

**ACDI**

**An Inventory of Scientific Findings**

(ACDI, ACDI-Corrections Version and ACDI-Corrections Version II)

Courtesy of Behavior Data Systems, Ltd. and its subsidiaries  
Risk & Needs Assessment, Inc.  
and Professional Online Testing Solutions, Inc.

Copyright © Protected. All Rights Reserved.

## TABLE OF CONTENTS

Preface.....	iii
Introduction.....	1
ACDI Measures (Scales) .....	1
Truthfulness Scale .....	1
Alcohol Scale.....	1
Drugs Scale.....	1
Distress Scale.....	1
Adjustment Scale.....	1
Violence Scale .....	2
Stress Coping Abilities Scale .....	2
ACDI Research.....	2
A Study of ACDI Test-Retest Reliability .....	2
Validation of the Truthfulness Scale .....	3
Validation of the ACDI Truthfulness Scale using Criterion Measures .....	3
Validation of ACDI Scales.....	4
Replication Study of the Validation of ACDI Scales.....	6
Inter-item Reliability of the ACDI .....	7
Replication of ACDI Reliability in a Large Sample of Adjudicated Delinquents.....	8
ACDI Reliability Study in a Samples of Juvenile Offenders .....	8
A Study of ACDI Reliability in a Sample of Students .....	9
A Study of ACDI Reliability in a Sample of Juvenile Offenders .....	10
A Study of the ACDI-Corrections Version II.....	11
ACDI-Corrections Version II Reliability Study on Different Samples of Juveniles.....	12
ACDI-Corrections Version Reliability .....	14
ACDI Reliability in a Sample of Students.....	14
Reliability of the ACDI-Corrections Version II in Two Samples of Juvenile Offenders.....	15
A Study of Sex Differences in the ACDI.....	16
Reliability of the ACDI-Corrections Version II .....	17
Reliability and Scale Risk Range Accuracy of the ACDI-Corrections Version II.....	18
Validity, Reliability and Scale Risk Range Accuracy Study of the ACDI-Corrections Version II..	20
Study of the ACDI in a Large Sample of Juveniles.....	25
Study of the ACDI-Corrections Version II in a Juvenile Probation Sample.....	27
Study of the ACDI-Corrections Version II in a Large Sample of Juvenile Offenders .....	30
Study of the ACDI-Corrections Version II in a Large Sample of Juvenile Offenders.....	34
Study of the ACDI-Corrections Version II in a Juvenile Offender Sample.....	37
Study of the ACDI-Corrections Version II in a Juvenile Offender Sample.....	38
Study of the ACDI-Corrections Version II in a Juvenile Probation Sample.....	40
Study of the ACDI-Corrections Version II in a Sample of Juvenile Offenders .....	42
Study of the ACDI-Corrections Version II in a Sample of Juvenile Offenders.....	44
Study of the ACDI-Corrections Version II in a Sample of Juvenile Offenders .....	47
Study of the ACDI in a Sample of Juveniles .....	48
Study of the ACDI in a Sample of Juveniles .....	50
Study of the ACDI-Corrections Version II in a Juvenile Offender Sample.....	53
Study of the ACDI-Corrections Version II in a Juvenile Offender Sample.....	54
Study of the ACDI-Corrections Version II in a Juvenile Offender Sample.....	56
Study of the ACDI-Corrections Version II in a State Juvenile Sample.....	57
Study of the ACDI-Corrections Version II in a Juvenile Offender Sample.....	59
Study of the ACDI-Corrections Version II in a Juvenile Offender Sample.....	61
Study of the ACDI-Corrections Version II in a Juvenile Offender Sample.....	64

Study of the ACDI-Corrections Version II in a Small Offender Sample.....65  
A Study of ACDI Reliability in a Sample of Juvenile Offenders .....67  
A Study of ACDI Reliability in a Sample of Juvenile Offenders .....69  
Study of the ACDI-Corrections Version II in a Juvenile Offender Sample..... 70  
Summary ..... 73

The ACDI-Corrections Version is designed specifically for juvenile courts, juvenile probation, special caseloads, counseling programs and adolescent community corrections.

ACDI Copyright (c) 1998

## PREFACE

Adolescent Chemical Dependency Inventory (ACDI) research and development began in the 1980's and has continued to the present. The ACDI evolved into the ACDI-Corrections Version and ACDI-Corrections Version II. **For conciseness, the acronym ACDI or ACDI-Corrections Version will be used interchangeably for all ACDI versions.** The copyrighted ACDI database ensures continued research and development. The ACDI is a brief, easily administered and automated (computer scored) test that is designed for troubled youth, adolescent community corrections and juvenile substance (alcohol and other drugs) abuse assessment. It includes true/false and multiple-choice items and can be completed in 30 minutes or less. The ACDI contains five empirically based scales: Truthfulness Alcohol, Drugs, Distress and Adjustment. An additional scale -- **Violence** was added in 1993 and the new instrument is called ACDI-Corrections Version II. In 1998 the **Stress Coping Abilities Scale** was added to the ACDI-Corrections Version II. The ACDI has been researched on adjudicated juvenile delinquents, students, juvenile offenders and others.

The ACDI report explains the client's attained scores and makes specific intervention and treatment recommendations. It also presents Truth-Corrected scores, significant items, concise multiple-choice items and much more. The ACDI-Corrections Version report is designed for juvenile probation use. In addition to treatment recommendations, this report presents specific probation recommendations. It is a risk and needs assessment instrument. The ACDI-Corrections Version has been researched on juvenile offenders and probationers. Later, the Violence Scale and Stress Coping Abilities Scale were added to the **ACDI-Corrections Version** and this version is called the **ACDI-Corrections Version II**. This document summarizes much of the ACDI (and its different versions) research.

The ACDI has demonstrated reliability, validity and accuracy. It correlates impressively with both experienced staff judgment and other recognized tests. ACDI tests can be given directly on the computer screen or in paper-pencil test booklet format. All tests are computer scored on-site. ACDI 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 ACDI 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.

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

## INTRODUCTION

### ACDI-CORRECTIONS VERSION

Increased public awareness of substance (alcohol and other drugs) abuse as a nationwide juvenile health problem has clarified the need for identification, intervention and treatment of these disorders. Troubled youth, their families, juvenile probation departments and juvenile courts are now requiring substantiation and documentation of juvenile corrections or probation staff decision making. Substance (alcohol and other drugs) abuse problems must now be measured with quantitative risk-related recommendations substantiating intervention and treatment.

ACDI-Corrections Version test items were developed from large item pools. Item selection was initially a rational process by three psychologists and five juvenile corrections counselors having clearly understood definitions of each scale. The original pool of potential test items was analyzed and items with the best statistical properties were retained. The ACDI test was then administered to a variety of juvenile groups, e.g., adjudicated delinquent juveniles, students and juvenile offenders. Test items with the best statistical properties have been retained.

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

### ACDI MEASURES (SCALES)

Users of the ACDI and ACDI-Corrections Version should be familiar with each ACDI scale. A description of each ACDI scale follows.

#### ACDI AND ACDI-CORRECTIONS VERSION SCALES

- 1. Truthfulness Scale:** measures the truthfulness of the client while they were completing the ACDI. This scale identifies self-protective, defensive or guarded people who minimize or even fake answers.
- 2. Alcohol Scale:** measures the frequency and magnitude of alcohol-related problems. Alcoholism is a significant problem in our society.
- 3. Drugs Scale:** measures drug (e.g., marijuana, cocaine, crack, heroin, etc.) abuse problems. Increased awareness of illicit (or illegal) substance abuse and its effects on juveniles lives is a growing concern.
- 4. Distress Scale:** measures troubled youth's anxiety and depression. Distress is the most common reason for troubled youth counseling.
- 5. Adjustment Scale:** measures the youth's coping level, adaptation (e.g., home, school, family, peers, etc.) and functioning. How troubled youths adjust to their environment frequently determines if they remain trouble free.
- \*6. Violence Scale:** measures the adolescent's use of physical force to injure, damage, or destroy. It identifies individuals that are dangerous to themselves and others.
- \*7. Stress Coping Abilities Scale:** measures a person's experienced stress level in comparison to that

person's ability to cope with stress.

\*NOTE: the Violence and Stress Coping Abilities Scales are contained in the ACDI-Corrections Version II.

The following studies summarize research conducted on a variety of youths, e.g., adjudicated juvenile delinquents, students, juvenile offenders and community corrections clients.

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

## **ACDI RESEARCH**

Initially, a large item pool was rationally developed for ACDI scale consideration. Consensual agreement among three Ph.D. level psychologists and five juvenile corrections counselors familiar with ACDI 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. Items with the best statistical properties were retained. The ACDI was then objectively standardized and normed on juvenile populations.

### **1. A Study of ACDI Test-Retest Reliability (1984, N = 115)**

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 ACDI accuracy, objectivity, practicality, cost-effectiveness and accessibility.

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

#### Method

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

#### Results

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

### **2. Validation of the Truthfulness Scale (1985, N = 78)**

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

The Truthfulness Scale identifies respondents who are 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 ACIDI 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 ACIDI Truthfulness Scale, was administered to the subjects and the Truthfulness Scale was embedded in the test as one of the five scales. Truthfulness Scale scores were calculated based on 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 reveal that the Truthfulness Scale accurately detects "Fakers" from those students that took the test honestly.

### **3. Validation of the ACIDI Truthfulness Scale using Criterion Measures (1989, N = 33)**

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 (1989), the ACIDI Truthfulness Scale was 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 ACIDI Truthfulness Scale was validated with the MMPI F Scale and L Scale. High scores on the F scale indicate lack of cooperation, desire to fake bad, haphazard approach to testing or failure to understand the items. High L Scale scores indicate attempts to fake good, deceptiveness or a need to appear in a good light. High scores on the ACIDI Truthfulness Scale reflect guardedness, evasiveness, recalcitrance or impaired reading abilities.

Method

Thirty-three (33) adjudicated delinquent adolescents (1989) were administered both the ACDI and the MMPI. Tests were counterbalanced for order effects -- half were given the ACDI first and half the MMPI first. There were 29 males and 4 females and they ranged in age from 15 to 18 years (average age 16.1). All participants had at least a 6<sup>th</sup> grade equivalent reading level.

Results and Discussion

Product-moment correlation coefficients were calculated between ACDI scales and MMPI scales. These results are summarized in Table 1. Correlation results presented in Table 1 show that the ACDI Truthfulness Scale significantly correlated (.01 level of significance) with all represented MMPI scales. In addition, the correlations were in predicted directions.

**Table 1. Product-moment correlations (1989, N = 33)  
between MMPI scales and ACDI Truthfulness Scale**

<u>MMPI SCALES (MEASURES)</u>	<u>ACDI Scale (Measure)</u>	
	<u>Truthfulness</u>	<u>Significance Level</u>
<b>F Scale</b>	0.687	0.01
<b>L (Lie) Scale</b>	0.590	0.01

These findings strongly support the validity of the ACDI Truthfulness Scale. The ACDI Truthfulness Scale was highly correlated with the MMPI criterion scales it was tested against. The large correlation coefficients support the validity of the ACDI Truthfulness Scale. The product-moment correlation coefficients testing the relation between ACDI Truthfulness Scale and MMPI scales were significant at the  $p < .01$  level.

**4. Validation of ACDI Scales (1989, N = 100)**

The ACDI is a juvenile assessment instrument. It is designed for use in schools, counseling programs, juvenile courts, juvenile probation and adolescent community corrections. The ACDI is a specific test designed for a specific population. This study (1989) was conducted to validate ACDI scales.

Selected scales in the Minnesota Multiphasic Personality Inventory (MMPI) were used as criterion measures for the different ACDI scales. The Truthfulness Scale was validated with MMPI L Scale. The Alcohol Scale was validated with the MMPI MacAndrew Scale. The Drugs Scale was validated with the MacAndrew Scale and the Psychopathic Deviate Scale. The Distress Scale was validated with the MMPI Taylor Manifest Anxiety Scale and Depression Scale. The Adjustment Scale was validated with the MMPI Manifest Hostility Scale and Authority Conflict Scale. The MMPI scales were chosen to compare to the ACDI scales because they measure similar attributes.

Method

The subjects used in the study (1989) were 100 juvenile offenders. There were 86 males and 14 females. Their ages ranged between 15 and 18 years with a mean age of 16.2 years of age. All participants had a 6<sup>th</sup> grade or better reading level. The ACDI and MMPI were administered in counterbalanced order.

Results and Discussion

The product-moment correlation results are summarized in Table 2.

**Table 2. ACDI-MMPI Product-moment Correlations (1989, N=100)  
Juvenile Offenders**



<b>MMPI SCALES (MEASURES)</b>	<b><u>ACDI SCALES</u> (MEASURES)</b>	<b>Correlation Coefficient</b>	<b>Significance Level</b>
<b>L (Lie)</b>	<b>Truthfulness</b>	0.57	0.01
<b>MacAndrew</b>	<b>Alcohol</b>	0.61	0.01
<b>MacAndrew</b>	<b>Drugs</b>	0.57	0.01
<b>Psychopathic Deviate</b>	<b>Drugs</b>	0.52	0.01
<b>Taylor Manifest Anxiety Depression</b>	<b>Distress</b>	0.57	0.01
<b>Depression</b>	<b>Distress</b>	0.56	0.01
<b>Manifest Hostility</b>	<b>Adjustment</b>	0.55	0.01
<b>Authority Conflict</b>	<b>Adjustment</b>	0.53	0.01

These findings strongly support the validity of the ACDI scales in this sample of juvenile offenders. All of the ACDI scales were highly correlated with the MMPI criterion scales they were tested against. The high correlation coefficients support the ACDI as a valid instrument for juvenile assessment.

The ACDI demonstrates concurrent validity with the Minnesota Multiphasic Personality Inventory (MMPI). The MMPI is the most widely accepted and respected personality test in the United States. Validity refers to a test measuring what it is purported to measure. The quality of a test is largely determined by its validity. Concurrent (criterion related) validity correlates the independent scales of the test being validated with corresponding measures from an established test. The ACDI - MMPI relationships are impressive and support the validity of the ACDI.

### **5. Inter-item Reliability of the ACDI (1989, N 249)**

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

#### Method

This study (1989) included two separate groups of subjects: 98 private school students, 151 adjudicated delinquents -- totaling 249 subjects. Separate inter-item reliability analyses were conducted to compare results across the two groups.

#### Results and Discussion

The inter-item reliability coefficient alpha and within-test reliability statistics are presented in Table 4. All inter-item reliability coefficient alphas and within-test reliability F-values are significant at  $p < .001$ . These results support the reliability of the ACDI. The ACDI is a highly reliable instrument.

**Table 4. Inter-item reliability, coefficient alpha. (1989, N = 249)**  
**Private School Students and Adjudicated Delinquents**

<b><u>ACDI SCALES</u></b> <b><u>MEASURES</u></b>	<b>Private School Students</b> <b><u>(N = 98)</u></b>	<b>Adjudicated Delinquents</b> <b><u>(N = 151)</u></b>
<b>Truthfulness Scale</b>	0.81	0.83
<b>Alcohol Scale</b>	0.86	0.87
<b>Drugs Scale</b>	0.80	0.85
<b>Distress Scale</b>	0.73	0.89
<b>Adjustment Scale</b>	0.81	0.87

The results demonstrate the impressive reliability of the ACDI. Reliability was demonstrated with two different groups of youths (private school students and adjudicated delinquents) taking the ACDI.

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

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

The inter-item reliability coefficients show very similar results across the two subject samples. The Truthfulness Scale, Alcohol Scale, Drugs Scale and Adjustment Scale are in close agreement. The Distress Scale has a somewhat lower coefficient alpha than the other ACDI scales for the private school students group perhaps because this scale is not as specific as, say alcohol or drug abuse or that interpretation of distress varies in student populations. These results show that the ACDI is a reliable instrument.

## **6. Replication Study of the Validation of ACDI Scales (1990, N = 35)**

Another study was conducted (1990) to replicate a previous validation study of the ACDI scales and to further evaluate the validity of the ACDI in a different juvenile sample. Again, selected scales in the Minnesota Multiphasic Personality Inventory (MMPI) were used as criterion measures for the different ACDI scales. The Truthfulness Scale was validated with MMPI L Scale. The Alcohol Scale was validated with the MMPI MacAndrew Scale. The Drugs Scale was validated with the MacAndrew Scale and the Psychopathic Deviate Scale. The Distress Scale was validated with the MMPI Depression Scale and Psychasthenia Scale. The Adjustment Scale was validated with the MMPI Delinquency Scale and Family Discord Scale.

### Method

The subjects used in this study (1990) were 35 private school students. There were 19 males and 16 females. Their ages ranged between 15 and 18 years of age. The ACDI and MMPI were administered in counterbalanced order.

## Results and Discussion

The product-moment correlation results are summarized in Table 3. Since this study is important in understanding ACIDI validity, each ACIDI scale is briefly summarized below.

**Table 3. ACIDI-MMPI Product-moment Correlations (1990, N=35). Private School Students**

<u>MMPI SCALES</u> <u>(MEASURES)</u>	<u>ACIDI SCALES</u> <u>(MEASURES)</u>	<b>Correlation</b> <b>Coefficient</b>	<b>Significance</b> <b>Level</b>
<b>L (Lie)</b>	<b>Truthfulness</b>	0.41	0.01
<b>MacAndrew</b>	<b>Alcohol</b>	0.51	0.01
<b>MacAndrew</b>	<b>Drugs</b>	0.39	0.01
<b>Psychopathic Deviate</b>	<b>Drugs</b>	0.53	0.01
<b>Depression</b>	<b>Distress</b>	0.40	0.01
<b>Psychasthenia</b>	<b>Distress</b>	0.44	0.01
<b>Delinquency</b>	<b>Adjustment</b>	0.42	0.01
<b>Family Discord</b>	<b>Adjustment</b>	0.39	0.01

These findings are consistent with the results of the previous validation study and strongly support the validity of the ACIDI scales in this sample of private school students. All of the ACIDI scales were highly correlated with the MMPI criterion scales they were tested against. This study supports the ACIDI as a valid instrument for juvenile assessment.

The ACIDI **Truthfulness Scale** correlates significantly and in the predicted direction with the MMPI L Scale. When a person attains a high L Scale score on the MMPI, this invalidates other MMPI scale scores due to untruthfulness. Similarly, a high score on the ACIDI Truthfulness Scale invalidates the other ACIDI scale scores.

The ACIDI **Alcohol Scale** correlates significantly and in predicted direction with the MMPI MacAndrew alcoholism scale. This is consistent with the conceptual description of the alcohol scale.

The ACIDI **Drugs Scale** correlates significantly and in predicted directions with the MacAndrew and the Psychopathic Deviate (PD) MMPI scales. High PD and MacAndrew MMPI scale scores are often found to be associated with substance (alcohol and other drugs) abuse. The ACIDI Drugs Scale is an independent measure (scale) from the ACIDI Alcohol Scale. Without independent measures of alcohol and drugs, many drug (marijuana, cocaine, crack, heroin, etc.) abusers would remain undetected.

