scale	15.65	21.64	t = 50.43	p<.001
Distress Scale	20.22	22.51	t = 15.58	p<.001
Judgment Scale	11.28	15.85	t = 67.77	p<.001
Self-esteem Scale*	8.37	2.44	t = 31.97	p<.001
Stress Coping Abilities*	106.32	97.01	t = 18.02	p<.001

*Note: The Self-esteem and Stress Coping Abilities Scales are reversed in that the higher the score the lower the risk.

These results demonstrate that multiple offenders score significantly higher than first offenders on all PII scales. Multiple offenders have significantly higher problem severity than first offenders. The PII scale scores differentiate between first offenders and multiple offenders on the basis of their problem severity levels. These results support the validity of the Prison Inmate Inventory.

The second validity analysis demonstrates that PII scales accurately identify problem prone inmates. Inmates who had alcohol treatment or admitted drug dependency were identified by their Alcohol Scale and Drugs Scale scores. Alcohol treatment information is obtained from inmate answers to PII test item #73 regarding alcohol treatment. Admission of drug dependency is obtained from inmate answers to PII test item #81. There were 6,707 inmates who had alcohol treatment. All 6,707 inmates scored in the problem risk ranges (70-100th percentile) on the Alcohol Scale. The Alcohol Scale correctly identified all of the inmates who are problem drinkers. 9,086 inmates admitted being drug dependent. Of these, 9,037 inmates, or 99.5 percent, had Drugs Scale scores at or above the 70th percentile. The Drugs Scale accurately identified inmates who admitted having drug problems.

The PII Violence Scale identified inmates who are violent. There were 1,949 inmates who admitted they were violent (PII test item #59, "I am a violent person."). 1,941 of these inmates or 99.6 percent had Violence Scale scores at or above the 70th percentile. These results validate the PII Violence Scale. The Antisocial Scale identified inmates who admitted they were very often antisocial. 1,464 of the 1,499 (97.7%) inmates who admitted being antisocial were identified by the PII Antisocial Scale. These results demonstrate that the Alcohol, Drugs, Violence and Antisocial Scales are valid.

Conclusion

The results of this study are consistent with PII research previously reported. Like previous research, this study demonstrates that the PII is an accurate prison inmate assessment test. The multidimensional approach to inmate testing is an important development not only for risk assessment but for referral purposes for supervision, counseling and treatment. PII scales provide relevant assessment of inmate needs and aid staff in matching inmates' levels of risk with levels of intervention and treatment.

26. Prison Inmate Inventory: Inmates Risk & Needs Assessment

In recent years a trend toward changing inmate behavior has emerged as a means to reducing crime. Positively changing inmate behavior would lead to reductions in recidivism and in turn prison over-crowding. To develop effective supervision, intervention and treatment programs prisons are turning to risk and needs assessment tests for screening inmates. Screening inmates to identify problems facilitates placement of inmates into appropriate supervision levels and intervention programs. This study (2002) examined the prison inmate assessment or screening test called the Prison Inmate Inventory (PII). The PII measures inmate risk of violence (lethality), substance (alcohol and drugs) abuse, antisocial attitudes, as well as emotional and mental health problems. There were 5,852 prison inmates used in this study.

<u>Method and Results</u>

There were 5,852 inmates tested with the PII. There were 5,513 males (94.2%) and 339 females (5.8%). The ages of the participants ranged from 19 through 60 as follows: 19 & under (3.1%); 20-29 (36%); 30-39 (35.7%); 40-49 (20.4%); 50-59 (4.2%) and 60 & Over (0.5%). The demographic composition of participants was as follows. Race/Ethnicity: Caucasian (50.8%); Black (44.7%), Hispanic (1.3%) and Other (2.6%). Education: Eighth grade or less (8.6%); Some high school (34.3%); High school graduate/GED (44%); Some college (10.7%) and College graduate (1.6%). Marital Status: Single (53.8%); Married (33.7%); Divorced (8.8%); Separated (2.7%) and Widowed (0.7%).

Over 90 percent of the participants were arrested two or more times. Half (50.9%) of the inmates had six or more arrests. Half (49.9%) of the inmates had three or more felony arrests. Nearly one-third of the participants had two or more alcohol arrests and one-third of the inmates had two or more drug arrests. Forty percent of the inmates had their first arrest before the age of 17 and 73 percent were arrested by the age of 21.

Participants completed the PII as part of inmate screening and assessment procedures. The PII contains ten measures or scales. These scales are briefly described as follows. The Truthfulness Scale measures the truthfulness of the respondent while taking the PII. The Alcohol Scale measures severity of alcohol use or abuse. The Drugs Scale measures severity of drug use or abuse. The Adjustment Scale measures risk of problem prone behaviors. The Violence Scale measures inmate proneness to commit violence. The Antisocial Scale measures antisocial behavior, e.g. lying, uncaring, irresponsible, unsocial, emotionally blunted, needless conning, etc. The Distress Scale incorporates measures of anxiety and depression. Distress is the most common reason for counseling. The Judgment Scale measures understanding and affects decision-making. The Self-esteem Scale measures inmates' sense of dignity and feelings of self-worth. The Stress Coping Abilities Scale measures ability to cope with stress. A score at the 90^{th} percentile or higher on this scale identifies established emotional and mental health problems.

PII validity was studied by comparing first and multiple offenders' scale scores. Multiple offenders were inmates with three or more arrests and first offenders had two or one arrest. A test that measures severity level ought to show on average that multiple offenders score higher than first offenders. It was hypothesized that statistically significant differences between multiple and first offenders would exist and PII scales would differentiate between first and multiple offenders. Multiple offenders would be expected to score higher on PII scales because having a third arrest is indicative of serious problems.

In the following analyses the answer sheet item "Total number of times arrested" was used to define first offenders and multiple offenders (3 or more arrests). T-test comparisons were used to study the statistical significance between first and multiple offenders. There were 1,146 first offenders and 4,706 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 4,056 first offenders and 1,796 multiple offenders (2 or more arrests). "Number of drug arrests" was used for the Drug Scale, which had 3,918 first offenders and 1,934 multiple offenders (2 or more arrests).

Table 32. T-test comparisons between first offenders and multiple offenders (2002, N=5,852).

PII Scale	First Offenders Mean	Multiple Offenders Mean	T-value	Level of significance
Truthfulness Scale	8.80	10.06	t = 6.45	p<.001
Adjustment Scale	24.63	34.23	t = 28.29	p<.001
Alcohol Scale	11.63	20.74	t = 26.86	p<.001
Drugs Scale	19.43	29.19	t = 23.12	p<.001

Antisocial Scale	20.23	29.23	t = 33.02	p<.001
Violence Scale	18.31	22.44	t = 11.78	p<.001
Distress Scale	19.07	21.89	t = 7.57	p<.001
Judgment Scale	10.92	15.59	t = 26.89	p<.001
Self-esteem Scale	10.39	6.35	t = 9.69	p<.001
Stress Coping Abilities	106.84	96.84	t = 6.94	p<.001
*Alcohol Scale	13.76	30.31	t = 49.46	p<.001
*Drugs Scale	23.29	35.35	t = 33.85	p<.001

*Note: Offender status defined by alcohol and drug arrests. The Self-esteem and Stress Coping Abilities Scales are reversed in that higher scores are associated with higher self-esteem and better stress coping skills.

Table 32 shows that mean (average) scale scores of first offenders were significantly lower than scores for multiple offenders on all PII scales. As expected, multiple offenders scored significantly higher than did first offenders on all PII scales. Truthfulness Scale results suggest that multiple offenders tried to minimize their problems or fake good when tested more than did first offenders. The PII accurately differentiated between first offenders and multiple offenders. These results demonstrate that PII scales are valid.

As shown in Table 32, both the Alcohol Scale and Drugs 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 30.31 while the first offender group mean score was 13.76. The mean Drugs Scale score for the multiple offender group was 35.35 while the first offender group mean score was 23.29. These results demonstrate that these PII scales, as do all PII scales, measure problem severity. Higher PII scale scores mean higher problem severity. These results support the hypothesis that multiple offenders, because of their history of arrests, score higher than offenders with less history.

These results are important because they show that the PII scales successfully measure levels of severity. The inmates who were believed to have more severe problems (multiple offenders) scored significantly higher on these scales than first-time offenders. Multiple offenders scored significantly higher on the scales that measure personality and emotional factors (Distress, Judgment, Self-esteem and Stress Coping Abilities Scales) than did first offenders. Inmates who have multiple arrests demonstrate many problems beyond just the expected problem-prone behaviors. Multiple offenders exhibit emotional and personality problems and these problems must be addressed if these inmates are to be helped. Changing inmate problem-prone behavior entails resolving emotional and personality problems.

Relationships between inmates' criminal history and their PII scale scores are presented in Table 33. Statistically significant correlation coefficients between PII scales and criminal history variables are measures that also validate PII scale scores. PII scales that measure problem-prone behavior were expected to be correlated with variables that indicate inmate problems, such as the number of times they have been arrested, their age at first arrest, probation and parole records. For example, the PII Alcohol Scale should be correlated with number of alcohol-related arrests and the Drugs Scale should be correlated with drug-related arrests. Inmate criminal history variables were obtained from PII answer sheets that were completed by the inmates.

The PII scales included in this analysis were the Adjustment, Alcohol, Drugs, Antisocial, Violence and Judgment Scales. These scales measure problem-prone behavior that can result in inmate arrests. The

Truthfulness, Distress, Self-esteem and Stress Coping Abilities Scales are not included because these scales measure emotional and mental health factors.

These correlation results show that, as expected, the Alcohol Scale is highly correlated at the p<.001 level with alcohol-related arrests. The Drugs Scale is highly correlated (p<.001) with drug-related arrests. These results are in agreement with the discriminant validity results reported above. Significant correlation with alcohol and drug arrests supports the validity of the Alcohol and Drugs Scales, respectively. Age at first arrest is correlated best with the Adjustment, Antisocial, Violence and Judgment Scales. Total number of arrests is significantly correlated with all of the PII scales. Number of times on probation and number of times on parole are also correlated with all PII scales. These results show that criminal history variables are significantly correlated with the PII scales that measure problem-prone behaviors. These results demonstrate that PII scales are valid.

Table 33. Relationships between Criminal History Variables and PII Scales (2002, N = 5,852)

History Items	Adjust-ment	Alcohol Scale	Drugs Scale	Anti-social	Violence Scale	Judg-ment
Age at first arrest	-.516	-.181	-.184	-.435	-.361	-.244
Total number of arrests	.274	.214	.173	.350	.188	.208
Times on probation	.250	.175	.184	.279	.191	.209
Times on parole	.188	.222	.243	.328	.147	.192
Alcohol arrests	.246	.417	.103	.193	.103	.167
Drug arrests	.111	.069	.258	.148	.076	.085

All correlation coefficients are significant at p<.01.

Risk range percentile scores are derived from scoring equations based on inmates' pattern of responding to scale items and criminal history, when applicable. These results are presented in Table 34. 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. The higher the percentile score is the higher the severity of the inmate's problems.

Analysis of the accuracy of PII risk range percentile scores involved comparing the inmate's attained risk range percentile scores to predicted risk range percentages as defined above. The percentages of inmates expected to fall into each risk range are: Low Risk (39%), Medium Risk (30%), Problem Risk (20%) and Severe Problem or Maximum Risk (11%). These percentages are shown in parentheses in the top row of Table 34. 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. The differences between predicted and attained are shown in parentheses.

Table 34. Accuracy of PII Risk Range Percentile Scores (2002, N = 5,852)

Scale	Low Risk (39% Predicted)		Medium Risk (30% Predicted)		Problem Risk (20% Predicted)		Severe Problem (11% Predicted)	
Truthfulness	39.1	(0.1)	28.0	(2.0)	21.3	(1.3)	11.6	(0.6)
Adjustment	39.1	(0.1)	29.8	(0.2)	20.6	(0.6)	10.5	(0.5)
Alcohol	39.7	(0.7)	29.0	(1.0)	19.7	(0.3)	11.6	(0.6)
Drugs	38.4	(0.6)	30.5	(0.5)	20.4	(0.4)	10.7	(0.3)
Antisocial	39.6	(0.4)	30.8	(0.8)	18.7	(1.3)	10.9	(0.1)
Violence	37.5	(1.5)	32.2	(2.2)	19.5	(0.5)	10.8	(0.2)
Distress	39.0	(0.0)	29.1	(0.9)	21.1	(1.1)	10.8	(0.2)

Judgment	39.5	(0.5)	29.8	(0.2)	20.0	(0.0)	10.7	(0.3)
Self-esteem	39.0	(0.0)	29.4	(0.6)	19.8	(0.2)	11.8	(0.8)
Stress Coping	39.2	(0.2)	30.1	(0.1)	19.8	(0.2)	10.9	(0.1)

Inmate-attained risk range percentages are very close to the expected percentages for each risk category. All of the attained risk range percentages were within 2.2 percentage points of the expected percentages and most (38 of the 40) were within 1.5 percentage points. Only two attained percentages were more than 1.5% from the predicted, and these were within 2.2 percent. It is reasonable to conclude that PII scales are 98% accurate. These results demonstrate that the PII scale scores accurately identify inmate risk.

Conclusion

This study demonstrates that the PII accurately measures inmate risk of violence (lethality), substance (alcohol and drugs) abuse, antisocial behaviors, problem-prone behaviors, emotional and mental health problems. The PII provides a wealth of information concerning inmates' adjustment and problems that contributes to understanding the inmates. Relationships between inmate criminal history variables and PII scale scores show that the PII measures factors relevant to inmate risk. The Adjustment, Antisocial, Violence and Judgment scales correlate with variables that suggest problem-prone behavior, such as age at first arrest and total number of times arrested. At the same time many of the exacerbating conditions that act as problem-prone triggering mechanisms are also identified by the PII. The Alcohol and Drugs Scales measure substance abuse problems. The Distress, Self-esteem and Stress Coping Abilities scales measure emotional and mental health problems. The PII is an important tool for decision making regarding inmate supervision level, rehabilitation, and treatment. Positively changing inmate behavior can lead to reductions in recidivism and crime.

27. PII Test Results for a Large Sample of Prison Inmates

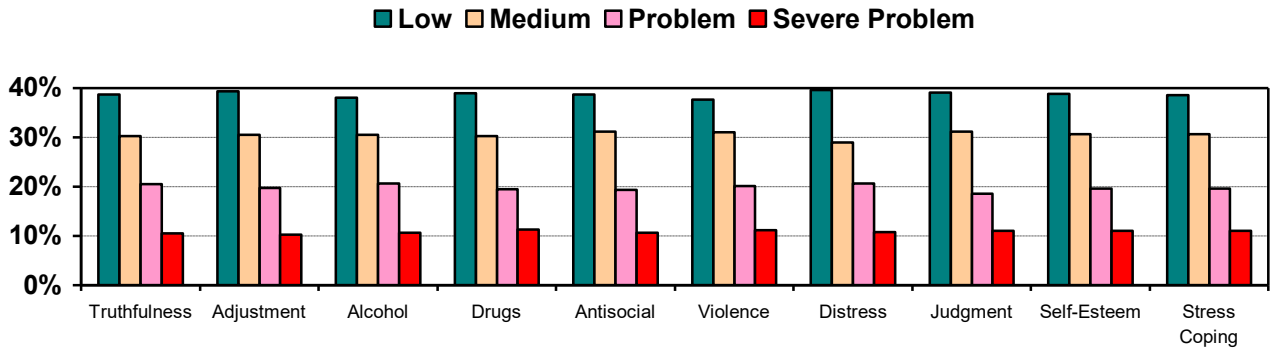
This study (2003) further examines PII test statistics for 54,013 inmates tested in the years 2002 and 2003. Within three years of being released from prison inmate recidivism is as high as 68 percent (Langan, P.A. & Levin, D.J. Recidivism of prisoners released in 1994. US Department of Justice, Bureau of Justice Statistics, NCJ 193427, 2002). This finding underscores the need for inmate screening and rehabilitation. The Prison Inmate Inventory (PII) screens inmates with problems and assists staff in selecting appropriate intervention and treatment. Aspects of inmate risk that are capable of change have been called "criminogenic needs" (Andrews, D.A., Bonta, J., & Hoge, R.D. Classification for effective rehabilitation: Rediscovering psychology. Criminal Justice and Behavior, 1990, 17, 19-52). Andrews et al. (1990) concluded that resolving criminogenic needs in counseling reduces inmates' chances of recidivism. Criminogenic needs factors include antisocial behavior, violence, emotional instability and substance abuse (Gendreau, P., Little, T., & Goggin, C. A meta-analysis of the predictors of adult offender recidivism: what works. Criminology, 1996, 34, 575-607). Screening inmates involves identifying the severity of these criminogenic needs and recommending appropriate treatment.

The following section presents PII accuracy, reliability and validity analyses. PII accuracy means that inmate-attained scale scores accurately approximate predicted scores for the four risk range categories used in the PII. These risk range categories are Low Risk (0 to 39th percentile), Medium Risk (40 to 69th percentile), Problem Risk (70 to 89th percentile) and Severe Problem Risk (90 to 100th percentile). Accordingly, the PII predicts that 39 percent of the inmates will fall in the Low Risk range, whereas, 30 percent will be placed in the Medium Risk range, 20 percent will have Problem Risk scale scores and 11 percent of the inmates will attain Severe Problem Risk scores. These predicted risk ranges are preset and standardization of inmate-attained scores ensures that these percentages are achieved. The different risk range categories permit placing inmates into appropriate levels of intervention, treatment and supervision. PII accuracy is presented in Table 35.

PII scales are scored separately and risk range categories are specific for each scale. An inmate could, for example, score in the Low Risk range on the Alcohol Scale and score in the Problem Risk range on the Violence Scale. In this example, the inmate has identified violence tendencies whereas his risk of alcohol abuse is low. This is an example of just two of the PII's ten scales. PII screening results are highly individualized for all inmates.

PII scale risk ranges (low, medium, problem and severe problem) are based on inmates' answers to scale items. These "raw" scores are converted to percentile scores to make scale score interpretation easier. PII risk range percentile scores are presented in the following graph and table. Predicted percentages are shown in the top row of the table in bold print. Inmates' attained percentages are presented in the columns under these predicted scale percentages. Each PII scale is represented. The difference between "predicted" and "attained" percentages are presented in parentheses (in bold type). Small differences between predicted and attained percentages mean the scale is accurate.

Table 35. PII Risk Range Accuracy (2003, N = 54,013)



Scale	Low Risk (39%)		Medium Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness Scale	38.7	**(0.3)**	30.3	**(0.3)**	20.5	**(0.5)**	10.5	**(0.5)**
Adjustment Scale	39.4	**(0.4)**	30.5	**(0.5)**	19.8	**(0.2)**	10.3	**(0.7)**
Alcohol Scale	38.1	**(0.9)**	30.5	**(0.5)**	20.7	**(0.7)**	10.7	**(0.3)**
Drugs Scale	38.9	**(0.1)**	30.3	**(0.3)**	19.5	**(0.5)**	11.3	**(0.3)**
Antisocial Scale	38.7	**(0.3)**	31.2	**(1.2)**	19.4	**(0.6)**	10.7	**(0.3)**
Violence Scale	37.7	**(1.3)**	31.0	**(1.0)**	20.1	**(0.1)**	11.2	**(0.2)**
Distress Scale	39.6	**(0.6)**	28.9	**(1.1)**	20.7	**(0.7)**	10.8	**(0.2)**
Judgment Scale	39.1	**(0.1)**	31.2	**(1.2)**	18.6	**(1.4)**	11.1	**(0.1)**
Self-Esteem Scale	38.8	**(0.2)**	30.6	**(0.6)**	19.6	**(0.4)**	11.0	**(0.0)**
Stress Coping Abilities	38.6	**(0.4)**	30.7	**(0.7)**	19.6	**(0.4)**	11.1	**(0.1)**

Starting with the Low Risk range, the largest difference between inmate-attained and predicted percentages was 1.3 percent. That is, Low Risk scores are within 1.3 percent of their predicted 39 percent. Low Risk range scores, then, are 99 percent accurate. Medium Risk attained percentages for all PII scales are within 1.2 percent of their predicted 30 percent. This means Medium Risk scales are 99 percent accurate. Similarly, the percentages of inmates who attained Problem Risk scores are within 1.4 percent of their predicted 20 percent. This means Problem Risk scores are 99 percent accurate. Severe Problem Risk scores are within 0.7 percent of their predicted 11 percent. This means Severe Problem Risk scores are 99 percent accurate. The small differences between inmate-attained risk range percentages and their predicted percentages demonstrates the PII's accuracy. It seems reasonable to conclude that PII scales are 99 percent accurate.

Reliability is synonymous with reproducibility. A test that is reliable will result in similar scores for a respondent time and time again. This is possible only when inmates follow a definite pattern of responding. Consistency is another way to think of reliability. Inmates answer test items consistently, either indicating they have a problem, no problem or something in between. The most common reliability statistic is coefficient alpha. Coefficient alpha varies from 0 for random responding or no reliability to 1 for perfect reliability. PII scale reliability is presented in Table 36. All PII scales have high reliability coefficients which further demonstrates that PII scales are accurate.

Table 36. PII Reliability Coefficient Alphas (2003, N = 54,013)

PII Scales	Coefficient Alphas	Significance Levels
Truthfulness Scale	.89	p<.001
Adjustment Scale	.91	p<.001
Alcohol Scale	.95	p<.001
Drugs Scale	.95	p<.001
Antisocial Scale	.90	p<.001
Violence Scale	.88	p<.001
Distress Scale	.89	p<.001
Judgment Scale	.90	p<.001
Self-Esteem Scale	.90	p<.001
Stress Coping Abilities	.92	p<.001

The professionally accepted standard for acceptable reliability is .80 or higher.

A basic problem in assessment and testing is whether a test measures what it is supposed to measure and determining if that test can be used in making accurate decisions. Early Prison Inmate Inventory (PII) concurrent validity studies demonstrated impressive validity. Criterion measures used in these studies include the Minnesota Multiphasic Personality Inventory (MMPI) L and F Scales, 16PF, Mortimer-Filkins test, MAST, MacAndrews Scale, SAQ-Adult Probation III, Driver Risk Inventory-II, Defendant Questionnaire, experienced staff ratings and polygraph tests. These and other reliability studies were presented earlier in this document.

The PII test database enables using another unique validation procedure. This procedure involves comparing PII scale scores for two inmate groups. One group consists of inmates who were arrested four or more times (habitual offenders), and the other group is made up of inmates who were arrested less than four times. Inmates who have been arrested four or more times are expected to have higher problem severity than inmates with fewer arrests. Because PII scales measure inmates' problem severity, it is expected that the "4 or More Arrests" group would score higher on PII scales than the "Under 4 Arrests" group. Mean (or average) PII scale scores for the two groups are presented in Table 37.

Table 37. PII Scale Score Comparisons between Two Inmate Groups (2003, N = 54,013).

PII Scale	Under 4 Arrests Mean	4 or More Arrests Mean	T-value	Level of significance
Truthfulness Scale	10.02	11.20	t = 22.39	p<.001
Adjustment Scale	23.57	33.17	t = 89.39	p<.001
Alcohol Scale	11.04	21.30	t = 87.81	p<.001
Drugs Scale	18.20	27.63	t = 72.18	p<.001
Antisocial Scale	18.16	29.75	t = 150.12	p<.001
Violence Scale	15.47	21.90	t = 69.49	p<.001

Distress Scale	20.05	23.17	t = 26.81	p<.001
Judgment Scale	11.58	16.87	t = 82.51	p<.001
Self-esteem Scale*	7.96	2.07	t = 40.44	p<.001
Stress Coping Abilities*	105.79	95.92	t = 22.82	p<.001

*Note: Self-esteem Scale and Stress Coping Abilities Scale scores are reversed. Higher scores are associated with higher self-esteem and better stress coping skills.