The ACIDI **Distress Scale** correlates significantly and in predicted directions with the MMPI Depression (D) and Psychasthenia (PT) scales. Distress incorporates both anxiety and depression. Psychasthenia is a measure of anxiety, self-concern and self-doubt.

The ACIDI **Adjustment Scale** correlates significantly and in predicted directions with the MMPI Manifest Hostility Scale, MMPI Authority Conflict Scale, MMPI Delinquency (DL) Scale and MMPI Family Discord Scale. This is consistent with the conceptual description of the ACIDI Adjustment scale.

Several MMPI scales were selected for representation in these validity studies because an empirical relationship was predicted with the ACIDI scales. All ACIDI scale correlation's were significant and in predicted directions. These empirical findings strongly support the validity of the ACIDI.

## **7. Replication of ACIDI Reliability in a Large Sample of Adjudicated Delinquents (1990, N = 433)**

In a replication of earlier ACIDI research, adjudicated delinquents (1990) were used to evaluate the reliability of the ACIDI scales. This study involved combining adjudicated delinquent ACIDI test data from

three jurisdictions. Because the ACDI is a risk and needs juvenile assessment instrument it is important to study ACDI statistical reliability in different juvenile offender samples.

Method and Results

The ACDI was administered to 433 adjudicated delinquents from three different jurisdictions. All of the participants were between the ages of 15 and 18 years. Juvenile reading levels were not available. There were 273 males and 160 females. The inter-item coefficient alpha statistics are presented in Table 5. These results are in close agreement to reliability results obtained in an earlier study using adjudicated juvenile delinquents. In some cases the coefficient alphas are higher in the present study than in the previous study. The results of the present study support the reliability of the ACDI.

**Table 5. Inter-item reliability, coefficient alpha.  
Adjudicated juvenile delinquents (1990, N = 433).**

<u>ACDI SCALES MEASURES</u>	<u>COEFFICIENT ALPHA</u>	<u>SIGNIFICANCE LEVEL</u>
Truthfulness Scale	0.85	p < 0.001
Alcohol Scale	0.87	p < 0.001
Drugs Scale	0.89	p < 0.001
Distress Scale	0.88	p < 0.001
Adjustment Scale	0.87	p < 0.001

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

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

This study supports the reliability (internal consistency) of the Adolescent Chemical Dependency Inventory. The ACDI scales are highly reliable in the offender population for whom the ACDI is designed.

**8. ACDI Reliability Study in a Samples of Juvenile Offenders (1991, N = 372)**

The present (1991) study was conducted to evaluate the statistical properties of the ACDI in a different juvenile sample. As the ACDI becomes more widely used it will continue to be our policy to continue to investigate statistical (reliability) properties on the various adolescent population databases.

Method

The participants in this study (1991) consisted of 372 juvenile offenders. The demographic composition of the sample was as follows: Gender: 290 males and 82 females. Age: 9 years old (2, 0.7%); 10 years old (2, 0.7%); 11 years old (3, 1.0%); 12 years old (12, 4.1%); 13 years old (16, 5.5%); 14 years old (35, 12.1%); 15 years old (70, 24.1%); 16 years old (64, 22.1%); 17 years old (63, 21.7%); 18 years old (21, 7.2%); and 19 years old (2, 0.7%). Thus, 197 troubled youths or 67.9% were 15, 16 or 17 years old. Ethnicity:

Caucasian (228, 78.6%); Black (44, 15.2%); Hispanic (8, 2.8%); Asian (1, 0.3%); American Indian (8, 2.8%); and Other (1, 0.3%). Education: 6th grade or less (27, 9.3%); 7th grade (32, 11.0%); 8th grade (55, 19.0%); 9th grade (76, 26.2%); 10th grade (43, 14.8%); 11th grade (9, 3.1%); High School Graduate (9, 3.1%); and Partially Completed College (3, 1.0%).

**Results and Discussion**

Reliability coefficient alphas are presented in Table 6. Number of participants = 372.

**Table 6. Reliability coefficient alphas. (1991, N = 372)  
All coefficient alphas are significant at p<.001.**

<b>ACDI-Corrections Version Scales</b>	<b>Juvenile Offenders N = 372</b>	<b>Significance Level p≤</b>
Truthfulness Scale	0.84	0.001
Alcohol Scale	0.85	0.001
Drugs Scale	0.85	0.001
Distress Scale	0.84	0.001
Adjustment Scale	0.84	0.001

The results of this study demonstrate the reliability (internal consistency) of the ACIDI-Corrections Version. Reliability coefficient alphas for all ACIDI scales are very high. These results strongly support the reliability of the ACIDI.

**9. A Study of ACIDI Reliability in a Sample of Students (1992, N = 958)**

This (1992) study was conducted to evaluate the statistical reliability of the ACIDI in an adolescent student sample. As the population of juveniles could conceivably consist of widely varying individuals, it is important to continue to investigate statistical (reliability) properties on the various juvenile population databases.

**Method and Results**

This study (1992) involved 958 students (675 males and 283 females). The demographic composition of the sample was the following. Age: 12 years and younger (1, 0.1%); 13 years of age (49, 5.1%); 14 years of age (116, 12.1%); 15 years of age (167, 17.4%); 16 years of age (252, 26.3%); 17 years of age (248, 25.9%); 18 years of age (75, 7.8%); 19 years of age (29, 3.0%) and 20 years of age or older (14, 1.4%). Thus, 923 or 81.7% of these students were between 14 and 17 years of age. Ethnicity: Caucasian (755, 78.8%); Black (70, 7.3%); Hispanic (79, 8.2%); Asian (3, 0.3%); American Indian (10, 1.0%) and Other (1, 0.1%). Education: 6th grade or less (26, 2.7%); 7th grade (88, 9.2%); 8th grade (148, 15.4%); 9th grade (213, 22.7%); 10th grade (234, 24.4%); 11th grade (167, 17.4%); High School Graduate/G.E.D. (52, 5.4%); and Some College (29, 3.0%).

Coefficient Alpha reliability (internal consistency) coefficients are presented in Table 7.

**Table 7. Reliability coefficient alphas. (1992, N=958)**  
**All reliability coefficients are significant at p<.001.**

<u>ACDI Scales</u>	<u>Coefficient Alpha</u>
Truthfulness Scale	.85
Alcohol Scale	.85
Drugs Scale	.85
Distress Scale	.84
Adjustment Scale	.85

This study supports the reliability of the ACDI. The coefficient alpha is the most widely used statistic of internal consistency or reliability. The ACDI produces similar results upon repetition. The ACDI is a reliable juvenile assessment instrument.

### **10. A Study of ACDI Reliability in a Sample of Juvenile Offenders (1993, N = 1,707)**

The present study (1993) was conducted to investigate reliability of the ACDI using juvenile offender participants. Since the ACDI is a risk and needs assessment instrument designed for troubled youth, it is important to test the reliability of the ACDI on juvenile offenders.

#### Method and Results

There were 1,707 juvenile offender participants included in this study (1993). There were 1,705 males and 2 females. The demographic composition of these participants is the following: Age: Eleven years or younger (6, 0.4%); 12 years of age (23, 1.3%); 13 years of age (140, 8.2%); 14 years of age (270, 15.8%); 15 years of age (457, 26.8%); 16 years of age (582, 34.1%); 17 years of age (168, 9.8%); 18 years of age and older (61, 3.6%). Ethnicity: Caucasian (552, 32.3%); Black (1,127, 66.0%); Hispanic (10, 0.6%); Asian (1, 0.1%); American Indian (1, 0.1%); and missing information (9, 0.5%). Education: 6th grade or less (170, 10.0%); 7th grade (320, 18.7%); 8th grade (579, 33.9%); 9th grade (462, 27.1%); 10th grade (133, 7.8%); 11th grade (15, 0.9%); High School Graduate/G.E.D. (3, 0.2%); Some College (1, 0.1%); and missing information (24, 1.4%).

Reliability coefficient alphas are presented in Table 8. All coefficient alphas were significant at p<.001. These results support the reliability of the ACDI in the assessment of juvenile offender participants.

**Table 8. Reliability coefficient alpha. Juvenile offenders (1993, N = 1,707).**  
**All coefficient alphas are significant at p<.001.**

<u>ACDI Scales</u>	<u>Coefficient Alpha</u>
Truthfulness Scale	.85
Alcohol Scale	.88
Drugs Scale	.89
Distress Scale	.85
Adjustment Scale	.84

These results are in close agreement with reliability coefficient alphas found in previous ACDI studies. These results again demonstrate the internal consistency of the ACDI. The ACDI is a reliable risk and needs assessment instrument juvenile offender assessment.

### **11. A Study of the ACDI-Corrections Version II (1994, N = 921)**

Violence became a major concern in juvenile court and probation department assessment in the 90's. Consequently, a Violence Scale was added to the ACIDI-Corrections Version in 1993. In addition to the five ACIDI-Corrections Version Scales (Truthfulness Scale, Alcohol Scale, Drugs Scale, Distress Scale and the Adjustment Scale) a sixth scale was added -- Violence Scale. The test with six scales is called the **ACIDI-Corrections Version II**.

The ACIDI and ACIDI-Corrections Version continue to be used. However, juvenile courts and probation departments desiring to know how violence prone the juvenile offender is can now use the ACIDI-Corrections Version II. The purpose of the present study (1994) was to test the reliability of the ACIDI-Corrections Version II. The subjects used in this study were juvenile adjudicated defendants.

### Method and Results

There were two groups of juvenile participants included in this study (1994). There were 459 participants in Group 1 and 462 participants in Group 2. Demographic composition of **Group 1** participants is as follows: Age: 12 years old (8, 1.7%); 13 years (19, 4.1%); 14 years (68, 14.8%); 15 years (114, 24.8%); 16 years (137, 29.8%); 17 years (103, 22.4%); 18 years (7, 1.5%) and missing information (3, 0.7%). Ethnicity: Caucasian (227, 49.5%); Black (90, 19.6%); Hispanic (75, 16.3%); Asian (8, 1.7%); American Indian (5, 1.1%); Other (26, 5.7%) and missing information (28, 6.1%). Education: 7th grade or less (19, 4.2%); 8th grade (43, 9.4%); 9th grade (93, 20.3%); 10th grade (122, 26.6%); 11th grade (96, 20.9%); High School Graduate/G.E.D. (12, 2.6%); Some College (2, 0.4%) and missing information (72, 15.7%).

**Group 2** demographic composition is as follows: There were 356 males and 106 females. Age: 12 years old (7, 1.5%); 13 years (26, 5.6%); 14 years (75, 16.2%); 15 years (99, 21.4%); 16 years (144, 31.2%); 17 years (99, 21.0%); 18 years (11, 2.4%); 19 years and older (3, 0.6%) and missing information (1, 0.2%). Race: Caucasian (312, 67.5%); Black (43, 9.3%); Hispanic (58, 12.6%); Asian (3, 0.6%); American Indian (37, 8.0%); Other (7, 1.5%) and missing information (2, 0.4%). Education: 6th grade or less (19, 4.1%); 7th grade (44, 9.5%); 8th grade (91, 19.7%); 9th grade (105, 22.7%); 10th grade (100, 21.6%), 11th grade (65, 14.1%); High School Graduate or G.E.D.(13, 2.8%); Some College (7, 1.5%); missing information (18, 3.9%).

The ACIDI-Corrections Version II was administered to 921 juvenile participants as part of routine evaluation programs. Subjects were administered the ACIDI individually in paper-pencil test format. Reliability coefficient alphas for the two groups (total N = 921) are presented in Table 9.

These results support the reliability of the ACIDI-Corrections Version II. Coefficient alphas for all scales are highly significant. Reliability coefficients for the two samples are in close agreement. These results support the reliability of the ACIDI.

**Table 9. Reliability coefficient alphas for ACDI-Corrections Version II (1994, N = 921).  
All coefficient alphas are significant at p<.001.**

<b>ACDI Scale</b>	<b>Adjudicated Defendants N = 459</b>	<b>Juvenile Probation N = 462</b>
Truthfulness Scale	.86	.88
Alcohol Scale	.92	.91
Drugs Scale	.90	.92
Distress Scale	.88	.90
Adjustment Scale	.86	.87
Violence Scale	.86	.86

**12. ACDI-Corrections Version II Reliability Study on Different Samples of Juveniles (1995, N= 5,872)**

In 1995 several juvenile samples (total N = 5,872) were studied to test the reliability of the ACDI. There were three juvenile samples included in the study. **Group 1** consisted of 1,195 juvenile offenders, 900 males and 295 females. Demographic composition of this group is as follows: Age: 12 years of age and younger (50, 4.1%); 13 years (87, 7.3%); 14 years (192, 16.1%); 15 years (280, 23.4%); 16 years (254, 21.3%); 17 years (266, 22.3%); 18 years (59, 4.9%); 19 and older (7, 0.6%). Ethnicity: Caucasian (882, 73.8%); Black (197, 16.5%); Hispanic (63, 5.3%); Asian (10, 0.8%); American Indian (16, 1.3%); and Other (27, 2.3%). Education: 6th grade or less (63, 5.3%); 7th grade (109, 9.1%); 8th grade (210, 17.6%); 9th grade (300, 25.1%); 10th grade (230, 19.2%); 11th grade (227, 19.0%); High School Graduate/G.E.D. (39, 3.3%); and Some College (17, 1.4%).

Prior history information for Group 1 participants is as follows: Age of first arrest: 10 years (33, 2.7%); 11 years (37, 3.1%); 12 years (89, 7.4%); 13 years (164, 13.7%); 14 years (238, 19.9%); 15 years (235, 19.7%); 16 years (202, 16.9%); 17 years (119, 10.0%); 18 years (20, 1.7%); 19 and older (4, 0.4%); and missing information (54, 4.5%). Number of misdemeanor convictions: None (455, 38.1%); one (461, 38.6%); two (143, 12.0%); three (47, 3.9%); four or more (36, 3.1%); and missing (53, 4.4%).

Felony convictions are summarized as follows: No felonies (939, 78.6%); one felony (156, 13.1%); two felonies (31, 2.6%); three felonies (12, 0.2%); four or more felonies (2, 0.2%). There were 55 (4.6%) answer sheets with missing felony information. Probation: Never been on probation (881, 72.9%); been on probation once (218, 18.2%); two times (83, 6.9%); three times (11, 0.9%); four or more times (2, 0.2%); and missing information (55, 4.6%). Parole: Never been on parole (1,123, 94.0%); been on parole once (15, 1.3%); two or more times on parole (2, 0.1%); and missing information (55, 4.6%). Probation revocation: None (1,092, 91.4%); once (39, 3.2%); twice or more (10, 5.5%); missing information (55, 4.6%). Number of times arrested: None (247, 20.7%); once (470, 39.3%); twice (225, 18.8%); three times (90, 7.5%); four times (56, 4.7%); five times (16, 1.3%); six or more times (38, 3.3%); and missing information (53, 4.4%).

Juvenile confinement: None (1,016, 85.0%); once (87, 7.3%); twice (15, 1.3%); three times (7, 0.6%); four times (6, 0.5%); and five or more times (9, 0.9%). There were 55 cases (4.6%) of missing information. Alcohol arrests: None (953, 79.7%); one (148, 12.4%); two (32, 2.7%) three or more (7, 0.6%); and missing information (55, 4.6%). Drugs arrests: None (1,064, 79.7%); one (65, 5.4%); two (8, 0.7%); three or more (3, 0.3%); and missing (55, 4.6%).

**Group 2** consisted of 3,364 juveniles, 2543 (75.6%) males and 816 (24.3%) females. Demographic



composition is as follows: Age: 12 years or younger (95, 2.8%); 13 years (285, 8.5%); 14 years (525, 15.6%); 15 years (864, 25.7%); 16 years (1,065, 31.7%); 17 years (469, 13.9%); 18 years (47, 1.4%); 19 years (12, 0.4%); and missing (2, 0.1%). Ethnicity: Caucasian (1,962, 58.3%); Black (602, 17.9%); Hispanic (547, 16.3%); Asian (34, 1.0%); Native American (54, 1.6%); Other (74, 2.2%); and missing information (91, 2.7%). Education: 6<sup>th</sup> grade or less (174, 5.2%); 7<sup>th</sup> grade (338, 10.0%); 8<sup>th</sup> grade (678, 20.2%); 9<sup>th</sup> grade (854, 25.4%); 10<sup>th</sup> grade (629, 18.7%); 11<sup>th</sup> grade (372, 11.1%); High School Graduate (56, 1.7%); G.E.D. (244, 7.3%); Some College (18, 0.5%); and missing information (1, 0.1%).

**Group 3** consisted of 1,313 juvenile probation participants. Demographic composition is summarized as follows. Males (1,029; 78.4%); Females (284, 21.6%). Age: 10 years old (3, 0.2%); 11 years (13, 1.0%); 12 years (43, 3.3%); 13 years (86, 6.5%) 14 years (200, 15.2%); 16 years (335, 25.5%); 17 years (274, 20.9%); 18 years (83, 6.3%); and 19 years and over (2, 0.2%). Ethnicity: Caucasian (944, 71.9%); Black (199, 15.2%); Hispanic (92, 7.0%); Asian (16, 1.2%); Native American (26, 2.0%); and Other (36, 2.7%). Education: 6<sup>th</sup> grade or less (78, 5.9%); 7<sup>th</sup> grade (121, 9.2%); 8<sup>th</sup> grade (195, 14.9%); 9<sup>th</sup> grade (316, 24.1%); 10<sup>th</sup> grade (293, 22.3%); partially completed High School (245, 18.7%); High School Graduate/G.E.D. (65, 5.0%).

Prior history information for Group 3 is as follows: Age of first of arrest: 10 years of age (43, 3.3%); 11 years (51, 3.9%); 12 years (98, 7.5%); 13 years (170, 12.9%); 14 years (244, 18.6%); 15 years (272, 20.7%); 16 years (250, 19.0%); 17 years (162, 12.3%); 18 years (17, 1.3%); 19 years and older (6, 0.5%). Misdemeanor convictions: None (573, 43.6%); one (509, 38.8%); two (147, 11.2%); three (55, 4.2%); four or more (27, 2.2%). Number of times on probation: None (918, 69.9%); once (317, 24.1%); twice (57, 4.3%); three or more times (20, 1.6%). Probation revocations: None (1,254, 95.5%); one (47, 3.6%); two (6, 0.5%); three or more (5, 0.4%).

Number of times in juvenile detention: None (956, 72.8%); once (255, 19.4%); twice (52, 4.0%); three times (28, 2.1%); four or more times (21, 1.8%). Number of juvenile hearings: None (206, 15.7%); one (630, 48.0%); two (277, 21.1%); three (92, 7.0%); four (43, 3.3%); five (16, 1.2%); six (15, 1.1%); seven or more (32, 2.6%). Alcohol arrests: None (1,108, 84.4%); one (176, 13.4%); two (19, 1.4%); three (4, 0.3%); four (4, 0.3%); and five or more (1, 0.1%). Drugs arrests: None (1,244, 94.7%); one (61, 4.6%); two or more (1, 0.1%).