For all ten PII scales the 4 or More Arrests group had significantly higher scale scores than the Under 4 Arrests group. Higher PII scale scores represent higher problem severity. Inmates who have higher problem severity because they have more arrests than other inmates, had higher PII scale scores. These results demonstrate that PII scales are valid measures of inmates' problem severity.

Summary of PII Scales

Truthfulness Scale scores indicate that habitual offenders tended to deny or minimize their problems more than did other inmates. Mean Truthfulness Scale scores for both groups were above the 50th percentile. This result points out the necessity of including a truthfulness measure when testing inmates. Inmates, especially inmates with many arrests, minimize their problems or attempt to "fake good." Having confidence that assessment results are accurate hinges on knowing the extent that inmates were honest. The PII Truthfulness Scale measures inmates' honesty and ensures accurate assessment.

The largest scale score difference (t=150.12) between the two inmate groups occurred on the Antisocial Scale. The average score for habitual offenders (4 or more arrests) was over 11 points higher than the average score for other inmates. This means that inmates who have been arrested several times exhibit more antisocial thinking (on average) than other inmates. The average Antisocial Scale score for the 4 or More Arrests group (29.75) is at the cut-off score for the Problem Risk range. Inmates who have both a history of arrests and Problem Risk Antisocial Scale scores validate the conclusion that these inmates have problem antisocial attitudes and behavior. An Antisocial Scale score at or above the 70th percentile should send up a red flag to alert staff to the antisocial characteristics of inmates. An inmate who has an Antisocial Scale score at or above the 70th percentile is considered to have a high likelihood of being arrested again.

The average Violence Scale score for habitual offenders (21.90) is also at the cut-off score for the Problem Risk (70th percentile) range. This means that half of the inmates who have 4 or more arrests fall in the Problem and Severe Problem Risk (70th percentile and above) ranges on the PII Violence Scale. These inmates have violent tendencies and should be considered dangerous. Inmates who have PII Violence Scale scores at or above the 70th percentile are likely to re-offend because violent tendencies and dangerousness are found in inmates who have a history of arrests.

Inmates who have been arrested 4 or more times score higher (on average) than other inmates on the PII Alcohol and Drugs Scales. Mean Alcohol and Drugs Scale scores indicate that almost half of the 4 or More Arrests inmates scored at or above the 70th percentile on the Alcohol Scale and Drugs Scale. This means there is a strong correlation between having a history of arrests and having a substance abuse problem. Inmates who score at or above the 70th percentile have identifiable substance (alcohol and drugs) problems and are likely to be arrested again.

Habitual offenders had significantly higher Self-esteem and Stress Coping Abilities Scale scores than other inmates. This means that inmates who have been arrested 4 or more times have lower self-esteem and poorer stress coping abilities than other inmates. These are cloaked issues that are often overlooked in inmate screening, yet, are criminogenic needs that significantly contribute to recidivism prediction. This analysis extends to the Adjustment, Distress and Judgment Scales. Inmates who have been arrested several times fare worse (on average) on these PII scales than other inmates.

Conclusion

PII inmate screening accurately identifies inmates with problems. PII scales assess criminogenic needs and determine inmates' level of problem severity. Criminogenic needs are important predictors of inmate recidivism. PII test results are highly individualized and provide for highly individualized recommendations for supervision levels and intervention/treatment programs.

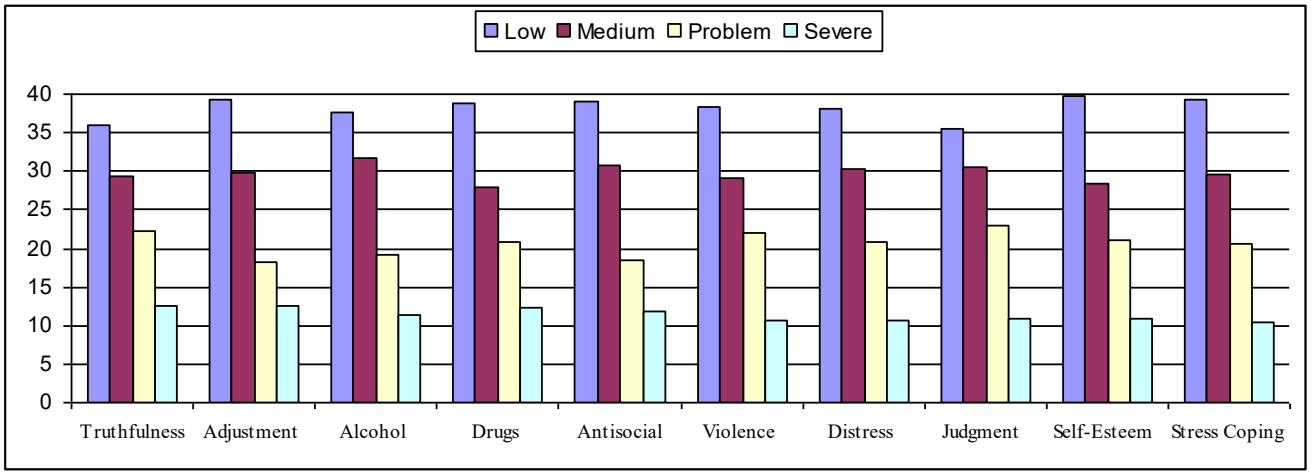
The PII, with its multiple scales and inclusion of some criminal history, is well suited for recidivism prediction. Preliminary studies support the predictive efficacy of the PII. These studies used inmates' prior history to predict total number of arrests. Predictor variables include the PII scales (criminogenic needs), and demographic and court history information contained on PII answer sheets. The prediction equation is very highly statistically significant. We believe we can accurately predict inmate recidivism. Now we want to demonstrate prediction accuracy in a longitudinal study. Inmates tested with the PII would be tracked after three years (the duration of the study) to find out whether or not they were rearrested. Interested parties are invited to contact Behavior Data Systems to participate in this study.

28. PII Test Results for a Large Sample of Prison Inmates

This study (2007) further examines PII test statistics for 11,849 inmates. Test data were returned to Behavior Data Systems, Ltd. Between October 2006 and October 2007.

The following section presents Prison Inmate Inventory (PII) accuracy, reliability and validity analyses. PII accuracy measures inmate-attained scale scores against approximate predicted scores for the four risk range categories used in the PII. These risk range categories are Low Risk (0-39th percentile), Medium Risk (40-69th percentile), Problem Risk (70-89th percentile), and Severe Problem Risk (90-100th percentile). Accordingly, the PII predicts that 39 percent of the inmates will fall in the Low Risk range, whereas, 30 percent of the inmates will attain Severe Problem Risk scores. These predicted risk ranges are preset and standardization of inmate-attained scores ensures that these percentages are achieved. The different risk range categories permit placing inmates into appropriate levels of intervention, treatment and supervision. PII accuracy is presented in Table 38.

Table 38. PII Risk Range Accuracy (2007, N=11,849)



Scale	Low Risk (39%)		Medium Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness Scale	35.9	**(3.1)**	29.3	**(0.7)**	22.3	**(2.3)**	12.5	**(1.5)**
Adjustment Scale	39.3	**(0.3)**	29.9	**(0.1)**	18.3	**(1.7)**	12.5	**(1.5)**
Alcohol Scale	37.7	**(1.3)**	31.7	**(1.7)**	19.2	**(0.8)**	11.4	**(0.4)**
Drugs Scale	38.9	**(0.1)**	28.0	**(2.0)**	20.8	**(0.8)**	12.3	**(1.3)**
Antisocial Scale	39.1	**(0.1)**	30.7	**(0.7)**	18.4	**(1.6)**	11.8	**(0.8)**
Violence Scale	38.4	**(0.6)**	29.0	**(1.0)**	22.0	**(2.0)**	10.6	**(0.4)**
Distress Scale	38.2	**(0.8)**	30.4	**(0.4)**	20.8	**(0.8)**	10.6	**(0.4)**
Judgment Scale	35.5	**(3.5)**	30.6	**(0.6)**	22.9	**(2.9)**	11.0	**(0.0)**
Self-Esteem Scale	39.7	**(0.7)**	28.3	**(1.7)**	21.0	**(1.0)**	11.0	**(0.0)**
Stress Coping Abilities	39.3	**(0.3)**	29.7	**(0.3)**	20.5	**(0.5)**	10.5	**(0.5)**

The four risk ranges (Low, Medium, Problem and Severe) and the predicted percentages for each risk range category are shown in at the top row of Table 38. The percentages for each Prison Inmate Inventory scale and risk range category were obtained from the cumulative distribution of inmates scale scores.

The smallest difference between predicted percentages and obtained percentages (0.0) is in the Severe Problem risk range for the Judgment and Self-Esteem Scales. The largest difference between predicted percentages and obtained percentages (3.5) is in the Low Risk range for the judgment scale. The average difference between predicted percentages and obtained percentages for all scales and risk ranges is 1.0 percent. These findings strongly support the accuracy of PII scales. Comparison of ten (10) scale's risk ranges (Low, Medium, Problem, and Severe Problem) involved 40 (10x4) comparisons and all 40 comparisons were within 3.5 percent of predicted scores. This is accurate assessment.

A test that is reliable will result in similar scores for a respondent time and time again. Inmates answer test items consistently, either indicating they have a problem, no problem or something in between. This allows for a test of reliability. The most common reliability statistic is coefficient alpha. Coefficient alpha varies from 0 for random responding or no reliability to 1 for perfect reliability. PII scale reliability is presented in Table 39.

Table 39. Reliability coefficient alphas.
All alphas are significant at p<.001

PII SCALES	Coefficient Alphas
Truthfulness Scale	**.89**
Adjustment Scale	**.93**
Alcohol Scale	**.95**
Drugs Scale	**.96**
Antisocial Scale	**.84**
Violence Scale	**.89**
Distress Scale	**.91**
Judgment Scale	**.92**
Self-Esteem Scale	**.88**
Stress Coping Abilities	**.92**

PII scales have alpha coefficients higher than .80. These are high reliability coefficients and support the Prison Inmate Inventory scales' reliability.

Correlation coefficients between court history such as, age at first arrest, number of arrests, etc., and PII scales are presented in Table 40 below (N=11,849). These results demonstrate that court history is significantly correlated with all PII scales. Their is a positive relationship between number of total arrests and PII scale scores. In other words, as the number of total arrests increase, inmates' scale scores increase. These findings support the predictive validity of PII scales.

However, some inmates with few total arrests do score highly on PII scales. These inmates would have been "missed" if court records were the only criteria used to determine inmate risk. In other words, court records alone are not adequate for predicting inmate risk.

Age at first arrest correlations demonstrate that the younger a person is at the time of their first arrest, the higher their scores will be on the PII scales. Age of first arrest correlations are highest for the antisocial and adjustment scales. The earlier offenders begin their arrest records, the more likely they are to be at risk for continued antisocial behavior and adjustment problems. Yet, court history alone is not an adequate predictor.

Table 40. Correlation Coefficients: Offender Court Histories with PII Scales (N=11,849)

	Truthfulness	Adjustment	Alcohol	Drugs	Antisocial	Violence
Age at 1st Arrest	**-.026***	**-.386****	**-.118****	**-.123****	**-.352****	**-.295****
Total Number of Arrests	**-.168****	**.505****	**.298****	**.280****	**.518****	**.232****
Felony Arrests	**-.104****	**.307****	**.103****	**.299****	**.503****	**.216****
Times on Probation	**-.131****	**.433****	**.225****	**.245****	**.275****	**.144****
Times on Parole	**-.023**	**.229****	**.093****	**.111****	**.339****	**.180****
Alcohol Arrests	**-.165****	**.177****	**.576****	**.149****	**.199****	**.132****
Drug Arrests	**-.109****	**.217****	**.151****	**.407****	**.300****	**.136****

* Significant at p<.01.
**Significant at p<.001.
Note: Times on Parole correlated with Truthfulness has a significance of .011.

Court history correlates highest with the adjustment and antisocial scales. All but the number of alcohol and drug arrests have the highest correlation with the adjustment or antisocial scales. These findings

suggest that when determining an offenders risk for adjustment and antisocial problems, their criminal history is an important factor but should be augmented with PII scale scores.

Number of alcohol arrests correlates highest with the alcohol scale. Number drug arrests correlates highest with the drugs scale. These findings support the predictive validity of the alcohol and drug scales.

Nearly two-thirds (62.7%) of the inmates tested had 5 or more arrests. Many multiple offenders (having multiple arrests) have adjustment, antisocial and violence problems. Total number of arrests has the highest correlation with the antisocial scale. The more times an offender has been arrested, the more at risk they are for antisocial problems. Conversely, the more antisocial an offender is, the more at risk they are for multiple arrests. Repeating the earlier caveat, number of arrests alone does not suffice as an adequate predictor. Court history should be used in conjunction with PII scale scores for optimum predictive value.

Test validation procedures typically involve correlations between the test and another test or the criterion. The criterion (concurrent validity) is typically another test that measures the same thing. This type of validation has been conducted on the PII scales in earlier research presented earlier in this document.

Ongoing validity analyses are conducted on the cumulative PII database. The first, study determined how well test scores account for known offender characteristics. PII validity results demonstrate that the Violence Scale accurately identified **99.6** percent of the inmates who admitted they were prone to violence. Nearly all **(95.7%)** of the inmates who admitted having antisocial tendencies scored in the problem range on the Antisocial Scale. These findings support the discriminate validity of PII scales.

PII scale validity is presented in Table 41. This procedure involves comparing PII scale scores for two inmate groups. One group consists of inmates who were arrested four or more times (habitual offenders), and the other group is made up of inmates who were arrested less than four times. Inmates who have been arrested four or more times are expected to have higher problem severity than inmates with fewer arrests. Because PII scales measure inmates' problem severity, it is expected the "4 or More Arrests" group would score higher on PII scales than the "Under 4 Arrests" group. Mean PII scale scores for the two groups are presented in Table 41.

Table 41. PII Scale Score Comparisons between Two Inmate Groups (2007, N=11,849)

PII Scale	Under 4 Arrests Mean	4 or More Arrests Mean	T-value	Level of Significance
Truthfulness Scale	9.65	7.93	13.48	p<.001
Adjustment Scale	12.09	17.96	50.09	p<.001
Alcohol Scale	8.48	16.99	30.75	p<.001
Drugs Scale	16.10	25.12	29.06	p<.001
Antisocial Scale	16.41	26.18	52.93	p<.001
Violence Scale	12.86	18.10	23.34	p<.001
Distress Scale	18.00	20.99	10.99	p<.001
Judgment Scale	11.49	15.58	31.10	p<.001
Self-Esteem Scale*	13.14	11.07	9.98	p<.001
Stress Coping Abilities*	103.96	93.44	11.50	p<.001

*Note: Self-Esteem Scale and Stress Coping Abilities Scale scores are reversed. Higher scores are associated with higher self-esteem and better stress coping skills.

For all ten PII scales the 4 or More Attests group means were significantly different than the Under 4 Arrests group. Higher PII scale scores represent higher problem severity. Inmates who had more arrests, had higher PII scale scores. These results demonstrate that PII scales are valid measures of inmates' problem severity.

Summary of PII Scales

Truthfulness Scale scores indicate that offenders with less than 4 arrests tended to deny or minimize their problems more than habitual offenders. Mean Truthfulness Scale scores for the Under 4 Arrests group were above the 50th percentile. This result points out the necessity of including a truthfulness measure when testing inmates. Having confidence that assessment results are accurate hinges on knowing the extent that inmates were honest. The PII Truthfulness Scale measures inmates' honesty and ensures accurate assessment.

The largest scale score difference (t=52.93) between the two inmate groups occurred in the Antisocial Scale. The average score for habitual offenders (4 or More Arrests) was over 9 points higher than the average score for the Under 4 Arrests group. Inmates who have been arrested several times exhibit more antisocial thinking (on average) than other inmates. The average Antisocial Scale score for the 4 or More arrests group (26.18) is at the high end of the Medium Risk range. The average score for the Under 4 Arrests group (16.41) is in the Low Risk range. Inmates who have a history of 4 or more arrests are at a significantly higher risk for antisocial problems.

Conclusion

Prison Inmate Inventory (PII) scale scores are accurate. Scales suggest 98 percent accuracy. All PII scales identified nearly all inmates (95 percent or more) who had been in treatment or admitted having serious problems with alcohol, drugs, violence, and/or antisocial tendencies. Correlation analysis between offender court history and PII scale scores supports the predictive validity of PII scales.

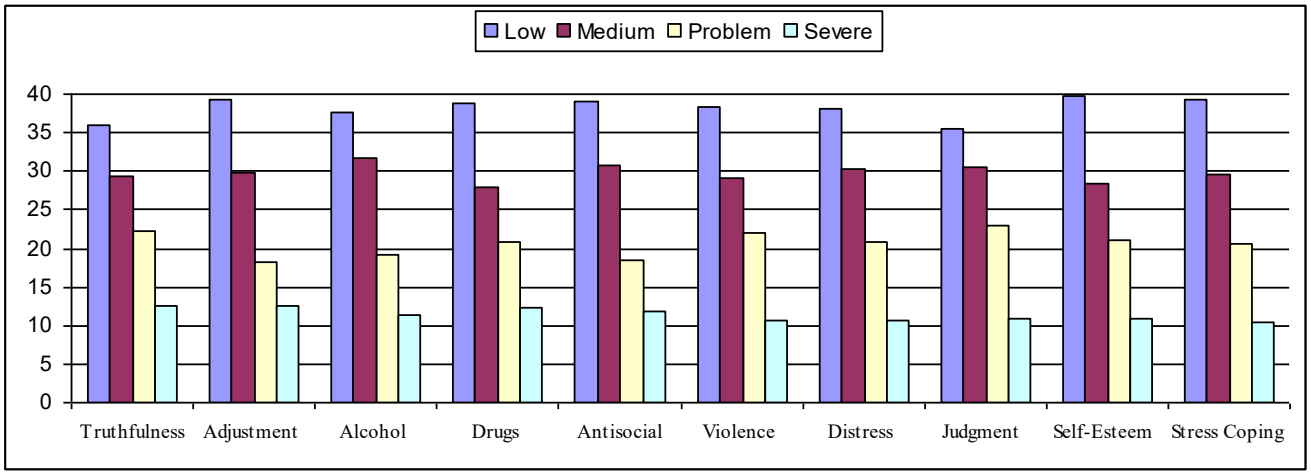
PII inmate screening accurately identifies inmates with problems. PII test results are individualized and provide for recommendations for supervision levels and intervention/treatment programs. The PII's multiple scales and inclusion of criminal history, is well suited for recidivism prediction.

29. PII Validity, Reliability, History Correlations and Scale Risk Range Accuracy

This study (2008) examines PII test statistics for 10,000 inmates. Test data was returned to Behavior Data Systems, Ltd. between October 2007 and October 2008.

The following section presents Prison Inmate Inventory (PII) accuracy, reliability and validity analyses. PII accuracy is determined by measuring inmate-attained scale scores against approximate predicted scores for the four risk range categories used in the PII. These risk range categories are Low Risk (0-39th percentile), Medium Risk (40-69th percentile), Problem Risk (70-89th percentile), and Severe Problem Risk (90-100th percentile). Accordingly, the PII predicts that 39 percent of the inmates will fall in the Low Risk range, whereas 11 percent of the inmates will attain Severe Problem Risk scores. These predicted risk ranges are predetermined and standardization of inmate-attained scores ensures that these percentages are achieved. The different risk range categories facilitate placing inmates into appropriate levels of intervention, treatment and supervision. PII accuracy is presented in Table 42.

Table 42. PII Risk Range Accuracy (2008, N=10,000, 2008)



Scale	Low Risk (39%)		Medium Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness Scale	40.8	**(1.8)**	28.0	**(2.0)**	22.0	**(2.0)**	9.2	**(1.8)**
Adjustment Scale	41.4	**(2.4)**	29.5	**(0.5)**	19.1	**(0.9)**	10.0	**(1.0)**
Alcohol Scale	38.4	**(0.6)**	31.6	**(1.6)**	19.6	**(0.4)**	10.4	**(0.6)**
Drugs Scale	41.5	**(2.5)**	29.8	**(0.2)**	18.7	**(1.3)**	10.0	**(1.0)**
Antisocial Scale	39.6	**(0.6)**	29.8	**(0.2)**	19.6	**(0.4)**	11.0	**(0.0)**
Violence Scale	39.6	**(0.6)**	32.2	**(2.2)**	18.1	**(1.9)**	10.1	**(0.9)**
Distress Scale	39.9	**(0.9)**	29.4	**(0.6)**	20.4	**(0.4)**	10.3	**(0.7)**
Judgment Scale	39.8	**(0.8)**	31.3	**(1.3)**	18.6	**(1.4)**	10.3	**(0.7)**
Self-Esteem Scale	40.1	**(1.1)**	28.6	**(1.4)**	20.5	**(0.5)**	10.8	**(0.2)**
Stress Coping Abilities	40.1	**(1.1)**	30.2	**(0.2)**	19.5	**(0.5)**	10.2	**(0.8)**

The four risk ranges (Low, Medium, Problem and Severe) and the predicted percentages for each risk range category are shown in at the top row of Table 42. The percentages for each Prison Inmate Inventory scale and risk range category were obtained from the cumulative distribution of inmates' scale scores.

The smallest difference between predicted percentages and obtained percentages (0.0) is in the Severe Problem risk range for the Antisocial Scale. The largest difference between predicted percentages and obtained percentages (2.5) is in the Low Risk range for the Drugs Scale. The average difference between predicted percentages and obtained percentages for all scales and risk ranges is 1.0 percentage point. These findings strongly support the accuracy of PII scales. Comparison of ten (10) scales' risk ranges (Low, Medium, Problem, and Severe Problem) involved 40 (10x4) comparisons and all 40 comparisons were within 2.5 percent of predicted scores. This is accurate assessment.

A reliable test will result in similar scores for a respondent time and time again. Inmates answer test items consistently, either indicating they have a problem, no problem or something in between. This allows for a test of reliability. The most common reliability statistic is coefficient alpha. Coefficient alpha varies from 0.0 for random responding (or no reliability) to 1.0 for perfect reliability. PII scale reliability is presented in Table 43.

Table 43. Reliability coefficient alphas (n=10,000, 2008). All alphas are significant at p<.001

PII SCALES	Coefficient Alphas
Truthfulness Scale	**.89**
Adjustment Scale	**.92**
Alcohol Scale	**.95**
Drugs Scale	**.95**
Antisocial Scale	**.90**
Violence Scale	**.88**
Distress Scale	**.91**
Judgment Scale	**.92**
Self-Esteem Scale	**.88**
Stress Coping Abilities	**.94**

All PII scales attain alpha coefficients considerably higher than .75, the professionally accepted reliability threshold. All Prison Inmate Inventory scales demonstrate excellent reliability.

Correlation analyses between inmate-reported history such as age at first arrest, number of arrests, etc., and PII scales were performed. The resultant correlation coefficients are presented in Table 44 (N=10,000). The results demonstrate that court history is significantly correlated with all PII scales. There is a positive relationship between number of total arrests and PII scale scores. In other words, as the number of total arrests increase, inmates' scale scores increase. These findings corroborate the predictive validity of PII scales.