Reliability coefficient alphas for all three groups (total N = 5,872) are presented in Table 10.

**Table 10. Reliability coefficient alphas. (1995, N = 5,872)**  
All coefficient alphas are significant at p<.001.

<b>ACDI Scale</b>	<b>Group 1 N = 1,195</b>	<b>Group 2 N = 3,364</b>	<b>Group 3 N = 1,313</b>
Truthfulness Scale	.86	.86	.87
Alcohol Scale	.89	.92	.88
Drugs Scale	.90	.91	.89
Distress Scale	.89	.85	.89
Adjustment Scale	.85	.89	.85
Violence Scale	.85	.86	.85

These results support the reliability (internal consistency) of the ACIDI-Corrections Version II. The ACIDI is an objective and reliable assessment instrument. Reliability coefficient alphas across the three groups of juvenile offender participants are in close agreement. These results suggest that the ACIDI-Corrections Version II is applicable across different national juvenile offender samples. It is important to emphasize

that ACIDI-Corrections Version II reliability statistics are very high in the offender population it is designed to test. The ACIDI-Corrections Version II is a reliable juvenile risk assessment instrument.

### 13. ACIDI-Corrections Version Reliability (1995, N = 2,417)

A study (1995) was conducted to determine the reliability of the ACIDI-Corrections Version in a sample of juvenile offenders. There were 2,417 juvenile offenders included in the study. Demographic composition of participants is as follows. Gender: 2,040 males and 377 females. Education: 6<sup>th</sup> grade or less (129, 5.3%); 7<sup>th</sup> grade (318, 13.2%); 8<sup>th</sup> grade (605, 25.0%); 9<sup>th</sup> grade (596, 24.7%); 10<sup>th</sup> grade (407, 16.8%); 11<sup>th</sup> grade (291, 12.0%); High School Graduate/G.E.D. (48, 2.0%); Some College (13, 0.5%); and missing information (10, 0.4%). Ethnicity: Caucasian (1,427, 59.0%); Black (864, 35.7%); Hispanic (43, 1.8%); Asian (7, 0.3%); Native American (40, 1.7%); Other (26, 1.1%); and missing information (10, 0.4%).

Reliability coefficient alphas are represented in Table 11 and represent 2,417 juvenile offenders.

**Table 11. Reliability coefficient alphas (1995, N = 2,417).**  
All coefficient alphas are significant at p<.001.

<b>ACIDI-Corrections Version Scale</b>	<b>Juvenile Offenders N = 2,417</b>
Truthfulness Scale	.85
Alcohol Scale	.89
Drugs Scale	.91
Adjustment Scale	.85
Distress Scale	.88

These results support the internal consistency (reliability) of the ACIDI-Corrections Version for this sample of juvenile offenders. Reliability coefficients are consistent with those reported in previous studies on other juvenile offender samples. Similar results will be obtained upon replication or retest. Outcomes are objective, verifiable and reproducible. ACIDI-Corrections version test results are reliable.

### 14. ACIDI Reliability in a Sample of Students (1995, N = 710)

A study (1995) was conducted to determine the reliability of the ACIDI in a sample of 710 students. Demographic composition of this sample was the following: Gender: 682 Males and 28 Females. Age: 12 years old (13, 1.8%); 13 years (37, 5.2%); 14 years (127, 17.9%); 15 years (201, 28.3%); 16 years (226, 31.8%); 17 years (99, 13.9%); and 18 years (7, 1.0%). Ethnicity: Caucasian (250, 35.2%); Black (419, 59.0%); Hispanic (31, 4.4%); Asian (1, 0.1%); Other (7, 1.0%); and missing information (2, 0.3%). Education: 6<sup>th</sup> grade or less (49, 6.9%); 7<sup>th</sup> grade (101, 14.2%); 8<sup>th</sup> grade (265, 37.3%); 9<sup>th</sup> grade (189, 26.6%); 10<sup>th</sup> grade (74, 10.4%); 11<sup>th</sup> grade (21, 3.0%); High School Graduate/G.E.D. (7, 1.0%); Some College (2, 0.3%); and missing information (2, 0.3%).

Reliability coefficient alphas are represented in Table 12 and represent 710 student participants.

These results support the reliability of the ACIDI for this sample of student. These results are similar to those reported earlier on other client populations. All coefficient alphas are significant at p<.001. These results support the reliability of the ACIDI.

**Table 12. Reliability coefficient alphas (1995, N = 710).**

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

<b><u>ACDI Scale</u></b>	<b><u>Students N = 710</u></b>
Truthfulness Scale	.85
Alcohol Scale	.86
Drugs Scale	.86
Adjustment Scale	.85
Distress Scale	.87

**15. Reliability of the ACDI-Corrections Version II in Two Samples of Juvenile Offenders (1996, N = 2,124)**

Reliability of the ACDI-Corrections Version II was investigated in the present study (1996) in two samples of juvenile offenders.

**Method and Results**

The subjects in this study consisted of 2,124 juveniles in two samples. **Group 1 consisted of 611 juvenile offenders.** There were 455 males and 156 females. Demographic composition of this sample is as follows: Age: 11 years of age (3, 0.5%); 12 years (14, 2.3%); 13 years (65, 10.6%); 14 years (123, 20.1%); 15 years (177, 29.0%); 16 years (193, 31.6%); 17 years (33, 5.4%); and missing information (3, 0.5%). Ethnicity: Caucasian (465, 76.1%); Black (80, 13.1%); Hispanic (25, 4.1%); Asian (22, 3.6%); Native American (10, 1.6%); Other (2, 0.3%); and missing information (7, 1.1%). Education: 6th grade or less (17, 2.8%); 7th grade (46, 7.5%); 8th grade (139, 22.7%); 9th grade (213, 34.9%); 10th grade (130, 21.3%); 11th grade (38, 6.2%); High School Graduate/G.E.D. (1, 0.2%); Some College (3, 0.5%); and missing information (24, 3.9%).

**Group 2 consisted of 1,513 juvenile offenders.** Demographic composition of this sample is as follows: Gender: 1,101 males (72.8%), and 412 females (27.2%). Age: 12 years or younger (56, 3.7%); 13 years (143, 9.5%); 14 years (229, 15.1%); 15 years (318, 21.0%); 16 years (349, 23.1%); 17 years (328, 21.7%); 18 years (87, 5.8%); 19 years (2, 0.1%); and missing information (1, 0.1%). Ethnicity: Caucasian (1,107, 73.2%); Black (227, 15.0%); Hispanic (120, 7.9%); Asian (6, 0.4%); Native American (21, 1.4%); and Other (32, 2.1%). Education: 6<sup>th</sup> grade or less (84, 5.6%); 7<sup>th</sup> grade (144, 9.5%); 8<sup>th</sup> grade (257, 17.0%); 9<sup>th</sup> grade (358, 23.7%); 10<sup>th</sup> grade (348, 23.0%); 11<sup>th</sup> grade (244, 16.1%); High School Graduate/G.E.D. (65, 4.3%); and Some College (13, 0.9%).

Reliability coefficient alphas are presented in Table 13 for both juvenile offenders samples (Total N = 2,124).

The results of the study support the reliability of the ACDI-Corrections Version II. All coefficient alphas are significant at  $p < .001$ . All scale reliability coefficients maintained high levels. These results show that the ACDI-Corrections Version II is a reliable juvenile offender risk assessment instrument.

**Table 13. Reliability coefficient alphas (1996, N = 2,124).**

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

<b>ACDI-Corrections Version II Scale</b>	<b>Group 1 N = 611</b>	<b>Group 2 N = 1,513</b>
Truthfulness Scale	.86	.86
Alcohol Scale	.87	.88
Drugs Scale	.90	.89
Distress Scale	.89	.88
Adjustment Scale	.86	.85
Violence Scale	.85	.85

#### **16. A Study of Sex Differences in the ACDI (1996, N = 393)**

People often develop firm masculine and feminine identifications that contribute to consistent "sex differences" or gender differences on psychometric tests. The ACDI is a risk assessment instrument that measures risk from a variety of perspectives, notably, risk of alcohol and drug abuse, violence, adjustment and distress or mental health. If sex differences exist in these areas then male and female respondents are likely to score differently on these ACDI scales. The purpose of the present study (1996) was to investigate sex differences in ACDI scales.

##### Method

There were 393 juvenile offenders included in the present study (1996). The ACDI was administered to each participant individually as part of routine evaluation programs. There were 348 males (88.5%) and 45 females (11.5%). Demographic composition of the subjects is as follows: Age: 12 years or younger (8, 2.0%); 13 years (38, 9.7%); 14 years (70, 17.8%); 15 years (111, 28.2%); 16 years (148, 37.7%); and 17 years (18, 4.6%). Ethnicity: Caucasian (277, 70.5%); Black (106, 27.0%); Hispanic (2, 0.5%); and Other (8, 2.0%). Education: 6<sup>th</sup> grade or less (40, 10.2%); 7<sup>th</sup> grade (76, 19.3%); 8<sup>th</sup> grade (108, 27.5%); 9<sup>th</sup> grade (92, 23.4%); 10<sup>th</sup> grade (55, 14.0%); 11<sup>th</sup> grade (10, 2.5%); High School Graduate/G.E.D. (4, 1.0%); and Some College (3, 0.8%).

##### Results and Discussion

Reliability coefficient alpha results are presented in Table 14.

**Table 14. Reliability statistics, coefficient alpha. (1996, N = 393)**

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

<b>ACDI-Corrections Version II Scales</b>	<b>Juvenile Offenders N = 393</b>
Truthfulness Scale	.82
Alcohol Scale	.93
Drugs Scale	.92
Adjustment Scale	.80
Distress Scale	.87
Violence Scale	.80

Coefficient Alpha is considered the most important index of internal consistency or reliability. This study demonstrates the reliability (internal consistency) of the ACDI scales with juvenile offender participants. Reliability refers to consistency of test results regardless of who uses the test. ACDI test results are reliable, objective, verifiable and reproducible. These results support the internal consistency (reliability) of the ACDI.

T-tests were calculated for all ACIDI scales to assess possible sex or gender differences. T-test results are presented in Table 15.

**Table 15. T-test comparisons of sex differences. (1996, N =393)**  
**Juvenile Offenders Sex Differences**

<b>ACDI-Corrections Version II Scale</b>	<b>Juvenile Offenders N = 393</b>
Truthfulness Scale	t=2.4, p<.02
Alcohol Scale	n.s.
Drugs Scale	n.s.
Adjustment Scale	n.s.
Distress Scale	t=3.1, p<.002
Violence Scale	n.s.

Significant sex differences were demonstrated on two of the six scales, i.e., Truthfulness Scale and Distress Scale. The Truthfulness Scale is composed of items to which most people would agree. The present analyses (1996) found that females were more open (candid or honest) in their answers to these test items than males. In other words, males tend to fake good, deny or minimize more than females as represented on the ACIDI Truthfulness Scale.

**Based on this (1996) study, gender specific norms (or separate male and female scoring procedures) have been established in the ACIDI-Corrections Version II software program for males and females on the Truthfulness Scale and Distress Scale.** Significant sex differences were not observed on the other ACIDI scales. This is an example of the value of ongoing ACIDI research. With more accurate and fair measures, assessment personnel can be more confident in their assessment-related decisions.

### **17. Reliability of the ACIDI-Corrections Version II (1997, N = 4,216)**

Reliability of the ACIDI-Corrections Version II was investigated in the present study (1997) in three samples of juvenile offenders. There was a total of 4,216 juveniles included in three samples. **Group 1 consisted of 3,312 juvenile offenders.** There were 2,516 males (76%) and 796 females (24%). Demographic composition of this sample is as follows: Age: 12 years of age or younger (79, 2.4%); 13 years (278, 8.4%); 14 years (520, 15.7%); 15 years (855, 25.8%); 16 years (1,053, 31.8%); 17 years (456, 13.8%); 18 years (47, 1.4%); 19 years or older (12, 0.4%); and missing information (12, 0.4%). Ethnicity: Caucasian (1,917, 57.9%); Black (602, 18.2%); Hispanic (546, 16.5%); Asian (34, 1.0%); Native American (52, 1.6%); Other (74, 2.2%); and missing information (87, 2.6%). Education: 6th grade or less (162, 4.9%); 7th grade (332, 10.0%); 8th grade (671, 20.3%); 9th grade (841, 25.4%); 10th grade (619, 18.7%); 11th grade (368, 11.1%); High School Graduate/G.E.D. (55, 1.7%); Some College (18, 0.5%); and missing information (246, 7.4%).

**Group 2 consisted of 854 juvenile offenders.** Demographic composition of this sample is as follows: Gender: 628 males (73.5%), and 226 females (26.5%). Age: 12 years or younger (27, 3.2%); 13 years (59, 6.9%); 14 years (124, 14.5%); 15 years (183, 21.4%); 16 years (201, 23.5%); 17 years (191, 22.4%); 18 years (65, 7.6%); and 19 years (4, 0.5%). Ethnicity: Caucasian (623, 73.0%); Black (125, 14.6%); Hispanic (70, 8.2%); Asian (9, 1.1%); Native American (12, 1.4%); and Other (15, 1.8%). Education: 6<sup>th</sup> grade or less (32, 3.7%); 7<sup>th</sup> grade (63, 7.4%); 8<sup>th</sup> grade (131, 15.3%); 9<sup>th</sup> grade (214, 25.1%); 10<sup>th</sup> grade (211, 24.7%); 11<sup>th</sup> grade (144, 16.9%); High School Graduate/G.E.D. (49, 5.7%); and Some College (10, 1.2%).

**Group 3 consisted of 50 juvenile offenders.** Demographic composition of this sample is as follows: Gender:

17 males (34%) and 33 females (66%). Age: 12 years or younger (2, 4%); 13 years (10, 20%); 14 years (12, 24%); 15 years (7, 14%); 16 years (10, 20%); 17 years (7, 14%); and 18 years (2, 4%). Ethnicity: Caucasian (39, 78%); Black (1, 2%); Native American (2, 4%); and Other (8, 16%). Education: 6<sup>th</sup> grade or less (2, 4%); 7<sup>th</sup> grade (12, 24%); 8<sup>th</sup> grade (6, 12%); 9<sup>th</sup> grade (11, 22%); 10<sup>th</sup> grade (6, 12%); 11<sup>th</sup> grade (11, 22%); and High School Graduate/G.E.D. (2, 4%).

Reliability coefficient alphas are presented in Table 16 for the three juvenile offender samples (Total N = 4,216).

**Table 16. Reliability coefficient alphas (1997, N = 4,216).**

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

<b>ACDI-Corrections Version II Scale</b>	<b>Group 1 N = 3,312</b>	<b>Group 2 N = 854</b>	<b>Group 3 N = 50</b>
Truthfulness Scale	.84	.86	.89
Alcohol Scale	.92	.86	.84
Drugs Scale	.91	.87	.89
Distress Scale	.89	.88	.91
Adjustment Scale	.85	.84	.85
Violence Scale	.84	.80	.82

The results of the study support the reliability of the ACIDI-Corrections Version II. All coefficient alphas are significant at p<.001. Scale reliability coefficients for all juvenile groups maintained high levels. These results show that the ACIDI-Corrections Version II is a reliable juvenile offender risk assessment instrument.

### **18. Reliability and Scale Risk Range Accuracy of the ACIDI-Corrections Version II (1998, N = 713)**

This study (1998) was conducted to test the reliability and accuracy of the ACIDI-Corrections Version II for the assessment of juvenile offenders. Risk range percentile scores are calculated for each ACIDI scale. These risk range percentile scores are derived from scoring equations based on responses to scale items and Truth-Corrections, 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 ACIDI risk range percentile scores involves comparing the risk range percentile scores obtained from ACIDI test results to the predicted risk range percentages as defined above. The percentages of participants expected to fall into each risk range are the following: Low Risk (**39%**), Medium Risk (**30%**), Problem Risk (**20%**) and Severe Problem or Maximum Risk (**11%**). The actual percentage of individuals 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 subjects in this study (1998) consisted of 713 juvenile offenders.** There were 566 males (79.4%) and 147 females (20.6%). Demographic composition of these participants is as follows: Age: 12 years or younger (33, 4.6%); 13 years (66, 9.3%); 14 years (116, 16.3%); 15 years (150, 21.0%); 16 years (163, 22.9%); 17 years (165, 23.1%); and 18 years (20, 2.8%). Ethnicity: Caucasian (496, 69.6%); Black (143, 20.1%); Hispanic (52, 7.3%); Asian (3, 0.4%); Native American (14, 2.0%); and Other (5, 0.7%). Education: 6<sup>th</sup> grade or less (37, 5.2%); 7<sup>th</sup> grade (75, 10.5%); 8<sup>th</sup> grade (123, 17.3%); 9<sup>th</sup> grade (165, 23.1%); 10<sup>th</sup> grade (181, 25.4%); 11<sup>th</sup> grade (109, 15.3%); High School Graduate/G.E.D. (20, 2.8%); and Some College (3, 0.4%).

Reliability coefficient alphas are presented in Table 17 for 713 juvenile offenders.

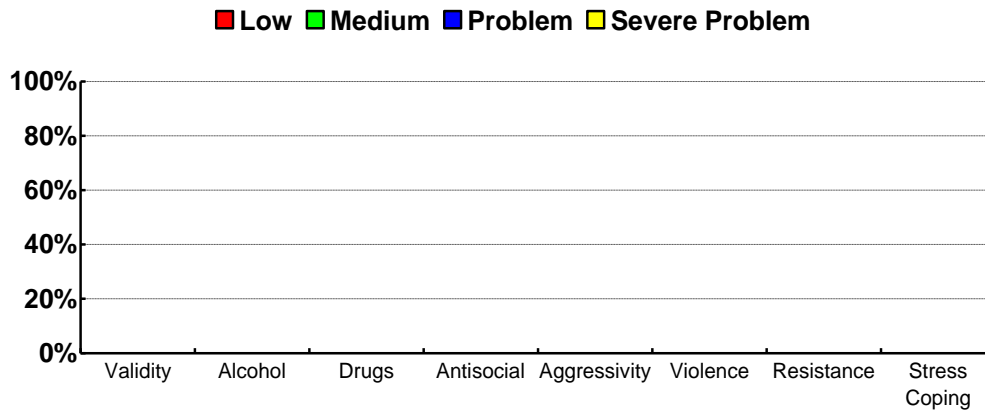
**Table 17. Reliability coefficient alphas (1998, N = 713).**  
**All coefficient alphas are significant at p<.001.**

<u>ACDI-Corrections Version II Scale</u>	<u>Juvenile Offenders N = 713</u>
Truthfulness Scale	.84
Alcohol Scale	.88
Drugs Scale	.89
Adjustment Scale	.82
Distress Scale	.88
Violence Scale	.80

The results of the study support the reliability of the ACIDI-Corrections Version II. All coefficient alphas are significant at p<.001. All scale reliability coefficients maintained high levels. These results show that the ACIDI-Corrections Version II is a reliable risk assessment instrument for juvenile offenders.