It is important to note that inmates with relatively few total arrests can and do attain high PII scale scores. These inmates would have been overlooked if court records alone were the only criteria used to determine inmate risk. Court history alone does not provide sufficient information for predicting inmate risk.

Age at first arrest correlations demonstrate that the younger a person is at the time of their first arrest, the higher their scores will be on the PII scales. Correlations with the age at first arrest are highest for the Antisocial and Violence scales. The earlier offenders begin their arrest records, the more likely they are to be at risk for continued antisocial behavior and violence problems; however, as previously stated, court history alone is not an adequate predictor.

Table 44. Correlation Coefficients: Offender Court Histories with PII Scales (N=10,000, 2008)

	Truthfulness	Adjustment	Alcohol	Drugs	Antisocial	Violence
Age at 1st Arrest	-.037	-.228**	-.135**	-.128**	-.326**	-.282**
Total Number of Arrests	-.076	.334**	.329**	.278**	.514**	.235**
Felony Arrests	-.064	.200**	.150**	.326**	.496**	.209**
Times on Probation	-.069	.239**	.208**	.223**	.274**	.148*
Times on Parole	-.009	.164*	.123**	.145**	.314**	.155**
Alcohol Arrests	-.108*	.201*	.580**	.154**	.227**	.151**
Drug Arrests	-.066	.119*	.141**	.399**	.284**	.129*

* Significant at p<.01.
**Significant at p<.001.

Court history correlates highest with the Adjustment and Antisocial scales. All but the number of alcohol arrests and the number of drug arrests attained the highest correlation with the Adjustment or Antisocial scales. These findings suggest that when determining an offender's risk for adjustment and antisocial problems, the offender's criminal history is an important factor but should be augmented with PII scale scores.

Number of alcohol arrests correlates highest with the Alcohol Scale. Number of drug arrests correlates most strongly with the Drugs Scale. These findings support the predictive validity of the Alcohol and Drugs scales.

Nearly sixty percent (58.6%) of the inmates tested had 5 or more arrests. Many multiple offenders (those with multiple arrests) have adjustment, antisocial and violence problems. Total number of arrests has the highest correlation with the Antisocial Scale. This suggests that the more antisocial characteristics an offender has, the more at risk they are for multiple arrests. Repeating the earlier caveat, the number of arrests alone does not suffice as an adequate predictor. Court history should be used in conjunction with PII scale scores for optimum predictive value.

Test validation procedures typically involve correlations between the test and another test or the criterion. The criterion (concurrent validity) is typically another test that measures the same thing. This type of validation has been conducted on PII scales in earlier research presented previously within this document.

PII scale validity is presented on the following page in Table 45. This procedure involves comparing PII scale scores for two inmate groups. One group consists of inmates that were arrested four or more times (habitual offenders), and the other group is made up of inmates that were arrested less than four times. Inmates that have been arrested four or more times are expected to have higher problem severity than inmates with fewer arrests. Because PII scales measure inmates' problem severity, it is expected the "4 or More Arrests" group would score higher on PII scales than the "Under 4 Arrests" group. Mean PII scale scores for the two groups are presented in Table 45.

Table 45. PII Scale Score Comparisons of Two Inmate Groups (2008, N=10,000)

PII Scale	Under 4 Arrests Mean	4 or More Arrests Mean	T-value	Level of Significance
Truthfulness Scale	9.20	7.65	10.47	p<.001
Adjustment Scale	14.94	22.20	-27.81	p<.001
Alcohol Scale	9.06	17.53	-26.46	p<.001
Drugs Scale	16.55	25.61	-25.67	p<.001
Antisocial Scale	17.54	27.83	-41.93	p<.001
Violence Scale	13.07	18.76	-21.65	p<.001
Distress Scale	18.89	21.32	-7.71	p<.001
Judgment Scale	13.08	19.08	-24.64	p<.001
Self-Esteem Scale*	12.69	10.66	7.87	p<.001
Stress Coping Abilities*	100.71	92.36	7.91	p<.001

*Note: Self-Esteem Scale and Stress Coping Abilities Scale scores are reversed. Higher scores are associated with higher self-esteem and better stress coping skills. For all other PII scales, higher scores indicate more acute problem severity.

For nine out of ten PII scales, the "4 or More Arrests" group average scores differed significantly from the "Under 4 Arrests" group. Higher PII scale scores represent more acute problem severity. These results demonstrate that PII scales are valid measures of inmates' problem severity. The only scale for which the average score was higher for the "Under 4 Arrests" group than for the "4 or More Arrests" group was the Truthfulness Scale.

Truthfulness Scale scores indicate that offenders with less than four arrests were prone to denial or problem minimization more than habitual offenders. This emphasizes the necessity for inclusion of a truthfulness measure when testing inmates. Having confidence that assessment results are accurate is dependent upon knowing the extent to which inmates were truthful. The PII Truthfulness Scale measures inmates' truthfulness and ensures accurate assessment.

The largest scale score difference (t=-41.93) between the two inmate groups occurred in the Antisocial Scale. The average score for habitual offenders (4 or More Arrests) was over 10 points higher than the average score for the Under 4 Arrests group. Inmates that have been arrested several times exhibit more antisocial thinking (on average) than other inmates. The average Antisocial Scale score for the '4 or More Arrests' group (27.83) is at the high end of the Medium Risk range. The average score for the 'Under 4 Arrests' group (17.54) is in the Low Risk range. Inmates that have a history of 4 or more arrests are at a significantly higher risk for antisocial problems.

30. PII Test Statistics for a Large Sample of Prison Inmates

This study (2009) examines PII test statistics for 2,382 inmates. Test data was returned to Behavior Data Systems, Ltd. between January 2002 and December 2009.

Method and Results

Included in this study (2009) were 2,382 prison inmates in the Southern U.S. Nearly all (94.5%) were male; 5.5% were female. The demographic composition of this sample is as follows: Age: 19 and younger (16.4%); 20 through 29 (38.9%); 30 through 39 (25.4%); 40 through 49 (15.3%); 50 through 59 (3.5%); 60 and older (0.5%). Education: 8th grade or less (6.4%); Some High School (42.0%); High School Graduate (38.6%); Partially Completed College (10.8%); College Graduate (1.4%); Advanced Degree (0.8%). Ethnicity: Caucasian (47.6%); Black (45.6%); Hispanic (2.8%); Asian (0.1%); Native American (1.4%); Other (2.5%). Marital Status: Single (44.9%); Married (30.9%); Divorced (17.8%); Separated (5.2%); Widowed (1.2%).

A test that is reliable will result in similar scores for the initial test and re-tests. Inmates answer test items consistently, either indicating they have a problem, no problem or something in between. This allows for a test of reliability. The most common reliability statistic is coefficient alpha. Coefficient alpha varies from 0.0 for random responding (or no reliability) to 1.0 for perfect reliability. PII scale reliability is presented in Table 46.

Table 46. Reliability coefficient alphas (n=2,382, 2009). All alphas are significant at p<.001

PII SCALES	Coefficient Alphas
Truthfulness Scale	**.86**
Adjustment Scale	**.91**
Alcohol Scale	**.94**
Drugs Scale	**.96**
Antisocial Scale	**.87**
Violence Scale	**.88**
Distress Scale	**.87**
Judgment Scale	**.90**
Self-Esteem Scale	**.88**
Stress Coping Abilities	**.91**

All PII scales attain alpha coefficients considerably higher than .75, the professionally accepted reliability threshold. All Prison Inmate Inventory scales demonstrate excellent reliability.

Table 47 (below) presents PII accuracy analysis results, which involves comparison of inmate-attained scale scores against predicted scores for the four risk range categories used in the PII. These risk range categories are Low Risk (0-39th percentile), Medium Risk (40-69th percentile), Problem Risk (70-89th percentile), and Severe Problem Risk (90-100th percentile). The different risk range categories facilitate placing inmates into appropriate levels of intervention, treatment and supervision.

Table 47. PII Risk Range Accuracy (N=2,382, 2009)

Scale	Low Risk (39%)		Medium Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness Scale	43.2	**(4.2)**	28.5	**(1.5)**	17.6	**(2.4)**	10.8	**(0.2)**
Adjustment Scale	39.1	**(0.1)**	30.3	**(0.3)**	20.3	**(0.3)**	10.3	**(0.7)**
Alcohol Scale	40.4	**(1.4)**	30.4	**(0.4)**	19.2	**(0.8)**	10.0	**(1.0)**
Drugs Scale	40.2	**(1.2)**	30.4	**(0.4)**	19.1	**(0.9)**	10.3	**(0.7)**
Antisocial Scale	39.1	**(0.1)**	30.3	**(0.3)**	20.3	**(0.3)**	10.3	**(0.7)**
Violence Scale	38.8	**(0.2)**	31.7	**(1.7)**	19.4	**(0.6)**	10.1	**(0.9)**
Distress Scale	40.7	**(1.7)**	30.0	**(0.0)**	18.9	**(1.1)**	10.4	**(0.6)**
Judgment Scale	40.7	**(1.7)**	29.3	**(0.7)**	19.4	**(0.6)**	10.6	**(0.4)**
Self-Esteem Scale	39.5	**(0.5)**	29.1	**(0.9)**	20.5	**(0.5)**	10.9	**(0.1)**
Stress Coping Abilities	39.4	**(0.4)**	31.6	**(1.6)**	18.7	**(1.3)**	10.3	**(0.7)**

The four risk ranges (Low, Medium, Problem and Severe) and the predicted percentages for each risk range category are shown in at the top row of Table 47. The percentages for each Prison Inmate Inventory scale and risk range category were obtained from the cumulative distribution of inmates scale scores. The average difference between predicted percentages and obtained percentages for all scales and risk ranges is 0.7 percentage points. This is accurate assessment.

Correlations of inmate-reported court history such as age at first arrest, number of arrests, etc. with PII scales are presented in Table 48 (N=2,382). These results demonstrate that court history is significantly correlated with all PII scales. There is a positive relationship between number of total arrests and PII scale scores. In other words, as the number of total arrests increase, inmates' scale scores increase. These findings corroborate the predictive validity of PII scales.

It is important to note that inmates with relatively few total arrests can and do attain high PII scale scores. These inmates would be overlooked in regards to problem severity if court records alone were the only criteria used to determine inmate risk. In other words, court records alone are not adequate for predicting inmate risk.

Age at first arrest correlations demonstrate that the younger a person is at the time of their first arrest, the higher their scores will be on the PII scales. Correlations for age at first arrest are highest for the antisocial and adjustment scales. The earlier offenders begin their arrest records, the more likely they are to be at risk for continued antisocial behavior and adjustment problems; however, court history alone is not an adequate predictor.

Table 48. Correlation Coefficients: Offender Court Histories with PII Scales (N=2,382, 2009)

	Truthfulness	Adjustment	Alcohol	Drugs	Antisocial	Violence
Age at 1st Arrest	-.027	-.565	-.229	-.206	-.459	-.392
Total Number of Arrests	.145	.495	.444	.329	.553	.277
Felony Arrests	.035	.338	.247	.376	.505	.255
Times on Probation	.047	.356	.225	.259	.397	.278
Years in Jail or Prison	-.008	.237	.324	.259	.461	.318
Alcohol Arrests	.027	.334	.592	.105	.249	.100
Drug Arrests	.033	.136	.016	.385	.188	.074

Note: all coefficients are significant at $p<.001$.

Court history attained the strongest correlations with the Adjustment and Antisocial scales. All but the number of alcohol arrests and the number of drug arrests attained the highest correlation with the Adjustment or Antisocial scales. These findings suggest that when determining an offender's risk for adjustment and antisocial problems, their criminal history is an important factor but should be augmented with PII scale scores.