The risk range percentile score results for juvenile offenders using the ACIDI-Corrections Version II are presented in Table 18.

**Table 18. Risk Range Percentile Scores, N = 713 juvenile offenders (1998).**



<u>Risk Range</u>	<u>Truthfulness</u>	<u>Alcohol</u>	<u>Drugs</u>	<u>Adjustment</u>	<u>Distress</u>	<u>Violence</u>	<u>Predicted</u>
Low	39.1	38.7	38.8	40.7	38.1	41.0	<b>39%</b>
Medium	32.0	32.4	29.2	30.4	33.1	29.3	<b>30%</b>
Problem	18.5	18.4	19.8	18.1	18.0	18.9	<b>20%</b>
Maximum	10.4	10.5	12.2	10.8	10.8	10.8	<b>11%</b>

These results show that obtained risk range percentile scores closely approximated the predicted risk range percentile scores for each of the six ACIDI scales presented in Table 18 for the juvenile offenders included in the study. **These results indicate that the ACIDI-Corrections Version II is a very accurate juvenile offender risk assessment instrument.**

The results of the comparisons between obtained risk percentages and predicted percentages show that all obtained scale risk range percentile scores were within 3.1 percent of predicted. For the Problem Risk and Maximum Risk categories, all comparisons showed that the obtained percentages were within two percentage points of predicted. **This is very accurate assessment.**

## **19. Validity, Reliability and Scale Risk Range Accuracy Study of the ACDI-Corrections Version II (1998, N = 189)**

In 1998 the ACDI-Corrections Version II was reviewed and even further refined. It was decided that the Stress Coping Abilities Scale would add an important dimension to the test. With inclusion of the Stress Coping Abilities Scale, the other scales were shortened so that the test would still have about the same number of test items, yet with little information lost. However, the test was improved. Double negatives were removed, items were made more readable and the best-of-the-best items were retained in each scale. The ACDI-Corrections Version II can be completed in a timely (on average 30 minutes) manner.

This study (1998) was conducted to test the validity, reliability and accuracy of the improved ACDI-Corrections Version II assessment instrument. Reading levels of the test items were also analyzed to improve readability and comprehension for juveniles. Reliability research on the ACDI-Corrections Version II was used to decide which test items were to be dropped. The items with the best statistical properties were retained. Inter-item reliability coefficients were used in combination with content of test items to aid in development of the new scales. Reliability of the ACDI-Corrections Version II was investigated in the present study.

Two statistical procedures were used in this study to test the validity of the ACDI-Corrections Version II in assessment of juvenile offenders. The first procedure involved t-test comparisons between first offenders and multiple offenders (discriminant validity) and the second procedure involved statistical decision-making (predictive validity). For the t-test comparisons, a first offender was defined as an offender who did not have a prior arrest and a multiple offender was defined as an offender who had one or more prior arrests. Several discriminant validity tests were conducted. Discriminant validity of the Alcohol Scale and Drugs Scale using number of alcohol arrests and drug arrests were not done because there were insufficient number of clients who had arrests. The answer sheet item "total number of times arrested" was used to categorize offenders as either first offenders or multiple offenders for the 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 ACDI-Corrections Version II by using contingency tables defined by scale scores and treatment. Treatment was used with the Alcohol Scale and Drugs Scale.

Risk range percentile scores are calculated for each ACDI-Corrections Version II 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 ACIDI-Corrections Version II risk range percentile scores involves comparing the risk range percentile scores obtained from offender ACIDI-Corrections Version II test results to the predicted risk range percentages as defined above. The percentages of offenders 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 offenders 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 participants in this study (1998) consisted of 189 juvenile offenders.** There were 144 males (76.2%) and 45 females (23.8%). Demographic composition of these participants is as follows: Age: 12 years or younger (40, 22.3%); 13 years (42, 23.5%); 14 years (27, 15.1%); 15 years (37, 20.7%); and 16 years (33, 18.4%). Ethnicity: Caucasian (111, 60.3%); Black (36, 19.6%); Hispanic (26, 14.1%); Asian (7, 3.8%); and Other (4, 2.2%). Education: 6<sup>th</sup> grade or less (9, 4.9%); 7<sup>th</sup> grade (30, 16.4%); 8<sup>th</sup> grade (37, 20.2%); 9<sup>th</sup> grade (43, 23.5%); 10<sup>th</sup> grade (42, 23.0%); 11<sup>th</sup> grade (19, 10.4%); and High School Graduate/G.E.D. (3, 1.6%).

Reliability coefficient alphas are presented in Table 19 for 189 juvenile offenders.

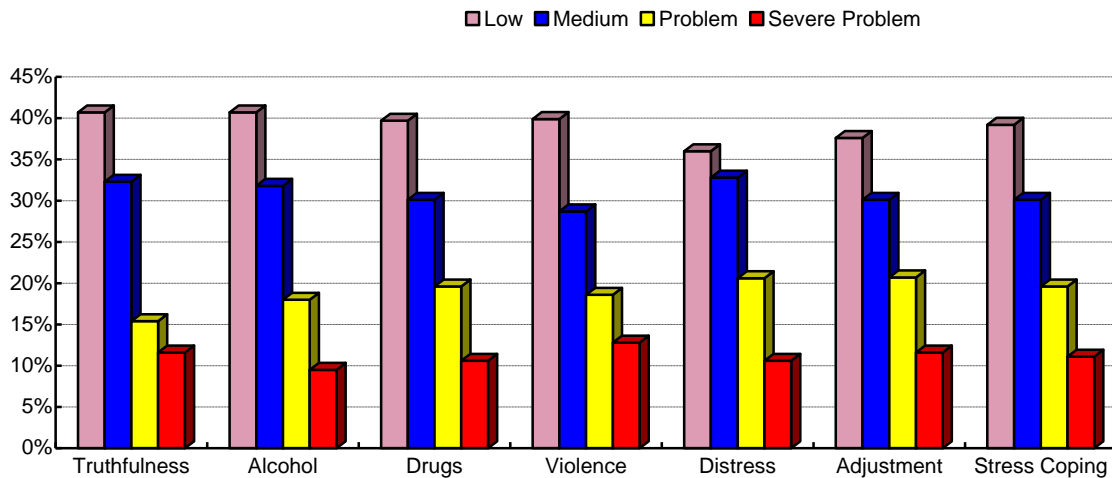
**Table 19. Reliability coefficient alphas (1998, N = 189).**  
All coefficient alphas are significant at p<.001.

<b>ACDI-Corrections Version II Scale</b>	<b>Juvenile Offenders N = 189</b>
Truthfulness Scale	.87
Alcohol Scale	.85
Drugs Scale	.91
Adjustment Scale	.85
Distress Scale	.92
Violence Scale	.87
Stress Coping Abilities Scale	.91

The results of the study support the reliability of the ACIDI-Corrections Version II. All coefficient alphas are significant at p<.001. All scale reliability coefficients including the new Stress Coping Abilities Scale maintained high levels. The coefficient alphas for all of the ACIDI-Corrections Version II scales were maintained or improved from previously reported studies. The results of the revised ACIDI-Corrections Version II show that the test has been improved. These results show that the ACIDI-Corrections Version II is a reliable risk assessment instrument for juvenile offenders.

The analysis of risk assessment is based upon scores attained by the 189 juvenile offender participants in this study who completed the ACIDI-Corrections Version II. The risk range percentile score results for the juvenile offenders using the ACIDI-Corrections Version II are presented in Table 20.

**Table 20. Risk Range Percentile Scores, (1998, N = 189).**



	Truthfulness	Alcohol	Drugs	Violence	Distress	Adjustment	Stress Coping	<b>Predicted</b>
Risk Range	%	%	%	%	%	%	%	%
Low	40.7	40.7	39.7	39.9	36.0	37.6	39.2	<b>39%</b>
Medium	32.3	31.8	30.1	28.7	32.8	30.1	30.1	<b>30%</b>
Problem	15.4	18.0	19.6	18.6	20.6	20.7	19.6	<b>20%</b>
Severe Problem	11.6	9.5	10.6	12.8	10.6	11.6	11.1	<b>11%</b>

The percentages of juveniles falling into each risk range are presented for each of the seven ACIDI-Corrections Version II scales. There are 189 juvenile offenders included. As shown in the figure above, the percentages of clients falling into each risk range approximates very closely the predicted percentages. All of the obtained risk ranges for all risk categories and all scales were within 4.6 percentage points of the predicted percentages. **Of the 28 possibilities (7 scales x 4 risk ranges), there were 15 instances where the obtained risk range deviated from the predicted by less than one percentage point. These results demonstrate the accuracy of the ACIDI-Corrections Version II.**

The t-test comparisons between first offenders and multiple offenders for each scale is presented in the tables below. Multiple offenders were defined as those clients having two or more arrests as reported on the ACIDI-Corrections Version II answer sheet.

**T-test comparisons between first offenders and multiple offenders. (1998, N = 189)**

**Offender status defined by total number of arrests.**

<b>ACDI-CV II Scale</b>	<b>First Offenders Mean (N=83)</b>	<b>Multiple Offenders Mean (N=106)</b>	<b>T-value</b>	<b>Level of significance</b>
Truthfulness Scale	10.24	8.56	t = 2.26	p=.025
Alcohol Scale	1.76	2.96	t = 2.51	p=.013
Drugs Scale	5.07	7.30	t = 1.97	p=.05
Violence Scale	11.50	20.52	t = 7.47	p<.001
Distress Scale	12.30	16.36	t = 2.63	p=.009
Adjustment Scale	12.81	17.02	t = 3.67	p<.001
Stress Coping Abilities	114.57	95.87	t = 3.08	p=.002

These t-test results support the discriminant validity of the ACIDI-Corrections Version II. All t-test comparisons between first offenders and multiple offenders were significant at p<.05. All but the Truthfulness Scale showed that multiple offenders had higher scale scores than first offenders. The Truthfulness Scale

scores suggest that first offenders are more likely to “fake good” or minimize than multiple offenders.

T-test results of the Violence Scale indicated that multiple offenders scored much higher than first offenders. The very large significant difference between first and multiple offenders strongly support the discriminant validity of the Violence Scale.

The test of predictive validity for the Alcohol Scale is presented in the table below. Juveniles 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 juvenile responses to ACIDI-Corrections Version II test items.

**Predictive validity for the Alcohol Scale using scale scores and alcohol treatment. (1998, N = 189)**

Alcohol Scale	Alcohol Treatment		Number in each category
	No treatment	One or more treatments	
Low Risk (zero to 39th percentile)	77 (65%)		77
Problem or Severe Problem Risk (70 to 100th percentile)	42 (35%)	10 (100%)	52
	119	10	N = 129

These results show that for the 10 juveniles who reported having had alcohol treatment, all 10 juveniles, or 100 percent, had Alcohol Scale scores at or above the 70th percentile. Similarly, of the 119 juveniles who did not have alcohol treatment, 77 juveniles or 65 percent had Alcohol Scale scores in the Low Risk or no problem range. This lower percentage is reasonable because juveniles could have a drinking problem without having been in treatment. 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 28 juveniles who reported having had drug treatment 28 or 100 percent had Drugs Scale scores in the 70th percentile or higher (Problem Risk and above). Of the 104 juveniles who did not have treatment 75 (72%) had Drugs Scale scores in the Low Risk (no problem) range. These results show there is a very strong positive correlation between the Drugs Scale and drug treatment.

**Predictive validity for the Drugs Scale using scale scores and drug treatment. (1998, N = 189)**

Drugs Scale	Drug Treatment		Number in each category
	No treatment	One or more treatments	
Low Risk (zero to 39th percentile)	75 (72%)	-	75
Problem or Severe Problem Risk (70 to 100th percentile)	29 (28%)	28 (100%)	57
	104	28	N = 132

Taken together these results strongly support the reliability, validity and accuracy of the ACIDI-Corrections Version II for assessment of juvenile offenders. Reliability coefficient alphas were significant at  $p < .001$  for all ACIDI-Corrections Version II scales. T-test comparisons between first offenders and multiple offenders support discriminant validity of all but the Truthfulness Scale. Discriminant validity was supported on the Alcohol Scale, Drugs Scale, Adjustment Scale, Distress Scale, Violence Scale and Stress Coping Abilities Scale because multiple offenders scored significantly higher on the different scales than first offenders. Predictive validity of the Alcohol Scale and Drugs Scale was shown by the accuracy with which the scales identified problem risk behavior (having had treatment). These results support the reliability, validity and accuracy of the ACIDI-Corrections Version II.

## **20. Study of the ACIDI in a Large Sample of Juveniles (2000, N = 3,180)**

This study (2000) investigated the statistical properties of the ACIDI. There were 3,180 juvenile participants. ACIDI reliability, validity and accuracy were studied. Validity of the ACIDI was studied by comparing youths that admitted to having drinking and drug problems with youths that did not make this admission. The ACIDI does not include court history information as does the ACIDI-Corrections Version II, consequently, comparisons between first and multiple offenders could not be done. The participants were screened using the ACIDI as part of program procedures at agencies from around the US.

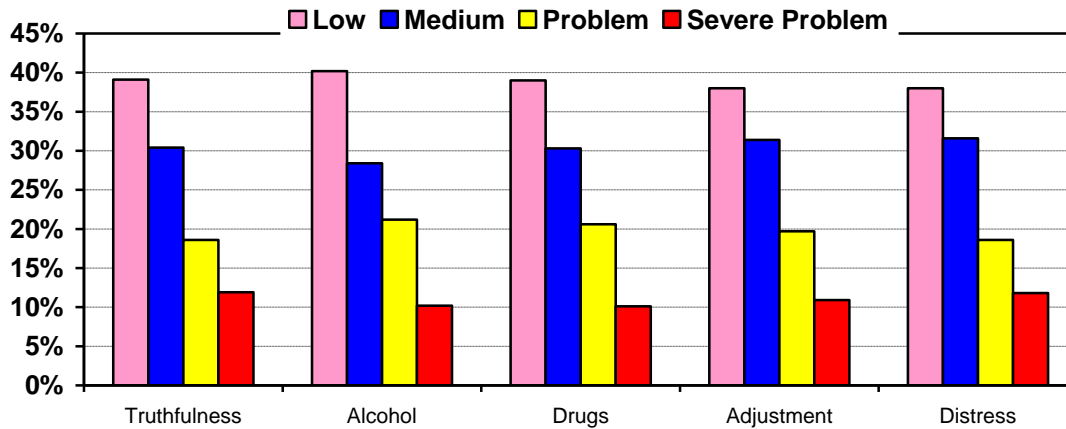
### Method and Results

There were 3,180 juveniles included in this study (2000). There were 2,285 males (71.9%) and 895 females (28.1%). The demographic composition of this sample was as follows. Age: 12 & under (2.7%), 13 years old (6.0%), 14 years old (14.4%), 15 years old (24.2%), 16 years old (27.4%), 17 years old (19.9%), 18 years old (4.2%), 19 & over (1.1%). Race: Caucasian (71.6%), Black (19.8%), Hispanic (4.3%), Asian (0.4%), Native American (2.2%), Other (1.7%). Education: 6<sup>th</sup> grade or less (5.0%), 7<sup>th</sup> grade (11.0%), 8<sup>th</sup> grade (22.9%), 9<sup>th</sup> grade (26.6%), 10<sup>th</sup> grade (20.3%), 11<sup>th</sup> grade (11.7%), high school graduate (1.8%), some college (0.8%).

### Accuracy of the ACIDI

The percentage of juveniles scoring in each of the four risk categories (low, medium, problem and severe problem risk) and the predicted percentage for each of the five ACIDI scales are presented in Table 21. 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.

**Table 21. ACDI Scale Risk Ranges (2000, N=3,180)**



Scale	Low Risk (39%)	Medium Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	39.1 (0.1)	30.4 (0.4)	18.6 (1.4)	11.9 (0.9)
Alcohol	40.2 (1.2)	28.4 (1.6)	21.2 (1.2)	10.2 (0.8)
Drugs	39.0 (0.0)	30.3 (0.3)	20.6 (0.6)	10.1 (0.9)
Adjustment	38.0 (1.0)	31.4 (1.4)	19.7 (0.3)	10.9 (0.1)
Distress	38.0 (1.0)	31.6 (1.6)	18.6 (1.4)	11.8 (0.8)

As shown in the graph and table above, the ACDI scale scores are very accurate. The objectively obtained percentages of juveniles 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 1.6 percentage points of the expected percentages and most (13 of 20 comparisons) were within 1.0 percentage point. Only two obtained percentages were more than 1.4% from the predicted, and these were within 1.6 percent. These results demonstrate that the ACDI scale scores accurately identify juvenile risk.

**Gender Comparisons**

Gender comparisons of ACDI scale scores demonstrate that significant male/females differences exist on all ACDI scales with the exception of the Drugs Scale. Males scored higher on the Truthfulness Scale than females, however, females scored higher than males on the Alcohol, Adjustment and Distress Scales. These results indicate that scoring procedures must take into account male and female differences. The ACDI incorporates separate male and female scoring procedures in all ACDI scales. This procedure contributes to ACDI scale score accuracy and fairness for all juveniles tested with the ACDI regardless of gender. The built-in ACDI database enables these comparisons to be made and demonstrates an advantage of ACDI. Such comparisons can be made on an ongoing basis and adjustments made as scoring differences emerge.

Reliability coefficient alphas are presented in Table 22 for 3,180 juveniles.

**Table 22. Reliability coefficient alphas (2000, N = 3,180).**

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

<u>ACDI Scales</u>	<u>Coefficient Alphas</u>
Truthfulness Scale	.82
Alcohol Scale	.88
Drugs Scale	.85
Adjustment Scale	.82
Distress Scale	.89



As demonstrated above, the Alpha coefficients for all ACIDI scales are above the professionally accepted level of .75 for test reliability. These results show that the ACIDI was very reliable in this juvenile sample.

### Validity

The ACIDI scales measure problem severity. It would be expected that youths who admit to having problems would have higher scale scores than those that do not make this admission.

**Validity** of the ACIDI is demonstrated by the correct identification of problem prone clients. Youths who responded positively to ACIDI test items #80 and #76 defined youths who admitted drinking problems and drug-related problems, respectively. Alcohol and Drugs Scale scores in the Low risk (39<sup>th</sup> percentile and below) range were used to represent the no problem group, whereas scores in the Problem and Severe Problem (70<sup>th</sup> percentile and above) ranges represented the problem group. These analyses compared the no problem group and problem group clients' responses to #80 and #76. It was predicted that problem group clients would respond positively to test items #80 (I have a drinking problem.) and #76 (I have a drug problem.).