Number of alcohol arrests correlates most strongly with the Alcohol Scale. Number of drug arrests correlates most strongly with the Drugs Scale. These findings support the predictive validity of the PII Alcohol Scale and Drugs Scale.

Test validation procedures typically involve correlations between the test and another test or the criterion. The criterion (concurrent validity) is typically another test that measures the same thing. This type of validation has been conducted on PII scales in earlier research presented previously within this document.

PII scale validity is presented in Table 49. This procedure involves comparing PII scale scores for two inmate groups. One group consists of inmates that were arrested two or more times (multiple offenders), and the other group is made up of inmates that were arrested no more than once (first offenders). Inmates that have been arrested two or more times are expected to have higher problem severity than inmates with fewer arrests. Because PII scales measure inmates' problem severity, it is expected the multiple offender group would score higher on PII scales than the first offenders group. Mean PII scale scores for the two groups are presented in Table 49.

For nine out of ten PII scales, the average scores for multiple offenders were higher or more severe than first offenders' average scale scores. Higher scores indicate more acute problem severity. It should be noted that the Stress Coping Abilities Scale and Self-Esteem Scale scores are interpreted differently than other PII scale scores. For theses two scales, higher scores represent better stress coping abilities and

better self-esteem, respectively. In this analysis, multiple offenders' average scores for both the Stress Coping Abilities Scale and Self-Esteem Scale were significantly poorer than the average scores of first-time offenders.

Table 49. T-test comparisons between first offenders and multiple offenders. Offender status defined by number times arrested. (2009, N=2,382)

PII Scale	First Offenders Mean Scores	Multiple Offenders Mean Scores	*T*-value	Level of significance
Truthfulness Scale	7.78	9.31	-3.39	p<.001
Adjustment Scale	21.77	33.40	-12.48	p<.001
Judgment Scale	11.27	15.88	-9.57	p<.001
Alcohol Scale	9.23	20.82	-10.19	p<.001
Drugs Scale	18.23	29.60	-10.06	p<.001
Antisocial Scale	18.49	28.28	-12.64	p<.001
Violence Scale	16.16	21.88	-6.02	p<.001
Distress Scale	19.28	22.48	-3.35	p<.001
Self-Esteem	9.08	3.78	4.62	p<.001
Stress Coping Abilities	104.01	94.20	3.01	p<.001

T-tests analyses were performed for all PII scales to assess possible sex differences in the prison inmates. Significant gender differences were demonstrated on all of the ten PII scales - Truthfulness, Adjustment, Judgment, Alcohol, Drugs, Antisocial, Violence, Distress, Self-Esteem and Stress Coping Abilities scales. These results are presented in Table 50 on the following page.

The average scores for the Truthfulness, Antisocial, Adjustment, Alcohol, Drugs and Violence scales were higher for male offenders than female offenders. This indicates that male inmates were possibly more prone to denial and problem minimization (manifested as higher Truthfulness Scale scores) and had more acute antisocial tendencies and adjustment, alcohol, drugs and violence-related problems.

On average, females scored more severely than males on the Distress, Self-Esteem and Stress Coping Abilities scales, indicating that female inmates could have more severe drug abuse problems and were experiencing a higher degree of distress and lower levels of self-esteem as well as decreased ability to handle stress.

Table 50. Sex differences in the prison inmate sample (2009, N=2,382).				
PII	**Mean Scale Score**			**Significance**
SCALE	**Males**	**Females**	***T*-value**	**Level**
Truthfulness Scale	9.25	6.18		p<.001
Adjustment Scale	32.68	31.45		p=.05
Judgment Scale	15.57	17.24		p<.001
Alcohol Scale	20.23	10.45		p<.001
Drugs Scale	28.91	26.85		p<.001
Antisocial Scale	27.75	22.61		p<.001
Violence Scale	21.59	17.94		p<.001
Distress Scale	22.16	33.12		p<.001
Self-Esteem Scale	4.14	0.91		p<.001
Stress Coping Abilities	95.09	68.52		p<.001

Conclusion

Prison Inmate Inventory (PII) scale scores are accurate. All PII scales identified nearly all inmates that admitted to having serious problems with alcohol, drugs, violence, and/or antisocial tendencies. Correlation analysis between offender court history and PII scale scores supports the predictive validity of PII scales. PII inmate screening accurately identifies inmates with problems. PII test results are individualized and facilitate recommendations for supervision levels and intervention/treatment programs. The multiple scales and inclusion of criminal history in the PII are well-suited for recidivism prediction.

31. PII Reliability, Validity and Accuracy in a Sample of Prison Inmates

This study (2010) utilized PII test data for 1,071 prison inmates in a southeastern U.S. state. The analyses include PII accuracy for establishing inmate risk, statistical reliability coefficients (alphas) for each PII scale, discriminant validity analyses of first offenders and multiple offenders and predictive validity analyses for identification of problem and non-problem drinkers/drug users.

Method and Results

Included in this study (2010) were 1,071 prison inmates. There were 882 males (82.4%) and 189 females (17.6%). The demographic composition of this sample is as follows: Age: 19 and younger (1.1%); 20 through 29 (32.6%); 30 through 39 (37.1%); 40 through 49 (21.5%); 50 through 59 (6.4%); 60 and older (1.3%). Education: 8th grade or less (6.3%); Some High School (39.4%); High School Graduate or GED (47.0%); Trade or Technical School (0.6%); Partially Completed College (5.9%); College Graduate (0.8%); Advanced Degree (0.1%). Ethnicity: Caucasian (62.5%); Black (33.6%); Hispanic (2.8%); Asian (0.5%); Other (0.5%). Marital Status: Single (49.6%); Married (22.3%); Divorced (19.4%); Separated (5.9%); Widowed (2.8%).

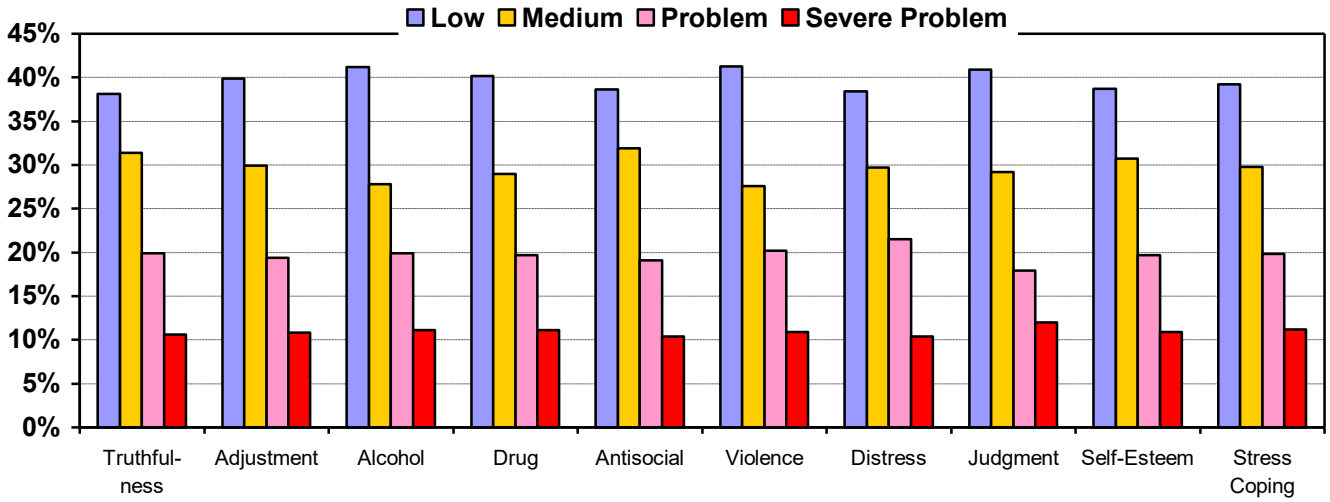
For ease in interpreting inmate risk, the PII scoring methodology classifies inmate scale scores into one of four risk ranges: **low risk** (zero to 39th percentile), **medium risk** (40 to 69th percentile), **problem risk** (70 to 89th percentile), and **severe problem risk** (90 to 100th percentile). By definition, the expected 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 at the 70th percentile or above identify them as problem drinkers.

Accuracy of the Prison Inmate Inventory

The PII contains ten measurement (or severity) scales. The percentage of inmates scoring in each of the four risk categories (low, medium, problem and severe problem risk) is compared to the predicted percentage for each of the ten PII scales. Table 51 presents these statistics. The differences between obtained and predicted percentages are presented in parentheses in the table below the graph.

Table 51. Prison Inmate Inventory Scale Risk Ranges (2010, N=1,071)



Scale	Low Risk (39%)		Medium Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness Scale	41.5	**(2.5)**	27.5	**(2.5)**	22.8	**(2.8)**	8.2	**(2.8)**
Alcohol Scale	40.6	**(1.6)**	29.9	**(0.1)**	19.4	**(0.6)**	10.1	**(0.9)**
Drugs Scale	41.4	**(2.4)**	28.9	**(1.1)**	18.6	**(1.4)**	11.1	**(0.1)**
Violence Scale	38.8	**(0.2)**	31.8	**(1.8)**	19.2	**(0.2)**	10.2	**(0.8)**
Adjustment Scale	40.1	**(1.1)**	30.0	**(0.0)**	19.6	**(0.4)**	10.3	**(0.7)**
Judgment Scale	40.0	**(1.0)**	28.5	**(1.5)**	21.3	**(1.3)**	10.2	**(0.8)**
Antisocial Scale	40.6	**(1.6)**	29.5	**(0.5)**	19.3	**(0.7)**	10.6	**(0.4)**
Distress Scale	40.9	**(1.9)**	29.2	**(0.8)**	19.8	**(0.2)**	10.1	**(0.9)**
Self-Esteem Scale	40.2	**(1.2)**	29.3	**(0.7)**	20.3	**(0.3)**	10.2	**(0.8)**
Stress Coping	40.0	**(1.0)**	30.0	**(0.0)**	19.6	**(0.4)**	10.4	**(0.6)**

As shown in the graph and table above, the PII 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 2.8 percentage points of the expected percentages. These results demonstrate that the PII scale scores accurately identify inmate risk.

Reliability of the Prison Inmate Inventory

Within-test reliability, or inter-item reliability coefficient alphas for the Prison Inmate Inventory are presented in Table 52.

Table 52. Reliability of the Prison Inmate Inventory (2010, N=1,071) All coefficient alphas are significant at p<.001.	
PII SCALES	**Coefficient Alphas**
Truthfulness Scale	**.89**
Alcohol Scale	**.91**
Drugs Scale	**.89**
Violence Scale	**.87**
Antisocial Scale	**.88**
Adjustment Scale	**.89**
Distress Scale	**.88**
Self-Esteem Scale	**.89**
Judgment Scale	**.86**
Stress Coping Abilities	**.94**

The alpha coefficients for all of the Prison Inmate Inventory scales are considerably above the professionally accepted standard of .75. These results show that the PII is a reliable instrument for inmate risk assessment.

Validity of the Prison Inmate Inventory

Prison Inmate Inventory (PII) scales measure severity and the extent to which inmates have problems. Therefore, it would be expected that most multiple offenders (inmates who have 2 or more arrests) have higher scale scores than first offenders. Discriminant validity of the Prison Inmate Inventory is shown by significant differences between first and multiple offenders.

Table 53. T-test comparisons between first offenders and multiple offenders (2010, N=1,071).