The Alcohol Scale scores identified all of the youths that admitted to an alcohol problem. There were 330 youths that admitted having alcohol problems (question #80). **Of these 330 youth, all or 100 percent, had Alcohol Scale scores at or above the 70th percentile.** The Alcohol Scale correctly identified all of the youths categorized as problem drinkers. **These results strongly support the validity of the Alcohol Scale.**

The Drugs Scale is also very accurate in identifying youths that admitted to a drug problem. There were 535 youths that admitted having drug-related problems (question #76). **Of these, 534 clients, or 99.8 percent, had Drugs Scale scores at or above the 70th percentile. These results are similar to those reported above for the Alcohol Scale and represent very accurate assessment.** These results strongly support the validity and accuracy of the Drugs Scale.

The results of this study (2000) which included 3,180 juveniles support the reliability, validity and accuracy of ACIDI. The ACIDI identifies youths with substance (alcohol and other drugs) abuse problems. It also identifies youths that deny or minimize their problems. Troubled youth are identified by their Adjustment Scale scores and emotionally disturbed youth are identified by their Distress Scale scores.

### **21. Study of the ACIDI-Corrections Version II in a Juvenile Probation Sample (2000, N = 1,718)**

This study (2000) included 1,718 juveniles from a Midwest juvenile probation department. Statistical reliability, validity and accuracy of the ACIDI-Corrections Version II (ACIDI-CV II) were studied. This sample of juvenile offenders represents the target population for the ACIDI-CV II. The test was designed to be used in corrections settings and test score recommendations which are presented in the ACIDI-CV II report are tailored to corrections departments.

#### Methods and Results

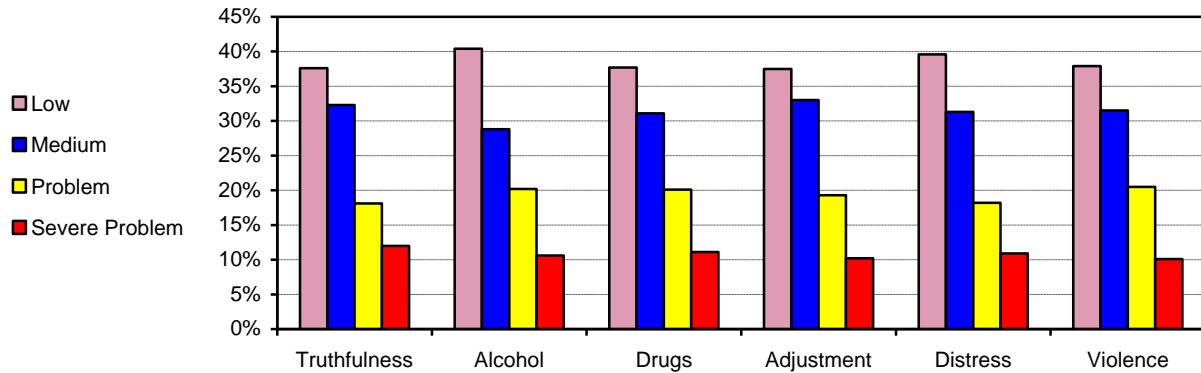
**The participants in this study (2000) consisted of 1,718 juvenile offenders.** There were 1,285 males (74.8%) and 433 females (25.2%). Demographic composition of these participants is as follows: Age: 12 years or younger (57, 3.3%); 13 years (148, 8.6%); 14 years (222, 12.9%); 15 years (318, 18.5%); 16 years (395, 23.0%); 17 years (466, 27.1%); 18 years (101, 5.9%); and 19 years or older (11, 0.6%). Ethnicity: Caucasian (1,359, 79.1%); Black (171, 10.0%); Hispanic (128, 7.5%); Asian (16, 0.9%); Native American (32, 1.9%); and Other (12, 0.7%). Education: 6<sup>th</sup> grade or less (81, 4.7%); 7<sup>th</sup> grade (148, 8.6%); 8<sup>th</sup> grade (277, 16.1%); 9<sup>th</sup> grade (369, 21.5%); 10<sup>th</sup> grade (391, 22.8%); 11<sup>th</sup> grade (311, 18.1%); High School

Graduate/G.E.D. (129, 7.5%); and Some College (12, 0.7%).

Accuracy

ACDI-Corrections Version II accuracy for this juvenile offender sample is presented in the Table 23. The scale risk range percentages shown are based upon attained scale scores (raw point totals for each scale). The percentages of individuals placed in each risk range classification category for each ACIDI-CV II scale demonstrates that these obtained percentages are in close agreement with the predicted percentages shown in parentheses in the table below the graph. The ACIDI-CV II accurately identifies juvenile offender risk. There were 1,718 juveniles included in this analysis.

**Table 23. ACIDI-CV II Client Risk Assessment (2000, N = 1,718)**



Scale	Low Risk (39%)	Medium Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	37.4 (1.6)	32.6 (2.6)	18.0 (2.0)	12.0 (1.0)
Alcohol	39.8 (0.8)	30.4 (0.4)	20.1 (0.1)	9.7 (1.3)
Drugs	40.9 (1.9)	27.4 (2.6)	20.9 (0.9)	10.1 (0.9)
Adjustment	39.9 (0.9)	30.3 (0.3)	19.7 (0.3)	10.1 (0.9)
Distress	40.4 (1.4)	32.0 (2.0)	17.1 (2.9)	10.5 (0.5)
Violence	38.3 (0.7)	32.2 (2.2)	18.5 (1.5)	11.0 (0.0)

The graph and table above demonstrate that the obtained risk range percentages for this 2000 sample (N=1,718) of juvenile offenders are very accurate. The six ACIDI-Corrections Version II scales closely approximate the predicted percentages. All of the obtained risk ranges for all risk categories and all scales were within 2.9 percentage points of the predicted percentages. Of the 24 possible comparisons (6 scales x 4 risk ranges), 13 obtained percentages were within one percentage point of predicted percentages. Only four obtained risk range percentages deviated from the predicted percentages by more than 2 percentage points and these were within 2.9 percent of the predicted. These results demonstrate that the ACIDI-Corrections Version II accurately measures juvenile offender risk.

Reliability

The reliability coefficients of each of the six ACIDI-Corrections Version II scales are presented in Table 24.



**Table 24. Reliability of the ACIDI-CV II. (2000, N = 1,718)**  
All coefficient alphas are significant at p<.001.

<u>ACIDI-CV II SCALES</u>	<u>All Offenders (N=1,718)</u>
Truthfulness Scale	.84
Alcohol Scale	.88
Adjustment Scale	.82
Drugs Scale	.88
Distress Scale	.86
Violence Scale	.81

As shown above, all ACIDI-CV II scales have very high reliability coefficients. All scales have professionally accepted (.75 or higher) reliability. The ACIDI-Corrections Version II is a reliable juvenile offender test.

#### Validity

Comparisons between first time offenders and multiple offenders are expected to show that multiple offenders score higher on ACIDI-CV II scales than first offenders. Because multiple offenders have been arrested more times they are considered to be more at risk than first offenders. In the following **discriminant validity** analyses, comparisons using “Number of times arrested” were made between first offenders (N=1,002) and multiple offenders (N=716). The Alcohol Scale comparison was done using “Number of alcohol arrests” to define first offenders (N=1622). and multiple offenders (N=92). The Drugs Scale comparison was done using “Number of drug arrests” to define first offenders (N=1672) and multiple offenders (N=46). There were 1,718 juvenile offenders included in these analyses.

**Table 25. Comparisons between first offenders (2000, N=1,002) and multiple offenders (2000, N=716).**

<u>ACIDI-CV II Scale</u>	<u>First Offenders Mean Score</u>	<u>Multiple Offenders Mean Score</u>	<u>T-value</u>	<u>Level of significance</u>
Truthfulness Scale	11.11	11.31	t = 0.77	n.s.
Alcohol Scale *	5.24	13.96	t = 7.86	<b>p&lt;.001</b>
Adjustment Scale	11.84	13.15	t = 5.27	<b>p&lt;.001</b>
Drugs Scale *	8.20	18.76	t = 6.97	<b>p&lt;.001</b>
Distress Scale	7.35	6.87	t = 1.68	<b>p=.093</b>
Violence Scale	13.14	21.16	t = 20.68	<b>p&lt;.001</b>

\* Offender status defined by number of alcohol arrests or drug arrests.

These comparisons show that multiple offenders scored significantly higher on the Alcohol, Adjustment, Drugs and Violence Scales than first offenders. Having more arrests is associated with having higher levels of risk and more severe problems. **These t-test results support the discriminant validity of the Alcohol, Adjustment, Drugs and Violence Scales.** The Alcohol, Drugs and Violence Scales show very large differences between first and multiple offenders. Multiple offenders clearly are at higher risk than first offenders.

The Truthfulness Scale shows that first offenders and multiple offenders scored about the same. These results suggest that offender status is not a factor in terms of juvenile honesty while taking the test. First and multiple offenders are equally open and honest. Openness, candidness or truthfulness for troubled youth seems to be in contrast to the guardedness and defensiveness and denial manifest in adult offenders. Results of the Distress Scale comparisons demonstrate that distress did not differ between first and multiple offenders. The level of

distress experienced by first and multiple offenders in this probation setting did not differ. Distress Scale scores were not significantly different.

The **predictive validity** analyses of the Alcohol and Drugs Scales demonstrated that the ACIDI-CV II accurately identifies juvenile offenders with alcohol and drug problems. Having alcohol treatment was used to define an alcohol problem and drug treatment defined a drug problem. Alcohol and drug treatment information was obtained from offenders' answers to ACIDI test items (#12, #42, #38 & #75) concerning alcohol or drug treatment. Offenders who scored in the problem risk ranges (70<sup>th</sup> percentile & above) are compared with offenders who scored in the low risk range (39<sup>th</sup> percentile & below).

Of the 159 juvenile offenders who reported having been in alcohol treatment, 143 offenders or 90 percent had Alcohol Scale scores at or above the 70th percentile. The ACIDI-CV II Alcohol Scale accurately identified juveniles with alcohol problems. 90 percent of the clients who had alcohol treatment scored in the Problem or Severe Problem risk range on the Alcohol Scale. These results validate the ACIDI-CV II Alcohol Scale.

The Drugs Scale accurately identifies juveniles with drug problems. Of the 206 juvenile offenders who reported having been in drug treatment 198 individuals or 96 percent had Drugs Scale scores in the 70th percentile or higher (Problem Risk and above). These results validate the ACIDI-CV II Drugs Scale.

Taken together these results demonstrate that the ACIDI-Corrections Version II is a accurate, reliable and valid juvenile offender assessment test.

## **22. Study of the ACIDI-Corrections Version II in a Large Sample of Juvenile Offenders (2000, N = 8,405)**

This study (2000) continued the ACIDI-Corrections Version II (ACIDI-CV II) database research. A large sample of juvenile offenders was included in this study. Statistical reliability, validity and accuracy of the ACIDI-CV II were studied. This sample of juvenile offenders was compiled from many agencies from around the country.

The scoring procedures for the ACIDI-CV II are re-standardized on an annual basis. This study was used to standardize the ACIDI-CV II scoring procedures. Statewide programs have their own ACIDI-CV II standardized scoring procedures. Those agencies not part of a statewide program utilize the standard version of the ACIDI-CV II, which is presented in the present study. This study presents the statistical results of the standard ACIDI-CV II.

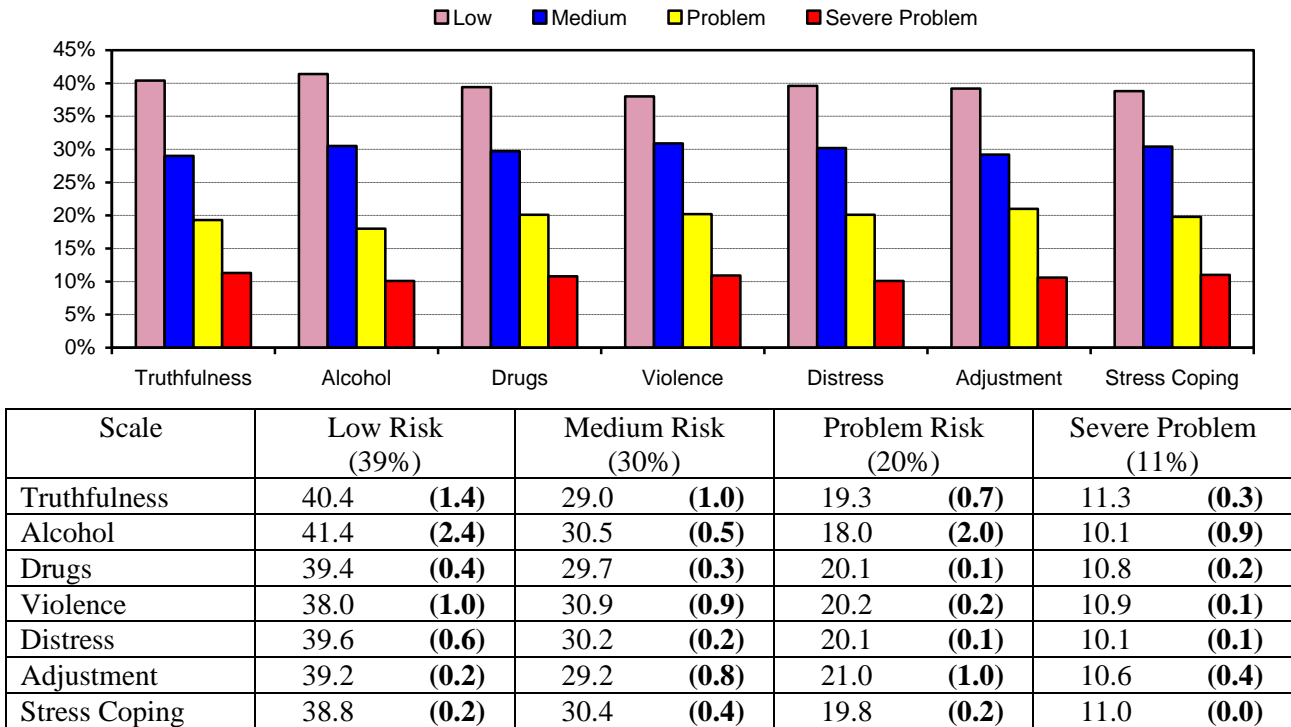
### Methods and Results

**The participants in this study (2000) consisted of 8,405 juvenile offenders.** There were 5,618 males (66.8%) and 2,787 females (33.2%). Demographic composition of these participants is as follows: Age: 12 years or younger (259, 3.1%); 13 years (676, 8.0%); 14 years (1,350, 16.1%); 15 years (2,180, 25.9%); 16 years (2,511, 29.9%); 17 years (1,103, 13.1%); 18 years (159, 1.9%); and 19 years or older (106, 1.3%). There were 61 cases with missing age information. Ethnicity: Caucasian (4,333, 52.5%); Black (3,018, 36.6%); Hispanic (614, 7.3%); Asian (90, 1.1%); Native American (32, 0.4%); and Other (159, 1.9%) There were 159 cases with missing race information. Education: 6<sup>th</sup> grade or less (535, 6.6%); 7<sup>th</sup> grade (930, 11.5%); 8<sup>th</sup> grade (2,181, 26.9%); 9<sup>th</sup> grade (2,214, 27.3%); 10<sup>th</sup> grade (1,374, 16.9%); 11<sup>th</sup> grade (674, 8.3%); High School Graduate/G.E.D. (167, 2.1%); and Some College (39, 0.5%). There were 291 cases with missing education information.

Accuracy

ACDI-CV II scale risk range percentages are presented in Table 26. The percentages of juveniles placed in each risk range classification category for each ACDI-CV II scale demonstrates that these obtained percentages are in close agreement with the predicted percentages shown in parentheses in the table below the graph. The ACDI-CV II accurately identifies juvenile offender risk. There were 8,405 juveniles included in this analysis.

**Table 26. ACDI-CV II Risk Range Accuracy (2000, N = 8,405)**



The graph and table above demonstrate that the obtained risk range percentages for this 2000 sample (N=8,405) of juvenile offenders are very accurate. The seven ACDI-Corrections Version II scales closely approximate the predicted percentages. All of the obtained risk ranges for all risk categories and all scales were within 2.4 percentage points of the predicted percentages. Of the 28 possible comparisons (7 scales x 4 risk ranges), 25 obtained percentages were within one percentage point of predict percentages. Only one obtained risk range percentage deviated from the predicted percentage by more than 2 percentage points and this was 2.4 percent from the predicted. These results demonstrate that the ACDI-Corrections Version II accurately measures juvenile offender risk.

Reliability coefficient alphas are presented in Table 27 for 8,405 juvenile offenders.

**Table 27. Reliability coefficient alphas (2000, N = 8,405).**

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

<b>ACDI-Corrections Version II Scale</b>	<b>Juvenile Offenders N = 8,405</b>
Truthfulness Scale	.87
Alcohol Scale	.91
Drugs Scale	.91
Adjustment Scale	.83
Distress Scale	.91
Violence Scale	.87
Stress Coping Abilities Scale	.91

The results of this study support the reliability of the ACDI-Corrections Version II. All coefficient alphas are significant at p<.001. All scale reliability coefficients maintained high levels. These results show that the ACDI-Corrections Version II is a reliable risk assessment instrument for juvenile offenders.

#### Gender Differences

T-tests were calculated for all ACDI-CV II scales to assess possible sex or gender differences. T-test results are presented in Table 28.

**Table 28. T-test comparisons of sex differences. (2000, N = 8,405)**

#### **Juvenile Offenders Sex Differences**

<b>ACDI-Corrections Version II Scale</b>	<b>Males Mean Score</b>	<b>Females Mean Score</b>	<b>T-value</b>	<b>Level of significance</b>
Truthfulness Scale	9.97	8.33	t = 13.09	<b>p&lt;.001</b>
Alcohol Scale	4.81	3.96	t = 5.01	<b>p&lt;.001</b>
Drugs Scale	10.47	8.03	t = 10.37	<b>p&lt;.001</b>
Violence Scale	17.21	16.38	t = 3.30	<b>p&lt;.001</b>
Distress Scale	18.58	24.02	t = 17.17	<b>p&lt;.001</b>
Adjustment Scale	15.79	18.86	t = 14.84	<b>p&lt;.001</b>
Stress Coping Abilities	94.81	85.76	t = 9.79	<b>p&lt;.001</b>

Significant sex differences were demonstrated on all seven ACDI-CV II scales. The Truthfulness Scale is composed of items to which most people would agree. The present analyses (2000) found that females had lower scores than males. Females were more open (candid or honest) in their answers to these test items than males. In other words, males tend to fake good, deny or minimize more than females as represented on the ACDI-CV II Truthfulness Scale.

These results demonstrate that gender differences exist and that separate male/female scoring procedures are needed to offset these differences. The ACDI-CV II scales have separate male/female scoring procedures. This is another example of the importance of database research and it contributes to accurate assessment.

#### Validity of the ACDI-CV II

ACDI-CV II scale score comparisons between first offenders and multiple offenders determine the extent to which ACDI-CV II scales differentiate between these offenders. It would be expected that multiple offenders (youths who have 2 or more arrests) would score higher than first offenders. The ACDI-CV II answer sheet item "Number of times arrested" was used to define first offenders and multiple offenders (2 or more arrests). There were 3,711 first offenders and 4,694 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 8,090 first offenders and 315 multiple offenders. “Number of drug arrests” was used for the Drugs Scale, which had 7,773 first offenders and 632 multiple offenders. The t-test comparisons between first offenders and multiple offenders for each ACIDI-CV II scale are presented in Table 29 (N=8,405). Multiple offenders had two or more arrests as reported on the ACIDI-CV II answer sheet.

**Table 29. T-test comparisons between first offenders and multiple offenders (2000, N=8,405).**

<b>ACIDI-CV II Scale</b>	<b>First Offenders Mean</b>	<b>Multiple Offenders Mean</b>	<b>T-value</b>	<b>Level of significance</b>
Truthfulness Scale	9.41	9.45	t = 0.34	n.s.
Alcohol Scale*	4.04	17.12	t = 19.73	p<.001
Drugs Scale*	8.58	22.99	t = 32.80	p<.001
Violence Scale	11.78	21.01	t = 43.56	p<.001
Distress Scale	16.47	23.48	t = 24.82	p<.001
Adjustment Scale	14.18	18.89	t = 25.28	p<.001
Stress Coping Abilities	97.21	87.55	t = 10.70	p<.001

\*Note: Offender status defined by alcohol and drug arrests. Also the Stress Coping Abilities Scale scores are reversed in that the higher the score the lower the risk.

All ACIDI-CV II scales demonstrate that multiple offenders score significantly higher than first offenders with the exception of the Truthfulness Scale. The Truthfulness Scale showed that first and multiple offenders did not score significantly differently. The ACIDI-CV II accurately differentiates between first offenders and multiple offenders. These results support the validity of the ACIDI-CV II.

ACIDI-CV II 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 ACIDI-CV II scale scores than first offenders and the results reported in Table 29 support this conclusion. Offenders who have a history of arrests score higher on ACIDI-CV II scales than first time offenders. ACIDI-CV II scale scores identify problem prone offenders.

Predictive validity

In separate analyses the ACIDI-CV II demonstrates it accurately identifies problem-prone drinkers and drug abusers. Youths who had alcohol or drug treatment were accurately identified by their Alcohol Scale and Drugs Scale scores. Having been in alcohol treatment identifies youths as having had an alcohol or drug problem. Similarly, ACIDI-CV II Alcohol and Drugs Scale scores at or above the 70<sup>th</sup> percentile identify youths who have alcohol and drugs problems, whereas, scores at or below the 39<sup>th</sup> percentile indicate youths do not have an alcohol or drug problem. In this analysis it is predicted that youths with an alcohol and/or drug treatment history will score in the problem risk range (70<sup>th</sup> percentile and above) on the Alcohol Scale and/or Drugs Scale. Alcohol treatment information is obtained from client answers to ACIDI-CV II test item #96 regarding alcohol treatment and #85 regarding drug treatment.

**Predictive validity** analyses show that the ACIDI-CV II Alcohol Scale is very accurate in identifying youths who have alcohol problems. There were 7,112 youths who had Alcohol Scale scores in the low risk range (0-39<sup>th</sup> percentile) and problem risk ranges (70-100<sup>th</sup> percentile). There were 519 youths who reported having been in alcohol treatment and these youths are classified as problem drinkers. Of these 519 youths, 501 individuals, or 96.5 percent, had Alcohol Scale scores at or above the 70<sup>th</sup> percentile. The Alcohol Scale correctly identified over 96 percent of the youths categorized as problem drinkers.

The ACIDI-CV II Drugs Scale is also very accurate in identifying youths who have drug problems. There were 5,792 youths scoring in the low risk and problem risk ranges. There were 1,036 youths who reported

having been in drug treatment, of these, 1,004 youths, or 96.9 percent, had Drugs Scale scores at or above the 70<sup>th</sup> percentile. These results validate the ACIDI-CV II Drugs Scale.

#### Conclusion

Taken together these results demonstrate that the ACIDI-CV II is a very accurate, reliable and valid assessment instrument for screening youth offender risk. The ACIDI-CV II identifies youths with substance (alcohol and other drugs) abuse problems, malingerers (Truthfulness Scale), violence (lethality) potential (Violence Scale) and the emotionally disturbed (Distress and Stress Coping Abilities Scales). The ACIDI-CV II provides a wealth of information not found in any other assessment instrument.

### **23. ACIDI-Corrections Version II Study in a Juvenile Sample (2000, N = 1,205)**

This study (2000) included 1,205 juveniles from a Southern state juvenile services department. This research included statistical reliability, validity and accuracy of the ACIDI-Corrections Version II (ACIDI-CV II). This sample of juvenile offenders is similar to previously studied samples of corrections department juveniles. The juveniles in this sample were predominantly Black.

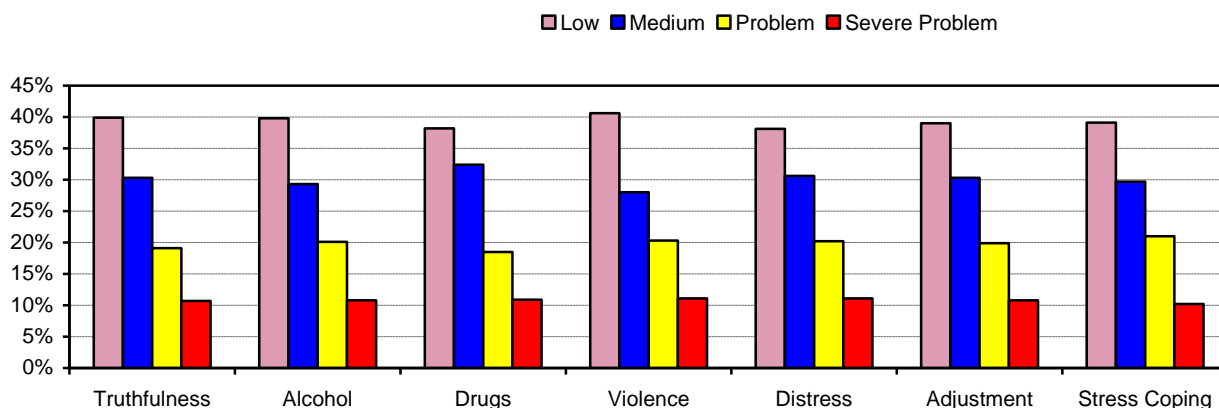
#### Methods and Results

**The participants in this study (2000) consisted of 1,205 juvenile offenders.** There were 859 males (71.3%) and 346 females (28.7%). Demographic composition of these participants is as follows: Age: 12 years or younger (50, 4.1%); 13 years (130, 10.9%); 14 years (235, 19.5%); 15 years (271, 22.5%); 16 years (340, 28.2%); 17 years (167, 13.9%); 18 years (10, 0.8%); and 19 years or older (2, 0.2%). Ethnicity: Caucasian (218, 18.1%); Black (973, 80.7%); Hispanic (3, 0.2%); Asian (7, 0.6%); Native American (2, 0.2%); and Other (2, 0.2%). Education: 6<sup>th</sup> grade or less (178, 14.9%); 7<sup>th</sup> grade (217, 18.1%); 8<sup>th</sup> grade (289, 24.2%); 9<sup>th</sup> grade (226, 18.9%); 10<sup>th</sup> grade (181, 15.1%); 11<sup>th</sup> grade (87, 7.3%); High School Graduate/G.E.D. (18, 1.5%); and Some College (0, 0.0%).

#### Accuracy

ACIDI-Corrections Version II accuracy for this juvenile offender sample is presented in the Table 30. The percentages of individuals placed in each risk range classification category for each ACIDI-CV II scale based upon attained scale scores (raw point totals for each scale) demonstrates that these obtained percentages are in close agreement with the predicted percentages shown in parentheses in the table below the graph. The ACIDI-CV II accurately identifies juvenile offender risk. There were 1,205 juveniles included in this analysis.

**Table 30. ACIDI-CV II Scale Risk Ranges (2000, N = 1,205)**



Scale	Low Risk (39%)	Medium Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	40.8 (1.8)	27.9 (2.1)	20.2 (0.2)	11.1 (0.1)
Alcohol	41.5 (1.5)	29.5 (0.5)	19.7 (0.3)	9.3 (1.7)
Drugs	39.4 (0.4)	29.3 (0.7)	20.5 (0.5)	10.8 (0.2)
Violence	38.1 (0.9)	30.4 (0.4)	20.1 (0.1)	11.4 (0.4)
Distress	39.8 (0.8)	29.0 (1.0)	20.2 (0.2)	11.0 (0.0)
Adjustment	40.9 (1.9)	27.7 (2.3)	19.9 (0.1)	11.5 (0.5)
Stress Coping	39.3 (0.3)	30.2 (0.2)	20.1 (0.1)	10.4 (0.6)

Obtained risk range percentages for all risk categories and all seven scales were within 2.3 percentage points of predicted risk range percentages. Of the 28 possible comparisons (7 scales x 4 risk ranges) between attained and predicted percentages, 22 were within one percentage point from the predicted percentage. Only two obtained risk range percentages were greater than 2% from the predicted percentage, and these were within 2.3 percent. These results demonstrate the accuracy of the ACIDI-Corrections Version II.

#### Reliability

The reliability coefficients of each of the seven ACIDI-Corrections Version II scales are presented in Table 31.

**Table 31. Reliability of the ACIDI-CV II. (2000, N = 1,205)**

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

<u>ACIDI-CV II SCALES</u>	<u>Alpha Coefficients</u>
Truthfulness Scale	.88
Alcohol Scale	.86
Adjustment Scale	.83
Drugs Scale	.90
Distress Scale	.90
Violence Scale	.87
Stress Coping Abilities	.89

All ACIDI-CV II scales have very high reliability coefficients. All scales reliability coefficients are at or near .90. These results support the statistical reliability of the ACIDI-Corrections Version II.

## Validity

Comparisons between first time offenders and multiple offenders are expected to show that multiple offenders score higher on ACDI-CV II scales than first offenders. Because multiple offenders have been arrested more times they are considered to be more at risk than first offenders. In the following **discriminant validity** analyses, comparisons using “Number of times arrested” were made between first offenders (N=503) and multiple offenders (N=702). There were 1,205 juvenile offenders included in these analyses.

**Table 32. Comparisons between first offenders (2000, N=503) and multiple offenders (2000, N=702).**

<u>ACDI-CV II Scale</u>	<u>First Offenders Mean Score</u>	<u>Multiple Offenders Mean Score</u>	<u>T-value</u>	<u>Level of significance</u>
Truthfulness Scale	9.60	9.37	t = 0.62	n.s.
Alcohol Scale	1.54	2.56	t = 3.92	<b>p&lt;.001</b>
Adjustment Scale	13.18	16.10	t = 6.45	<b>p&lt;.001</b>
Drugs Scale	3.74	6.89	t = 7.06	<b>p&lt;.001</b>
Distress Scale	15.04	18.31	t = 4.98	<b>p&lt;.001</b>
Violence Scale	13.24	20.18	t = 13.31	<b>p&lt;.001</b>
Stress Quotient Scale	101.98	91.22	t = 4.39	<b>p&lt;.001</b>

Note: Stress Quotient Scale scores are reverse in that higher scores mean better stress coping abilities.

These comparisons show that multiple offenders scored significantly higher on the Alcohol, Adjustment, Drugs and Violence Scales than first offenders. Having more arrests is associated with having higher levels of risk and more severe problems. **These t-test results support the discriminate validity of the Alcohol, Adjustment, Drugs and Violence Scales.** The Alcohol, Drugs and Violence Scales show very large differences between first and multiple offenders.

The Truthfulness Scale shows that first offenders and multiple offenders scored about the same. These results suggest that offender status is not a factor in terms of juvenile honesty while taking the test. First and multiple offenders are equally open and honest. Openness, candidness or truthfulness for troubled youth seems to be in contrast to the guardedness and defensiveness and denial manifest in adult offenders. Results of the Distress Scale comparisons demonstrate that distress did not differ between first and multiple offenders. The level of distress experienced by first and multiple offenders in this probation setting did not differ. Distress Scale scores were not significantly different.

The **predictive validity** analyses of the Alcohol and Drugs Scales demonstrated that the ACDI-CV II accurately identifies juvenile offenders with alcohol and drug problems. Having alcohol treatment was used to define an alcohol problem and drug treatment defined a drug problem. Alcohol and drug treatment information was obtained from offenders’ answers to ACDI test items (#12, #42, #38 & #75) concerning alcohol or drug treatment. Offenders who scored in the problem risk ranges (70<sup>th</sup> percentile & above) are compared with offenders who scored in the low risk range (39<sup>th</sup> percentile & below).

Of the 26 juvenile offenders who reported having been in alcohol treatment, all 26 offenders or 100 percent had Alcohol Scale scores at or above the 70th percentile. The ACDI-CV II Alcohol Scale accurately identified juveniles with alcohol problems. 100 percent of the clients who had alcohol treatment scored in the Problem or Severe Problem risk range on the Alcohol Scale. These results validate the ACDI-CV II Alcohol Scale.



The Drug Scale accurately identifies juveniles with drug problems. Of the 114 juvenile offenders who reported having been in drug treatment all 114 individuals or 100 percent had Drugs Scale scores in the 70th percentile or higher (Problem Risk and above). These results validate the ACDI-CV II Drugs Scale.

These results demonstrate that the ACDI-Corrections Version II is a accurate, reliable and valid juvenile offender assessment test.

**24. Study of ACDI-Corrections Version II Accuracy and Reliability in a Juvenile Sample (2004, N = 329)**

A study (2004) was conducted to investigate the statistical properties of the ACDI- Corrections Version II. There were 329 juvenile participants. ACDI-Corrections Version II reliability and accuracy were studied.

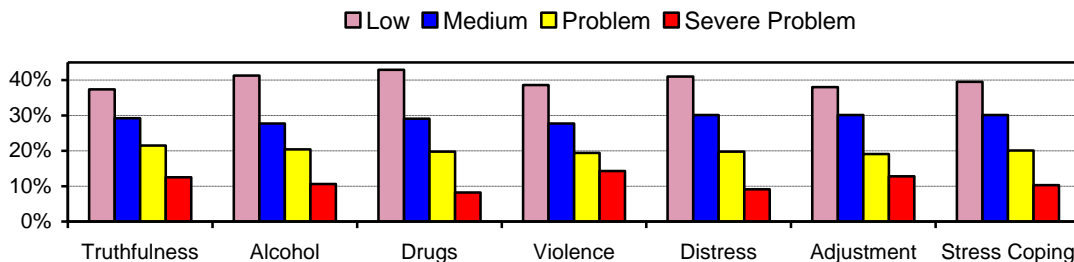
**Method and Results**

There were 329 juveniles included in this study (2004). There were 242 males (73.8%) and 86 females (26.2%). The demographic composition of this sample was as follows. Age: 12 & under (8.2%), 13 years old (11.6%), 14 years old (17.4%), 15 years old (25.0%), 16 years old (25.6%), 17 years old (9.8%), 18 & over (2.4%). Race: Caucasian (11.9%), Black (87.8%), Hispanic (0.3%). Education: 6<sup>th</sup> grade or less (30.9%), 7<sup>th</sup> grade (21.7%), 8<sup>th</sup> grade (18.3%), 9<sup>th</sup> grade (16.2%), 10<sup>th</sup> grade (8.3%), 11<sup>th</sup> grade (3.1%), high school graduate (1.5%).

**Accuracy of the ACDI-Corrections Version II**

The percentage of juveniles scoring in each of the four risk categories (low, medium, problem and severe problem risk) and the predicted percentage for each of the seven ACDI-Corrections Version II scales are presented in Table 33. 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.

**Table 33. ACDI-Corrections Version II Scale Risk Ranges (2004, N=329)**



Scale	Low Risk (39%)	Medium Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	37.4 (1.6)	29.2 (0.8)	20.9 (0.9)	12.5 (1.5)
Alcohol	41.3 (2.3)	27.7 (2.3)	20.4 (0.4)	10.6 (0.4)
Drugs	42.9 (3.9)	29.1 (0.9)	19.8 (0.2)	8.2 (2.8)
Violence	38.6 (0.4)	29.8 (0.2)	18.8 (1.2)	12.8 (1.8)
Distress	41.0 (2.0)	30.1 (0.1)	19.8 (0.2)	9.1 (1.9)
Adjustment	38.0 (1.0)	30.1 (0.1)	19.1 (0.9)	12.8 (1.8)
Stress Coping	39.5 (0.5)	30.1 (0.1)	20.1 (0.1)	10.3 (0.7)

As shown above, the percentages of juveniles falling into each of the four risk ranges for all ACDI-

Corrections Version II scales were within 3.9 percent points of predicted percentages. The ACIDI-Corrections Version II accurately measures juvenile offender risk. The very small differences between obtained risk range percentages and predicted percentages show just how accurate the ACIDI-Corrections Version II is. Juveniles' scores can be considered about 96% accurate. This is a very accurate assessment.

Reliability coefficient alphas are presented in Table 34.

**Table 34. Reliability coefficient alphas (2004, N = 329).**  
**All coefficient alphas are significant at p<.001.**  
**ACDI-Corrections Version II**                      **Coefficient Alphas**

<b><u>Scales</u></b>	
Truthfulness Scale	.89
Alcohol Scale	.92
Drugs Scale	.91
Violence Scale	.88
Distress Scale	.93
Adjustment Scale	.87
Stress Coping Abilities Scale	.90

As demonstrated above, the alpha coefficients for all ACIDI-Corrections Version II scales are above the professionally accepted level of .80 for test reliability. These results show that the ACIDI-Corrections Version II was very reliable in this juvenile sample.

The results of this study demonstrate that the ACIDI-Corrections Version II is an accurate and reliable juvenile offender assessment.

**25. Study of ACIDI Corrections Version II (ACDI-CV II) Accuracy, Reliability and Validity in a Juvenile Sample (2005, n = 940)**

This study (2005) included 940 juvenile offenders from a Southern state juvenile services department. This research included statistical accuracy, reliability and validity of the ACIDI-Corrections Version II (ACDI-CV II). The juveniles tested were largely male, African American, and between the ages of 13 and 16 years old.