PII Scale	First Offenders Mean	Multiple Offenders Mean	T-value	Level of Significance
Truthfulness Scale	9.45	7.24	3.25	p<.001
Adjustment Scale	12.16	17.65	-3.17	p<.001
Alcohol Scale	20.79	20.79	-5.96	p<.001
Drugs Scale	6.47	-.10	3.66	p<.001
Antisocial Scale	13.97	22.13	-8.17	p<.001
Violence Scale	16.34	19.55	-2.00	p<.001
Distress Scale	15.36	18.78	-2.27	p<.001
Judgment Scale	25.74	41.48	-8.39	p<.001
Self-esteem Scale	15.72	25.45	-8.97	p<.001
Stress Coping Abilities	111.10	97.78	2.36	p<.001

*Note: The Self-Esteem Scale and the Stress Coping Abilities Scale scores are reversed, in that higher scores represent lower risk; for all other PII scales, higher scales indicate more severe problems.

In these analyses (Table 53), the answer sheet item "Total number of times arrested" was used to define first offenders and multiple offenders (2 or more arrests). There were 58 first offenders and 1,013 multiple offenders. Because *risk* is often defined in terms of severity of problem behavior, it is expected that multiple offenders would score significantly higher on PII scales than first offenders. The *t*-test comparisons of first offenders with multiple offenders for each PII scale are presented in Table 53 (N=1,071) on the following page. Multiple offenders had two or more arrests as reported on the PII answer sheet.

With the exception of the Truthfulness Scale, multiple offenders' average PII scale scores were significantly higher than the average scores of first offenders. First offenders attaining a higher average score on the PII Truthfulness Scale may indicate that offenders with no more than one arrest were prone to denial or problem minimization. Multiple offenders may have been more forthcoming about their problems. This comparative analysis demonstrates that the PII accurately differentiates between first offenders and multiple offenders. These results support the validity of the Prison Inmate Inventory.

32. Negative Binomial Regression and Predictors of Recidivism

This study (2013) utilized PII test data for 1,610 prison inmates submitted from an Arkansas correctional facility. The analysis was conducted to examine whether four items on the Prison Inmate Inventory (PII) were predictive of probation revocations (recidivism) using negative binomial regression.

Participants

Included in this study (2013) were 1,610 prison inmates. There were 1,429 males (88.8%) and 181 females (11.2%). The demographic composition of this sample is as follows: Average age: 34.5 for all inmates; 34.7 for male inmates, and 34.6 for female inmates. Average age at first arrest: 19.9 for all inmates, 18.4 for male inmates, 21.4 for female inmates. Education: 8th grade or less (6.3%); Some High School (40.5%); High School Graduate or GED (48.0%); Trade or Technical School (<1%); Partially Completed College (3.7%); College Graduate (1.1%); Advanced Degree (<1%). Ethnicity: Caucasian (57.8%); Black (35.5%); Hispanic (4.6%); Asian (<1%); Native American (<1%); Other (0.5%). Marital Status: Single (53.9%); Married (21.4%); Divorced (15.1%); Separated (8.3%); Widowed (1.3%).

Criminal history information was as follows: 99% had one or more felonies and arrests with almost 50% having 4 or more felonies; 42% had one or more alcohol related arrests; 41% had at least one or more DUI arrests, and 78% had at least one or more drug related arrests; 79% had one or more probation sentences; 59% had at least one probation revocation; 63% had one or more parole sentences, and 45% had at least one parole revocation. The average number of months inmates had left to serve was 17.0 months; the average number of years they had spent incarcerated was 4.25 years.

Test

The Prison Inmate Inventory (PII) is a self-report assessment developed to help meet the needs of corrections departments by assessing inmate adjustment, coping skills, and lethality. The PII is comprehensive using a combination of static and dynamic factors that address 10 areas associated with offender risk. The 10 scales include: Truthfulness Scale, Adjustment Scale, Alcohol Scale, Drug Scale, Antisocial Scale, Violence Scale, Distress Scale, Self-esteem Scale, Judgment Scale, and Stress Coping Abilities Scale.

Reliability

Test reliability refers to a scale's consistency of measurement. Cronbach's Alpha, a measure of reliability, measured the internal consistency of each PII scale. Perfect reliability is 1.00 and the accepted standard for this type of instrument is .70 - .80 (Murphy & Davidshofer, 2001).

Reliability coefficients were as follows: **Truthfulness Scale, .86; Alcohol Scale, .93; Drug Scale, .93; Violence Scale, .89; Antisocial Scale, .81; Judgment Scale, .88; Distress Scale, .88; Adjustment Scale, .90; Self-Esteem Scale, .86 and Stress Coping Abilities Scale, .90.**

Each PII scale attained a reliability coefficient alpha of .80 or higher; exceeding the professionally accepted standards. These results confirm the reliability of the PII as an inmate screening tool.

Procedures

Collaborative efforts of BDS and the Arkansas Correctional Facility identified a subset of offenders who were accounted for a disproportionate amount of officer time, resources, and budgetary expenditures. Four items within the PII identify potential disciplinary problems during the intake process and alert staff that additional measures may be required. This is an example of the Risk-Need-Responsivity (RNR) principle.

Below are the percentages and frequencies for the four items:
When I am wronged or treated unfairly, I:

- 7.5% of inmates complained when they were wronged or treated unfairly
- 12.7% of inmates filed a complained when they were wronged or treated unfairly
- 12.2% reported both complaining and filing a complaint

During the last year I have:

- 21.7% had disciplinary action
- 5.9% lost privileges
- 7.3% were written up

During the last 6 months I have been given:

- 13.2% had a verbal reprimand
- 4.2% had a written reprimand
- 10.2% had both verbal and written reprimands

During the last 6 months, I have had conflicts or problems with:

- 13.2% reported inmate conflicts
- 4.2% reported officer conflict
- 12.1% reported both inmate and office conflicts

4.5% (79) had endorsed all four of the grievance and disciplinary items.

Using the four test items listed above, a new variable was created and labeled "Misconduct". The variable was binomial, *0=less than 4 items 1=all 4 test items*. As noted above, approximately 5% of offenders endorsed all grievance and disciplinary action items.

The new variable, "Misconduct", was included as a predictor variable in the analyses, along with five additional variables. These variables were static factors and included gender, total arrests, alcohol related arrests, drug related arrests, and months to serve of sentence. Probation revocation was used as the dependent variable. This variable was selected because it clearly identifies an act of prior recidivism. Independent (predictor) variables included, gender, arrests, alcohol related arrests, drug related arrests, months to serve, and the new conduct variable. Age was used as an offset variable to account for the time needed to accumulate criminal history.

Analysis

Regression is used to establish the relationship between variables; determining the best fit between any set of data by identifying the constant and the slope. Regression is to find the specific line that provides the best fit to the actual data points. Example, for each value of X data, we get the best prediction of Y.

Negative binomial regression was selected because the outcome variable uses count data. A traditional regression would be inappropriate and bias the results and subsequent interpretation. When reviewing the results:

- Standard error of estimate gives a measure of the standard distance between a regression line and the actual data points.

- *B* values tell us the relationship to the dependent variable and the other predictors. If the values are positive, there is a positive relationship between predictor and outcome.

A Bonferroni adjustment was used to control for experimentwise error (.008). Predictor variables were related; however, multicollinearity was tested and did not present a concern for the present analysis.

Table 54. Negative Binomial Regression Results (N =1, 610, 2013)

		B	*SE*	*p*	Exp(B)
Gender					
	Male	1.26	.32	.000	3.54
Misconduct		.966	.17	.000	2.49
Arrests		.45	.03	.000	1.55
Alcohol-related arrests		-1.28	.04	.000	.275
Drug-related arrests		-.159	.04	.000	.87
Months to serve		.053	.01	.000	1.06

Results

The overall regression model was statistically significant; moreover, all individual variables were statistically significant and contributed to the overall model fit. Beta coefficients indicated positive relationships between gender, misconduct, arrests, and months to serve, and probation revocations. A negative relationship between drug-related arrests, alcohol-related arrests and probation revocations emerged.

Using incident ratios, [Exp (B) -1 x 100], male inmates had revocation counts 254% greater than female inmates; individuals who had higher levels of misconduct had 149% increased estimated counts of probation revocations higher than offenders with less misconduct. Moreover, inmates with multiple arrests, had revocation rates 54% higher than inmates with fewer arrests.

Practical implications

Offenders identified through the PII misconduct items presented greater risk to the institution. Early identification of inmate risk provides corrections staff with opportunities for immediate and targeted interventions to address inmate needs. Appropriately matching offender risk, as well as needs can impact institutional decision making (funding, allocation, resources) as well as impact public safety.

33. Establishing Construct and Predictive Validity of the Prison Inmate Inventory (PII) for Use among Female Inmates

This study was published in the International Journal of Offender Therapy and Comparative Criminology. A brief summary of the findings are presented here.

Historically, more men than women are incarcerated each year; however, the rate of female incarceration has been consistently increasing over the past three decades (West, Sabol, & Greenman, 2011; United States Commerce, Economics and Statistics Administration, 2011). Reports published by the Department of Justice, Bureau of Justice Statics (2011) revealed that overall violent crime arrests and incarcerations have increased 60% in recent years and female incarcerations represented a growing percentage of the overall violent crime rate. Contemporary risk assessments have demonstrated mixed results in predicting female risk and recidivism.

The purpose of this study was to establish the validity of the Prison Inmate Inventory (PII) for use among female inmates (n = 628). Participant data were submitted to the Behavior Data Systems (BDS) database by corrections, probation, and treatment staff across the United States who implemented the PII as part of their inmate screening or intake procedures.

Participants

The **628 female inmates** were overwhelmingly white (83%), single (38%), and had less than a high school education (37%). Female inmates in this sample had extensive criminal histories; 99% reported one or more lifetime felony arrests; 97% reported one or more arrests; 37% reported one or more alcohol-related arrests; 79% reported one or more drug arrests; 36% reported one or more DUI arrests; 58% reported one or more probation sentences, and 44% reported one or more parole sentences.

Validity Analysis #1

Contrast groups were created using age at first arrests to classify offenders. Research has demonstrated that earlier arrests are correlated with more criminal acts, with some increased severity. Female inmates classified arrested before age 18 demonstrated more problem severity than inmates who were arrests after the age of 18. These findings confirmed the construct validity of the PII when used with female inmates.

Validity Analysis #2

Negative binomial regression analysis was used to confirm predictive validity. Female inmates who were arrested at a younger age demonstrated more severe problems with violence, antisocial traits, distress, adjustment to prison life, and judgment. Results from the negative binomial analysis revealed that inmate risk (low and severe) predicted expected counts of probation revocations, parole revocation, and escape attempts. Female offenders classified as severe risk were 6% more likely to experience a probation revocation, 166% more likely to have a parole revocation, and 344% more likely to attempt an escape. The PII classifications of risk (low and severe) contributed to the overall model of predicting recidivism.

Discussion

The findings of this study provide empirical support for the PII as an inmate risk assessment that effectively differentiates between female inmates who represent greater risk while they are incarcerated and for the community upon release. This is important because very few inmate screening tools have been thoroughly assessed for use with female inmates (Resig et al., 2011).
Experts in the field of criminology and corrections (Austin 2004; Andrews & Bonta, 2010) have stressed the importance of using valid and reliable instruments in offender screening. The PII has demonstrated significant advantages over risk assessments that rely solely on interviews and clinical impressions. Identifying areas of inmate need and facilitating the development of pro-social skills including self-regulation, problem solving, and anger management strategies, as well as aiding prisoners in identifying noncriminal alternatives and noncriminal peers while women are incarcerated will reduce the incidents of reoffending.

34. Managing Inmate Risk: Construct and Predictive Validity of the Prison Inmate Inventory
This study was published in the International Journal of Criminal Justice Sciences. A brief summary of the findings are presented here.

In a unique, state-by-state comparison study, the PEW Center on the States study indicated that, on average, approximately 40% of inmates returned to prison within three years of their release. The percentage of inmates who return to prison varied by state and across regions but ranged from 24% to 68%. Inmates who were returned to prison were grouped into two categories, ex-inmates who committed new crimes and ex-inmates re-incarcerated for technical violations. Technical violations can be described as activities that violated the terms of the offender's supervision, which resulted in a probation or parole revocation. The rates for new crimes ranged from 8% to 25%; the rate for technical violations ranged from 2%-51% (PEW Center on the States, April 2011).