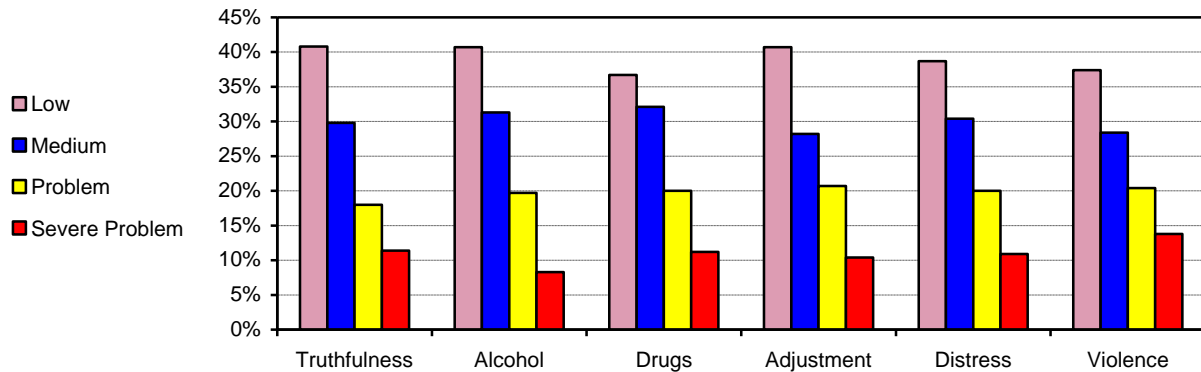
**Methods and Results**

**The participants in this study (2005) consisted of 940 juvenile offenders.** There were 747 males (79.5%) and 193 females (20.5%). Demographic composition of these participants is as follows: Age: 12 years or younger (80, 8.5%); 13 years (135, 14.4%); 14 years (185, 19.7%); 15 years (213, 22.7%); 16 years (243, 25.9%); 17 years (78, 8.3%); and 18 years or older (6, 0.6%). Ethnicity: Caucasian (117, 12.4%); Black (816, 86.8%); Hispanic (4, 0.4%); and Other (2, 0.2%). Education: 6<sup>th</sup> grade or less (171, 18.2%); 7<sup>th</sup> grade (115, 12.2%); 8<sup>th</sup> grade (123, 13.1%); 9<sup>th</sup> grade (96, 10.2%); 10<sup>th</sup> grade (60, 6.4%); 11<sup>th</sup> grade (25, 2.7%); and High School Graduate/G.E.D. (1, 0.1%).

**Accuracy**

ACDI-Corrections Version II accuracy for this juvenile offender sample is presented in the Table 35. The scale risk range percentages shown are based upon attained scale scores (raw point totals for each scale). The percentages of individuals placed in each risk range classification category for each ACIDI-Corrections Version II scale demonstrates that these obtained percentages are in close agreement with the predicted percentages shown in parentheses at the top of each scale range. The ACIDI-Corrections Version II accurately identifies juvenile offender risk. There were 940 juveniles included in this analysis.

**Table 35. ACIDI-CV II Client Risk Assessment (2005, N = 940)**



Scale	Low Risk (39%)	Medium Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	40.8 (1.8)	29.8 (0.2)	18.0 (2.0)	11.4 (0.4)
Alcohol	40.7 (1.7)	31.3 (1.3)	19.7 (0.3)	8.3 (2.7)
Drugs	36.7 (2.3)	32.1 (2.1)	20.0 (0.0)	11.2 (0.2)
Adjustment	40.7 (1.7)	28.2 (1.8)	20.7 (0.7)	10.4 (0.6)
Distress	38.7 (0.3)	30.4 (0.4)	20.0 (0.0)	10.9 (0.1)
Violence	37.4 (1.6)	28.4 (1.6)	20.4 (0.4)	13.8 (2.8)

This graph and table demonstrate that obtained scores and percentages for this sample (N=940) of juvenile offenders are very accurate. The six ACIDI-Corrections Version II scales closely approximate predicted percentages. All obtained risk ranges for all risk categories and all scales were within 2.8 percentage points of predicted percentages. Of the 24 possible comparisons (6 scales x 4 risk ranges), 12 obtained percentages were within one percentage point of predicted percentages. Only 4 obtained risk range percentages deviated from the predicted percentages by more than 2 percentage points and these were within 2.8 percent of the predicted. These results demonstrate that the ACIDI-Corrections Version II accurately measures juvenile offender risk.

Reliability coefficient alphas are presented in Table 36 for 940 juvenile offenders.

**Table 36. Reliability coefficient alphas (2005, N = 940).**  
**ACIDI-Corrections Version II**                      **Juvenile Offenders**  
**Scale**    **N = 940**

Truthfulness Scale	.88
Alcohol Scale	.90
Drugs Scale	.91
Adjustment Scale	.85
Distress Scale	.92
Violence Scale	.88
Stress Coping Abilities Scale	.88

Note: All coefficient alphas are significant at  $p < .001$ .

The results of this study support the reliability of the ACDI-Corrections Version II. All coefficient alphas are significant at  $p < .001$ . The professionally accepted standard for reliability is .75 and, as seen above, all ACDI-Corrections Version II scales have alpha coefficients at or above .85. These results show that the ACDI-Corrections Version II is a highly reliable juvenile offender test.

#### Validity

ACDI-Corrections Version II scales (Alcohol, Drugs, Adjustment, Distress, and Violence) validity was demonstrated between “first offenders” and “multiple offenders”. Predictive Validity was demonstrated by the Alcohol Scale and Drug Scale ability to identify problem (had prior treatment) and non-problem (no previous treatment) offenders.

The results of this study support the reliability, validity and accuracy of the ACDI-Corrections Version II.

### **26. Study of ACDI Corrections Version II (ACDI-CV II) Accuracy, Reliability and Validity in a 1<sup>st</sup> Quarter Juvenile Sample (2006, n = 253)**

This study (2006) included 253 juvenile offenders from a Southern state juvenile services department during the 1<sup>st</sup> quarter of 2006. This research included statistical accuracy, reliability and validity of the ACDI-Corrections Version II (ACDI-CV II). There were 204 males (80.6%) and 49 females (19.4%). This juvenile offender population is broadly described as Black (82.8%), 13 through 16 years of age (82.2%), and 6<sup>th</sup> Grade or under through the 9<sup>th</sup> Grade education level (80.4% of those who answered the question).

#### Methods and Results

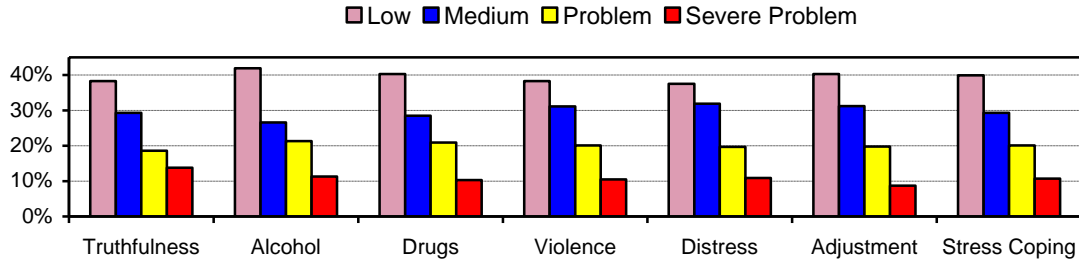
**The participants in this study (2006) consisted of 253 juvenile offenders.** There were 204 males (80.6%) and 49 females (19.4%). Demographic composition of these participants is as follows:

**Age:** 12 years or younger (20, 7.9%); 13 years (37, 14.6%); 14 years (43, 17.0%); 15 years (69, 27.3%); 16 years (59, 23.3%); and 17 years (24, 9.5%). There was one adult (18 years or older) included in the data or analysis. **Ethnicity:** Caucasian (38, 15.0%); Black (212, 83.8%); Hispanic (2, 0.8%); Other (1, 0.4%). **Education:** 6<sup>th</sup> grade or less (45, 31.5%); 7<sup>th</sup> grade (27, 18.9%); 8<sup>th</sup> grade (26, 18.2%); 9<sup>th</sup> grade (17, 11.9%); 10<sup>th</sup> grade (02, 14.0%); 11<sup>th</sup> grade (7, 4.9%); and High School Graduate/G.E.D. (1, 0.7%).

#### Accuracy

ACDI-Corrections Version II accuracy for this juvenile offender sample is presented in the Table 40. The scale risk range percentages shown are based upon attained scale scores (raw point totals for each scale). The percentages of individuals placed in each risk range classification category for each ACDI-Corrections Version II scale demonstrates that these obtained percentages are in close agreement with the predicted percentages shown in parentheses at the top of each scale range. The ACDI-Corrections Version II accurately identifies juvenile offender risk. There were 125 juveniles included in this analysis.

**Table 37. ACDI-Corrections Version II Client Risk Assessment (2006, N = 253)**



Scale	Low Risk (39%)	Medium Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	38.3 (0.7)	29.3 (0.7)	18.6 (1.4)	13.8 (2.8)
Alcohol	41.9 (2.9)	26.6 (3.5)	21.3 (1.3)	11.3 (0.3)
Drugs	40.3 (1.3)	28.5 (1.5)	20.9 (0.9)	10.3 (0.7)
Violence	38.3 (0.7)	31.1 (1.1)	20.1 (0.1)	10.5 (0.5)
Distress	37.5 (1.5)	31.9 (1.9)	19.7 (0.3)	10.9 (0.1)
Adjustment	40.3 (1.3)	31.2 (1.2)	19.8 (0.2)	8.7 (2.3)
Stress Coping	39.9 (0.9)	29.3 (0.7)	20.1 (0.1)	10.7 (0.3)

As shown in Table 37, all but four (4) of the twenty-eight obtained comparison percentages for the four risk ranges and seven scales were **within 2.0 percentage points of predicted percentages**. The Low Risk Alcohol Scale percentage was 2.9 percentage points above our predicted 39 percent. The Medium Risk Alcohol Scale Scores was 3.5 percentage points below the predicted 30 percent, and the Low Risk Truthfulness Scale percentage was 2.8 percentage points above the predicted 11 percent. **Juveniles' scores can be considered 98% accurate. This is very accurate assessment.**

#### Reliability

Reliability is synonymous with reproducibility. A test that is reliable will result in similar scores for a respondent time and time again. The most common reliability statistic is coefficient alpha. Coefficient alpha varies from 0 for no reliability to 1 for perfect reliability. ACDI-Corrections Version II scales' reliability is presented in Table 38 below.

**Table 38. Reliability coefficient alphas for the ACDI-Corrections Version II**  
**All alphas are significant at  $p < .001$ . (N=253)**

<u>Scale</u>	<u>Alpha</u>
Truthfulness Scale	<b>.89</b>
Alcohol Scale	<b>.89</b>
Drugs Scale	<b>.87</b>
Violence Scale	<b>.88</b>
Distress Scale	<b>.90</b>
Adjustment Scale	<b>.81</b>
Stress Coping Abilities Scale	<b>.89</b>

All ACDI-Corrections Version II scales have very high reliability coefficients and all scales are

statistically reliable. The professionally accepted reliability standard is .75 and higher. Perfect reliability would have a coefficient alpha of 1.0. In the above table ACDI-Corrections Version II scales reliability coefficients varied between .81 and .90. This demonstrates **that the ACDI-Corrections Version II is a very reliable test.**

#### Validity

This report examined ACDI-Corrections Version II predictive validity. This involved identifying juvenile offenders who admitted they had problems. For example, offenders that had treatment for alcohol or drugs, those that stated they were violent, and those that said they were distressed or admitted they were uncooperative. A correct identification meant these problem juveniles scored in the corresponding scales problems risk range (70<sup>th</sup> percentile and above).

ACDI-Corrections Version II validity results demonstrate that the Alcohol Scale accurately identified **100 percent** of the juvenile offenders who had been treated for drinking problems. In other words, all of the juveniles who had undergone alcohol treatment scored in the problem range on the Alcohol Scale. Similarly, the Drugs Scale identified **100 percent** of juveniles who had been treated for drug problems.

The Violence Scale accurately identified **100 percent** of offenders who admitted being violent. The Distress Scale correctly identified **96.0 percent** of youths who felt they were distressed, discouraged and alone. The Adjustment Scale identified **90.6 percent** of the juveniles who admitted being uncooperative. **These results demonstrate that the ACDI-Corrections Version II is a valid juvenile offender assessment instrument.**

The results of this study support the reliability, validity and accuracy of the ACDI-Corrections Version II.

#### **27. Study of ACDI Corrections Version II (ACDI-CV II) Accuracy, Reliability and Validity in a 2<sup>nd</sup> Quarter Juvenile Sample (2006, N = 125)**

This study (2006) included 125 juvenile offenders from a Southern state juvenile services department during the 2<sup>nd</sup> quarter of 2006. This research included statistical accuracy, reliability and validity of the ACDI-Corrections Version II (ACDI-CV II). There were 110 males (88.0%) and 15 females (12.0%). This juvenile offender population is broadly described as Black (84.8%), 14 through 16 years of age (85.2%), and having attained less than a 9th Grade education level (77.6% of those who answered the question).

#### Methods and Results

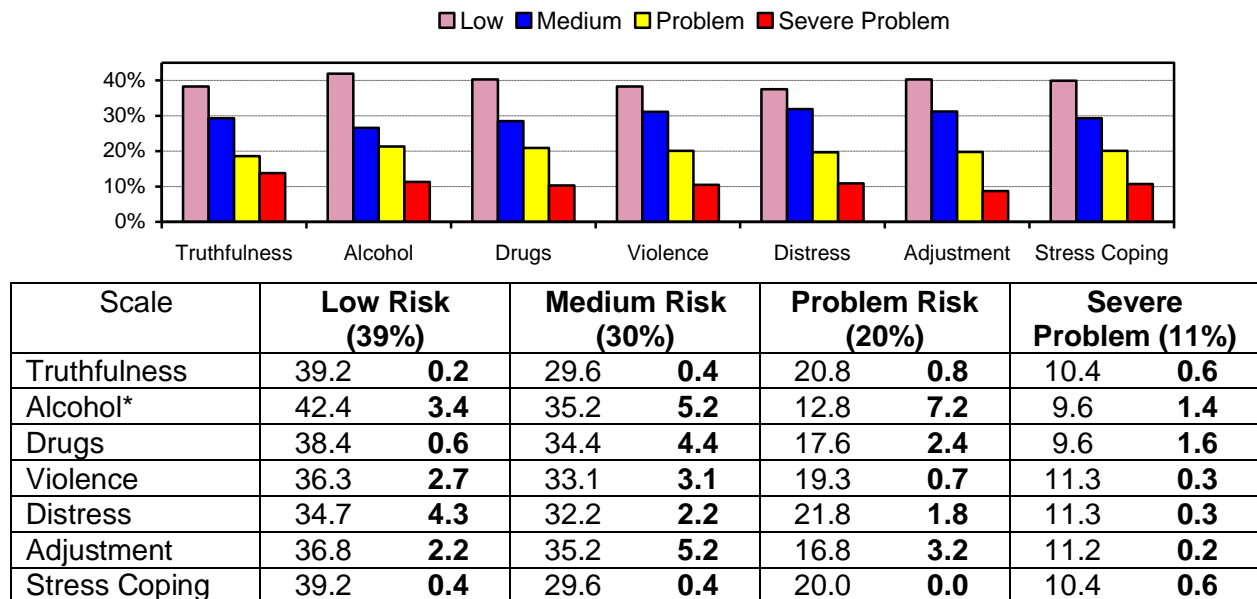
**The participants in this study (2006) consisted of 125 juvenile offenders.** There were 110 males (88.0%) and 15 females (12.0%). Demographic composition of these participants is as follows:

**Age:** 12 years or younger (9, 7.2%); 13 years (12, 9.6%); 14 years (25, 20.0%); 15 years (38, 30.4%); 16 years (31, 24.8%); and 17 years (10, 8.0%). There were no adults (18 years or older) included in the data or analysis. **Ethnicity:** Caucasian (16, 12.8%); Black (106, 84.8%); Hispanic (1, 0.8%); Other (2, 1.6%). **Education:** 6<sup>th</sup> grade or less (17, 29.3%); 7<sup>th</sup> grade (10, 17.2%); 8<sup>th</sup> grade (11, 19.0%); 9<sup>th</sup> grade (7, 12.1%); 10<sup>th</sup> grade (8, 13.8%); 11<sup>th</sup> grade (5, 8.6%); and High School Graduate/G.E.D. (0, 0%).

## Accuracy

ACDI-Corrections Version II accuracy for this juvenile offender sample is presented in the Table 39. The scale risk range percentages shown are based upon attained scale scores (raw point totals for each scale). The percentages of individuals placed in each risk range classification category for each ACDI-Corrections Version II scale demonstrates that these obtained percentages are in close agreement with the predicted percentages shown in parentheses at the top of each scale range. The ACDI-Corrections Version II accurately identifies juvenile offender risk. There were 125 juveniles included in this analysis.

**Table 39. ACDI-CV II Client Risk Assessment (2006, N = 125)**



**Note: Alcohol scale data for this limited sample are anomalous. There were no alcohol offenders in this group.**

As shown in Table 39, excluding the Alcohol Scale Scores (there were no alcohol offenders in this small sample), all but four of the twenty-four obtained percentages for the five risk ranges and seven scales were within 3.2 percentage points of predicted percentages. Even for this small sample (n=125) Juveniles' scores can be considered 97% accurate. **Numerous previous large sample studies have shown that on average, all ACDI Corrections Version-II scales are in fact 98% accurate.**

## Reliability

Reliability is synonymous with reproducibility. A test that is reliable will result in similar scores for a respondent time and time again. The most common reliability statistic is coefficient alpha. Coefficient alpha varies from 0 for no reliability to 1 for perfect reliability. ACDI-Corrections Version II scales' reliability is presented in Table 40 below.

**Table 40. Reliability coefficient alphas for the ACDI-Corrections Version II**  
**All alphas are significant at  $p < .001$ . (N=125)**

<u>Scale</u>	<u>Alpha</u>
Truthfulness Scale	<b>.89</b>
Alcohol Scale	<b>.88</b>
Drugs Scale	<b>.88</b>
Violence Scale	<b>.89</b>
Distress Scale	<b>.94</b>
Adjustment Scale	<b>.86</b>
Stress Coping Abilities Scale	<b>.91</b>

The professionally accepted reliability standard is .75 and higher. Perfect reliability would have a coefficient alpha of 1.0. As shown in Table 39, ACDI-Corrections Version II scales reliability coefficients varied between .86 and .94. All ACDI-Corrections Version II all scales are highly statistically reliable

#### Validity

This report examined ACDI-Corrections Version II predictive validity. That analysis involved identifying juvenile offenders who admitted they had problems. For example, offenders that had treatment for alcohol or drugs, those that stated they were violent, and those that said they were distressed or admitted they were uncooperative. A correct identification meant these problem juveniles scored in the corresponding scales problem risk range (70<sup>th</sup> percentile and above).

The ACDI Corrections Version II Alcohol Scale accurately identified **100 percent** of the juvenile offenders who had been treated for drinking problems (Note: this is separate from the question of having alcohol-related arrests, of which there were none.). In other words, all of the juveniles who had undergone alcohol treatment scored in the problem range on the Alcohol Scale. Similarly, the Drugs Scale identified **100 percent** of juveniles who had been treated for drug problems.