Researchers have identified several factors associated with inmate recidivism risk. These factors are grouped into two categories, static and dynamic factors. Static factors are historical aspects of the offender that are considered unchangeable. Static factors for inmates include gender, the current age of the offender, prior criminal history, prior arrest history, the age of first conviction for an offense, and victim characteristics (e.g., male victims, female victims, stranger victims) (Andrews & Bonta, 2010). Dynamic factors are considered aspects of the inmate that are amenable to change. Denial, substance abuse, and antisocial traits are considered dynamic factors that can be addressed through treatment or other interventions (Nunes, Hanson, Firestone, Moulden, Greenberg & Bradford, 2007; Yates, 2009). Dynamic factors, while not as thoroughly examined as static factors, have implications for inmate risk, treatment compliance, and corrections outcomes (Yates).

A review of the existing literature identified three constructs, adjustment, violence, and stress management which have not been well described as dynamic inmate risk factors. These factors are assessed by the PII and were used to assess the predictive capabilities of dynamic factors. The inclusion of dynamic factors sets the PII apart from other inmate screening tools that only assess static, unchangeable factors. The underlying hypothesis is that adding dynamic factors like adjustment, violence propensity and stress management will enhance the predictive capabilities of the PII and identified areas of need that corrections staff can target to impact and reduce inmate risk.

Participants
The average prisoner was around 30-years old, male, White, and had a high school degree or less. Prisoners reported an average of three felony arrests and close to one probation revocation. For prison-specific measures, very few prisoners reported having a parole violation or having attempted to escape prison.

Results
Prisoners with problem violence risk had an expected count of probation revocations 36% greater and prisoners with severe violence risk had an expected count of probation revocations 43% greater, than prisoners with low violence risk, respectively. Compared to prisoners with low violence risk, prisoners with problem violence risk had a 59% higher expected count of parole violations and offenders with severe violence risk had an 81% higher expected count of parole violations.

Offenders with severe adjustment problems had an expected count of felony arrests 50% greater and an expected count of probation revocations 86% greater than offenders with low adjustment risk, respectively. Relative to prisoners with low adjustment risk, those with severe adjustment risk had 151% more predicted parole revocations and 227% more escape attempts.

The PII Stress Coping Abilities risk threshold displayed significant associations with the criterion variables examined but was a weaker predictor of the criterion measures than the PII violence and adjustment scales.

The use of dynamic factors like adjustment, violence and stress management add to the overall predictive capabilities of the PII and provide corrections staff with areas of inmate need that can be added to rehabilitation/treatment planning with the overarching goal of reducing inmate risk during incarceration and reducing risk to the public when inmates are released.

35. Reliability, Validity, and Risk Range Analyses of the PII
This study summarizes reliability and validity studies, as well as risk range analyses, using a correctional facility sample from the Southern region of the United States. There were 1,880 participants in this study from the 2016 reporting period.

Participants
A crosstabulation confirmed that the majority of participants in this study were single, Caucasian males who graduated high school, and have had multiple offenses. This information is supported by the majority percentage in each demographic below.

Gender: Male (79.5%), Female (20.5%).
Average Age: 36 years; at first conviction: 19 years.
Race/Ethnicity: Caucasian (65%), Black (30%), Hispanic (3%), Asian (<1%), Native American (1%), Other (<1%).
Marital Status: Single (54%), Married (19%), Divorced (16%), Separated (9%), Widowed (1%).
Education: Up to 8th grade (6%), partially completed high school (36%), completed a GED (9%), graduated high school (43%), attended college (<1%), attended technical/business school (4%), graduated college (2%).
Arrest history: First-time offenders (6%), repeat offenders (94%); average amount of time incarcerated (4.6 years), average amount of time left to serve from test date (20 months); reported **two** or more arrests (95%), reported **two** or more felony convictions (85%), reported one or more alcohol-related arrests (39%), reported one or more drug-related arrests (78%), reported one or more DUI arrests (37%), reported one or more probation sentences (81%), and reported one or more parole sentences (63%).

Reliability

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

Table 54. PII Reliability (N = 1880, 2016)

Scales	Coefficient Alpha
Truthfulness	.87
Alcohol	.91
Drugs	.92
Antisocial	.87
Violence	.89
Adjustment	.88
Distress	.88
Judgement	.89
Self-Esteem	.84
Stress Coping Abilities	.91

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

Validity

In testing, the term *validity* refers to the extent that a test measures what it was designed to measure. A test cannot be accurate without being valid. When individuals known to have more severe problems or symptoms receive higher scale scores than individuals known to have fewer problems or symptoms, the test is said to have evidence of construct validity (DeVon et al., 2007).

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

Table 55. PII Scale Validity (N = 1880, 2016)

Scales	First-time Mean Scores	Repeat Mean Scores	*t*-value	*p*
Truthfulness	8.72	7.78	1.73	.084
Alcohol	9.94	15.43	-4.75	<.001
Drugs	20.11	29.86	-7.55	<.001
Antisocial	28.34	41.86	-10.0	<.001
Violence	15.66	19.32	-3.23	.001
Adjustment	18.07	26.02	-10.7	<.001
Distress	20.03	20.95	-0.78	.433
Judgement	14.80	21.97	-10.07	<.001
Self-Esteem	4.31	-0.76	3.82	<.001
Stress Coping Abilities	100.81	94.30	1.66	.098

First-time offenders and repeat offenders mean percentile scale scores were compared. Results found higher scale scores seven scales. The exceptions were on the Truthfulness Scale, Self-Esteem Scale, and the Stress Coping Abilities Scale.

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

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

Risk Range Analyses

A secondary analysis was conducted using selected risk ranges for each of the behavioral scales. The expected percentage of offenders for the Low Risk is 39%, Moderate Risk is 30%, Problem Risk is 20%, and Severe Problem is 11%. Frequencies and percentages are presented in Table 56.

Table 56. PII Respondent Risk Range Summary (N = 1880, 2016)

Scale*	Low Risk **(39%)**	Moderate Risk **(30%)**	Problem Risk **(20%)**	Severe Problem **(11%)**
Truthfulness	37.2	27.7	24.5	10.5
Alcohol	39.9	32.3	18.5	9.3
Drugs	40.2	30.2	20.4	9.3
Antisocial	40.9	29.5	19.6	10.1
Violence	42.0	27.4	20.1	10.6
Adjustment	39.1	31.9	19.7	9.3
Distress	36.6	30.7	21.8	10.9
Judgement	40.2	31.1	17.9	10.9
Self-Esteem	42.3	30.5	17.7	9.4
Stress Coping Abilities	41.4	30.3	18.8	9.5

As displayed in Table 56, all the obtained percentages of offenders in each risk category were consistent with expected percentages. Consistency is defined by obtained percentages being less than 5% away from the expected percentages, in either direction. This provides evidentiary support for the accuracy of the PII.

36. Reliability and Validity Analyses of the PII

This study summarizes reliability and validity studies, using sample of tests administered by BDS. There were 1,880 participants in this study from the 2019 reporting period.

Participants

Gender: Male (80.2%), Female (19.8%)
Average Age: 36 years; at first conviction: 18
Race/Ethnicity: Caucasian (66.8%), African American (28.0%), Hispanic (2.8%), Asian (<1%), Native American (1.2%), Other (<1%).
Education: 8th grade or less (7.7%); Some high school (39.6%), obtained a GED (10.3%), graduated high school (38.5%); attended trade/technical school (<1%); some college (2.9%); graduated college (<1%).
Arrest history: First-time offenders (3.4%), repeat offenders (96.6); average amount of time incarcerated (5 years), average amount of time left to serve from test date (17 months), reported two or more arrests (96.6%), reported two or more felony conviction (91.1%), reported one or more alcohol-related arrests (35.6%), reported one or more drug-related arrests (83.0%; and reported one or more parole sentences (63.6%).

Reliability

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

Table 57. PII Reliability (N=1,880, 2019)

Scales	Coefficient Alpha
Truthfulness	.86
Alcohol	.90
Drugs	.91
Antisocial	.85
Violence	.89
Adjustment	.86
Distress	.88
Judgement	.87
Self-Esteem	.86
Stress Coping Abilities	.91

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

Validity

In testing, the term *validity* refers to the extent that a test measures what it was designed to measure. A test cannot be accurate without being valid. When individuals known to have more severe problems or symptoms receive higher scale scores than individuals known to have fewer problems or symptoms, the test is said to have evidence of construct validity (DeVon, et al, 2007).

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

Table 58. PII Scale Validity (N=1,880, 2019)

Scales	First-time Mean Scores	Repeat Mean Scores	*t*-value	*p*
Truthfulness	8.63	8.69	-.106	.916
Alcohol	9.54	13.68	-3.22	.002
Drugs	20.35	30.17	-6.04	<.001
Antisocial	34.92	42.82	-4.75	<.001
Violence	22.46	19.74	1.91	.056
Adjustment	20.48	26.51	-5.59	<.001
Distress	19.81	20.48	-.380	.705
Judgement	16.68	22.01	-5.97	<.001
Self-Esteem	-1.39	3.52	-2.75	.008
Stress Coping Abilities	91.92	97.79	-1.13	.262

In these analyses (Table 58), the answer sheet item "Total number of times arrested" was used to define first-time offenders and repeat offenders (2 or more arrests). There were 63 first-time offenders and 1,817 repeat offenders. Because *risk* is often defined in terms of severity of problem behavior, it is expected that repeat offenders would score significantly higher on PII scales than first-time offenders. The *t*-test comparisons of first-time offenders with multiples offenders for each PII scale are presented in Table 56 (N=1,880) on this page. Repeat offenders had two or more arrests as reported on the PII answer sheet.

With the exception of the Truthfulness, Violence, Distress, and Stress Coping Abilities Scales, repeat offenders' mean PII scale scores were significantly higher than the mean scores of first-time offenders. This comparative analysis demonstrates that the PII accurately differentiates between first-time offenders and multiple offenders. These results support the validity of the Prison Inmate Inventory.

SUMMARY

In conclusion, this document is not intended as an exhaustive compilation of PII research. Yet, it does summarize many studies and research that support the reliability, validity and accuracy of the PII. The research contained herein has been presented chronologically -- as it emerged. This research presentation gives the reader an insight into the evolution of the PII as a state-of-the-art prisoner assessment instrument. Over time, the PII has evolved into a state-of-the-art inmate assessment instrument. The PII presents an increasingly accurate picture of prison inmates.

Although PII research and development actually began with the Stress Quotient Scale (later titled the Stress Coping Abilities Scale) in 1980, PII research and development began in 1991. And, the PII came into its own as a state-of-the-art inmate assessment instrument in 1995. The studies presented herein

support the reliability, validity and accuracy of the PII. Early research was exploratory, whereas more recent research demonstrates the PII's reliability, validity and accuracy. The PII provides a sound empirical foundation for responsible decision making.

Empirically based PII scales (or measures) were developed by statistically relating scale item configurations to known prison inmate groups. The PII was then normed against an identified prison population. Thus the PII has been researched, normed and validated on prison inmates. And, when the PII is being introduced to a new prison population, it is recommended that the PII be administered to a representative sample for database and standardization comparison purposes. Then, as warranted scale distributions can be adjusted accordingly for maximum efficiency.

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

The PII is not a personality test, nor is it a clinical diagnostic instrument. The PII is a prison inmate risk and needs assessment instrument. The population studied consists of prison inmates and the criteria is risk and need. Future PII research will continue to explore important parameters for accurate inmate risk and needs assessment.

Areas of future research are many and complex. PII research continues to evaluate age, gender, ethnicity, education and court-history. Consistent with the foregoing, we encourage more research involving PII inmate assessment. Few fields of assessment represent such important opportunities for creative discovery. The PII is committed to such research.