The Violence Scale accurately identified **100 percent** of offenders who admitted being violent. The Distress Scale correctly identified **96.0 percent** of youths who felt they were distressed, discouraged and alone. The Adjustment Scale identified **91.6 percent** of the juveniles who admitted being uncooperative. These results demonstrate that the ACDI-Corrections Version II is a valid juvenile offender assessment instrument.

The results of this study support the reliability, validity and accuracy of the ACDI-Corrections Version II.

### **28. Study of ACDI Corrections Version II (ACDI-CV II) Accuracy, Reliability and Validity in a 3<sup>rd</sup> Quarter Juvenile Offender Sample (2006, n = 109)**

This study (2006) included 109 juvenile offenders from a Southern state juvenile services department during the 3<sup>rd</sup> quarter of 2006. This research included statistical accuracy, reliability and validity of the ACDI-Corrections Version II (ACDI-CV II). The juveniles tested were largely male (84%), African American (89%), and between the ages of 14 and 16 years old (82%).



Methods and Results

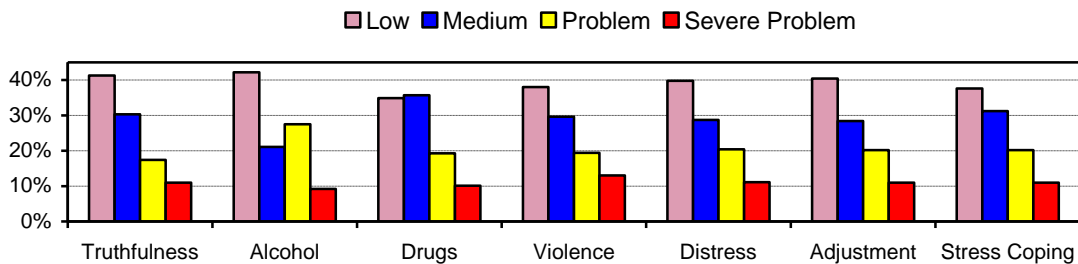
**The participants in this study (2006) consisted of 109 juvenile offenders.** There were 91 males (83.5%) and 18 females (16.5%). Demographic composition of these participants is as follows:

**Age:** 12 years or younger (7, 6.4%); 13 years (9, 8.3%); 14 years (21, 19.3%); 15 years (30, 27.5%); 16 years (38, 34.9%); and 17 years (4, 3.4%). There were no adults (18 years or older) included in the data or analysis. **Ethnicity:** Caucasian (11, 10.4%); Black (97, 89.0%); Hispanic (0, 0%); Other (0, 0%). **Education:** 6<sup>th</sup> grade or less (14, 33.3%); 7<sup>th</sup> grade (5, 11.9%); 8<sup>th</sup> grade (7, 16.7%); 9<sup>th</sup> grade (10, 23.8%); 10<sup>th</sup> grade (3, 7.1%); 11<sup>th</sup> grade (3, 7.1%); and High School Graduate/G.E.D. (0, 0%).

Accuracy

ACDI-Corrections Version II accuracy for this juvenile offender sample is presented in the Table 41. The scale risk range percentages shown are based upon attained scale scores (raw point totals for each scale). The percentages of individuals placed in each risk range classification category for each ACDI-Corrections Version II scale demonstrates that these obtained percentages are in close agreement with the predicted percentages shown in parentheses at the top of each scale range. The ACDI-Corrections Version II accurately identifies juvenile offender risk. There were 109 juveniles included in this analysis.

**Table 41. ACDI-CV II Client Risk Assessment (2006, N = 109)**



Scale	Low Risk (39%)	Medium Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	41.3 (2.3)	30.3 (0.3)	17.4 (2.6)	11.0 (0.0)
Alcohol	42.2 (3.2)	21.1 (8.9)	27.5 (7.5)	9.2 (1.8)
Drugs	34.9 (4.9)	35.7 (5.7)	19.3 (0.7)	10.1 (0.9)
Violence	38.0 (1.0)	29.6 (0.4)	19.4 (0.6)	13.0 (2.0)
Distress	39.8 (0.8)	28.7 (1.3)	20.4 (0.4)	11.1 (0.1)
Adjustment	40.4 (1.4)	28.4 (1.6)	20.2 (0.2)	11.0 (0.0)
Stress Coping	37.6 (1.4)	31.2 (1.2)	20.2 (0.2)	11.0 (0.0)

As shown in Table 41, excluding the Alcohol Scale Scores (there were no alcohol offenders in this small sample), all but four of the twenty-four obtained percentages for the five risk ranges and seven scales were within 3.4 percentage points of predicted percentages. Even for this small sample (n=109) Juveniles' scores can be considered 97% accurate.

## Reliability

Reliability is synonymous with reproducibility. A test that is reliable will result in similar scores for a respondent time and time again. The most common reliability statistic is coefficient alpha. Coefficient alpha varies from 0 for random responding or no reliability to 1 for perfect reliability. ACIDI-Corrections Version II scales' reliability is presented in Table 42.

**Table 42. Reliability coefficient alphas for the ACIDI-Corrections Version II.**  
**All alphas are significant at  $p < .001$ . (N=109)**

<b>Scale</b>	<b>Alpha</b>
Truthfulness Scale	<b>.87</b>
Alcohol Scale	<b>.85</b>
Drugs Scale	<b>.91</b>
Violence Scale	<b>.86</b>
Distress Scale	<b>.93</b>
Adjustment Scale	<b>.89</b>
Stress Coping Abilities Scale	<b>.90</b>

The professionally accepted reliability standard is .75 and higher. Perfect reliability would have a coefficient alpha of 1.0. As shown in Table 37, ACIDI-Corrections Version II scales reliability coefficients varied between .85 and .93. All ACIDI-Corrections Version II all scales are highly statistically reliable.

## Validity

This report examined ACIDI-Corrections Version II predictive validity. That analysis involved identifying juvenile offenders who admitted they had problems. For example, offenders that had treatment for alcohol or drugs, those that stated they were violent, and those that said they were distressed or admitted they were uncooperative. A correct identification meant these problem juveniles scored in the corresponding scales problem risk range (70<sup>th</sup> percentile and above).

The ACIDI Corrections Version II Alcohol Scale accurately identified **100 percent** of the juvenile offenders who had been treated for drinking problems. In other words, all of the juveniles who had undergone alcohol treatment scored in the problem range on the Alcohol Scale. Similarly, the Drugs Scale identified **100 percent** of juveniles who had been treated for drug problems.

The Violence Scale accurately identified **100 percent** of offenders who admitted being violent. The Distress Scale correctly identified **86.2 percent** of youths who said they felt distressed, discouraged and alone. The Adjustment Scale identified **83.3 percent** of the juveniles who admitted being uncooperative. These results demonstrate that the ACIDI-Corrections Version II is a valid juvenile offender assessment instrument.

The results of this study support the reliability, validity and accuracy of the ACIDI-Corrections Version II.

## 29. Study of ACDI Accuracy Reliability and Validity.

This study (2007) included 424 adolescents and includes statistical accuracy, reliability and validity of the Adolescent Chemical Dependency Inventory (ACDI). The ACDI test data were gathered between the years 2001 and 2003. The majority of adolescents tested were male (67%), Caucasian (95%), and between the ages of 15 and 17 years old (72%).

### Methods and Results

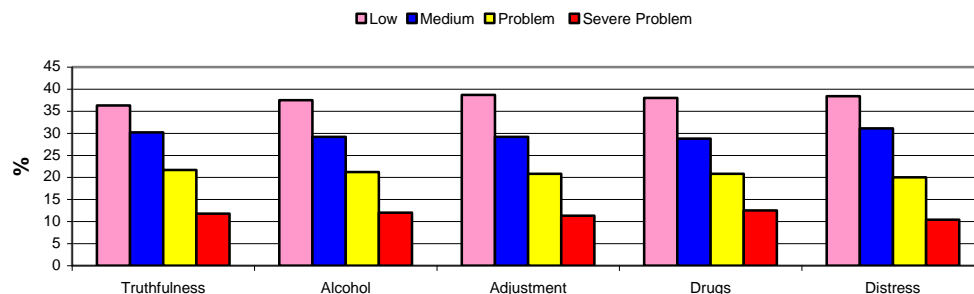
**The participants in this study consisted of 424 juveniles.** There were 284 males (67.0%) and 140 females (33.0%). Demographic composition of these participants is as follows:

**Age:** 12 years or younger (5, 1.2%); 13 years (20, 4.8%); 14 years (69, 16.4%); 15 years (91, 21.6%); 16 years (109, 25.9%); 17 years (100, 23.8%); 18 years (20, 4.8%); and over 18 (7, 1.7%). **Ethnicity:** Caucasian (402, 94.8%); African American (8, 1.9%); Hispanic (3, 0.7%); Native American (7, 1.7%); Other (4, 0.9%). **Education:** 6<sup>th</sup> grade or less (8, 1.9%); 7<sup>th</sup> grade (28, 6.7%); 8<sup>th</sup> grade (71, 16.9%); 9<sup>th</sup> grade (132, 31.4%); 10<sup>th</sup> grade (98, 23.3%); 11<sup>th</sup> grade (63, 15.0%); High School Graduate/G.E.D. (16, 3.8%); and Some College (5, 1.2%).

### Accuracy

ACDI accuracy for this sample of 424 adolescents is presented in Table 43. Test accuracy is demonstrated by small differences between obtained percentage scale scores and expected or predicted percentages. Four categories of risk include: Low Risk (zero to 39<sup>th</sup> percentile), Medium Risk (40 to 69<sup>th</sup> percentile), Problem Risk (70 to 89<sup>th</sup> percentile), and Severe Problem (90 to 100<sup>th</sup> percentile) risk. Offender-obtained percentages for the four risk categories are subtracted from predicted percentages which are shown in the bold parentheses to the right of each risk range. For example, the predicted percentage for the Truthfulness scales low risk range is 39%, whereas the attained score was 36.3 percent – which is 2.7 percentage points from the predicted score. The difference score is shown in bold parentheses, e.g., (2.7).

**Table 43. ACDI Accuracy (105 Items, N=424)**



Scale	Low Risk (39%)	Medium Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	36.3 (2.7)	30.2 (0.2)	21.7 (1.7)	11.8 (0.8)
Alcohol	37.5 (1.5)	29.2 (0.8)	21.2 (1.2)	12.0 (1.0)
Adjustment	38.7 (0.3)	29.2 (0.8)	20.8 (0.8)	11.3 (0.3)
Drugs	38.0 (1.0)	28.8 (1.2)	20.8 (0.8)	12.5 (1.5)
Distress	38.4 (0.6)	31.1 (1.1)	20.0 (0.0)	10.4 (0.6)

Table 43 demonstrates that all of the twenty obtained comparison percentages for the four risk ranges and five scales were within 2.7 percentage points of predicted percentages. Accuracy of the ACDI is shown

by the small differences between obtained risk range percentages and expected percentages. ACDI results are very accurate.

### Reliability

Reliability is synonymous with reproducibility. A test that is reliable will result in similar scores for a respondent time and time again. The most common reliability statistic is coefficient alpha. Coefficient alpha varies from 0 for random responding or no reliability to 1 for perfect reliability. ACDI scale reliability is presented in Table 44.

**Table 44. Reliability coefficient alphas for the ACDI.**  
**All alphas are significant at  $p < .001$ .**

<u>Scale</u>	<u>Alpha</u>
Truthfulness Scale	<b>.86</b>
Alcohol Scale	<b>.79</b>
Drugs Scale	<b>.88</b>
Distress Scale	<b>.91</b>
Adjustment Scale	<b>.85</b>

The professionally accepted reliability standard is .75 and higher. As shown in Table 44, ACDI scales reliability coefficients varied between .79 and .91. All ACDI scales are reliable.

### Validity

Predictive validity analysis identified adolescents who admitted to a drinking or drug problem. ACDI Alcohol and Drug Scale scores were then analyzed. A correct identification meant these problem juveniles scored in the Alcohol or Drug scales problem risk range (70<sup>th</sup> percentile and above).

The ACDI Alcohol Scale accurately identified **93.3 percent** of the adolescents who had stated they have a drinking problem. Similarly, the Drugs Scale identified **100 percent** of adolescents who stated they have a drug problem. In other words, 93.3% and 100% of the adolescents who admitted to having alcohol or drug problems scored in the problem risk range on the Alcohol or Drug Scales. These results are especially impressive when we understand juvenile denial and problem minimization.

The results of this study support the accuracy, reliability, and validity of the ACDI.

### **30. Study of ACDI Accuracy Reliability and Validity.**

This study (2007) included 422 adolescents and includes statistical accuracy, reliability and validity of the Adolescent Chemical Dependency Inventory (ACDI). The ACDI test data were gathered prior to October 2007. The adolescents tested were largely male (65%), Caucasian (87%), and between the ages of 15 and 17 years old (65%).

#### Methods and Results

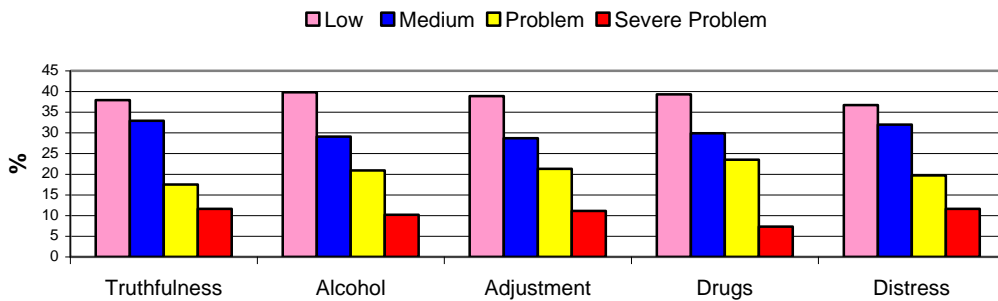
**The participants in this study consisted of 422 adolescents.** There were 274 males (64.9%) and 148 females (35.1%). Demographic composition of these participants is as follows: **Age:** 12 years or younger (6, 1.4%); 13 years (14, 3.3%); 14 years (53, 12.6%); 15 years (79, 18.7%); 16 years (95, 22.5%); 17 years (97, 23.0%); 18 years (35, 8.3%); and 19 years or older (43, 10.2%). **Ethnicity:** Caucasian (364, 86.9%); African American (6, 1.4%); Hispanic (5, 1.2%); Native American (35, 8.4%); and Other (9, 2.1%). **Education:** 6<sup>th</sup> grade or less (6, 1.5%); 7<sup>th</sup> grade (22, 5.4%); 8<sup>th</sup> grade (55, 13.5%); 9<sup>th</sup> grade (100, 24.5%);

10<sup>th</sup> grade (101, 24.8%); 11<sup>th</sup> grade (68, 16.7%); High School Graduate/G.E.D. (42, 10.3%); and Some College (14, 3.4%).

### Accuracy

ACDI accuracy for this adolescent sample is presented in Table 45. Test accuracy is demonstrated by small differences between obtained percentage scale scores and expected or predicted percentages. Four categories of risk include: Low Risk (zero to 39<sup>th</sup> percentile), Medium Risk (40 to 69<sup>th</sup> percentile), Problem Risk (70 to 89<sup>th</sup> percentile), and Severe Problem (90 to 100<sup>th</sup> percentile) risk. Offender-obtained percentages for the four risk categories are subtracted from predicted percentages which are shown in the bold parentheses to the right of each risk range. For example, the predicted percentage for the Truthfulness scales low risk range is 39%, whereas the attained score was 37.9 percent – which is 1.1 percentage points from the predicted score. The difference score is shown in bold parentheses, e.g., **(1.1)**.

**Table 45. ACDI Accuracy (105 Items, N=422)**



Scale	Low Risk (39%)	Medium Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	37.9 <b>(1.1)</b>	32.9 <b>(2.9)</b>	17.5 <b>(2.5)</b>	11.6 <b>(0.6)</b>
Alcohol	39.8 <b>(0.8)</b>	29.1 <b>(0.9)</b>	20.9 <b>(0.9)</b>	10.2 <b>(0.8)</b>
Adjustment	38.9 <b>(0.1)</b>	28.7 <b>(1.3)</b>	21.3 <b>(1.3)</b>	11.1 <b>(0.1)</b>
Drugs	39.3 <b>(0.3)</b>	29.9 <b>(0.1)</b>	23.5 <b>(3.5)</b>	7.3 <b>(3.7)</b>
Distress	36.7 <b>(2.3)</b>	32.0 <b>(2.0)</b>	19.7 <b>(0.3)</b>	11.6 <b>(0.6)</b>

As demonstrated in Table 45, all of the twenty obtained comparison percentages for the four risk ranges and five scales were within 3.7 percentage points of the predicted percentages. Accuracy of the ACDI is shown by the small differences between obtained risk range percentages and expected percentages. Adolescents' scale scores are impressively accurate.

### Reliability

Reliability is synonymous with reproducibility. A test that is reliable will result in similar scores for a respondent time and time again. The most common reliability statistic is coefficient alpha. Coefficient alpha varies from 0 for random responding or no reliability to 1 for perfect reliability. ACDI scales' reliability is presented in Table 46.

**Table 46. Reliability coefficient alphas for the ACDI.**  
**All alphas are significant at  $p < .001$ .**

<u>Scale</u>	<u>Alpha</u>
Truthfulness Scale	<b>.88</b>
Alcohol Scale	<b>.91</b>
Drugs Scale	<b>.92</b>
Distress Scale	<b>.92</b>
Adjustment Scale	<b>.86</b>

The professionally accepted reliability standard is .75 and higher. As shown in Table 46, ACDI scales reliability coefficients varied between .86 and .92. All ACDI scales are reliable.

#### Validity

Predictive validity analysis identified adolescents who admitted to a drinking or drug problem. ACDI Alcohol and Drug Scale scores were then analyzed. A correct identification meant these problem adolescents scored in the Alcohol or Drug scales problem risk range (70<sup>th</sup> percentile and above).

The ACDI Alcohol Scale accurately identified **96.4 percent** of the adolescents who had stated they have a drinking problem. Similarly, the Drugs Scale identified **93.4 percent** of adolescents who stated they have a drug problem. In other words, 96.4% and 93.4% of the adolescents who admitted to having alcohol or drug problems scored in the problem risk range on the Alcohol or Drug Scales. When you factor in juvenile denial and problem minimization these results are even more impressive.

The results of this study further support the accuracy, reliability, and validity of the ACDI.

### **31. Study of ACDI Accuracy, Reliability, and Validity in a Sample of 100 Juvenile Offenders**

This study (2008) examined ACDI-Corrections Version II test statistics for juveniles tested by the Coconino County Municipal Court. Data was obtained as part of a six-month pilot program beginning in April, 2008 and ending in October, 2008. There were 100 juvenile offenders included. ACDI-Corrections Version II reliability, validity and accuracy were examined.

#### Method

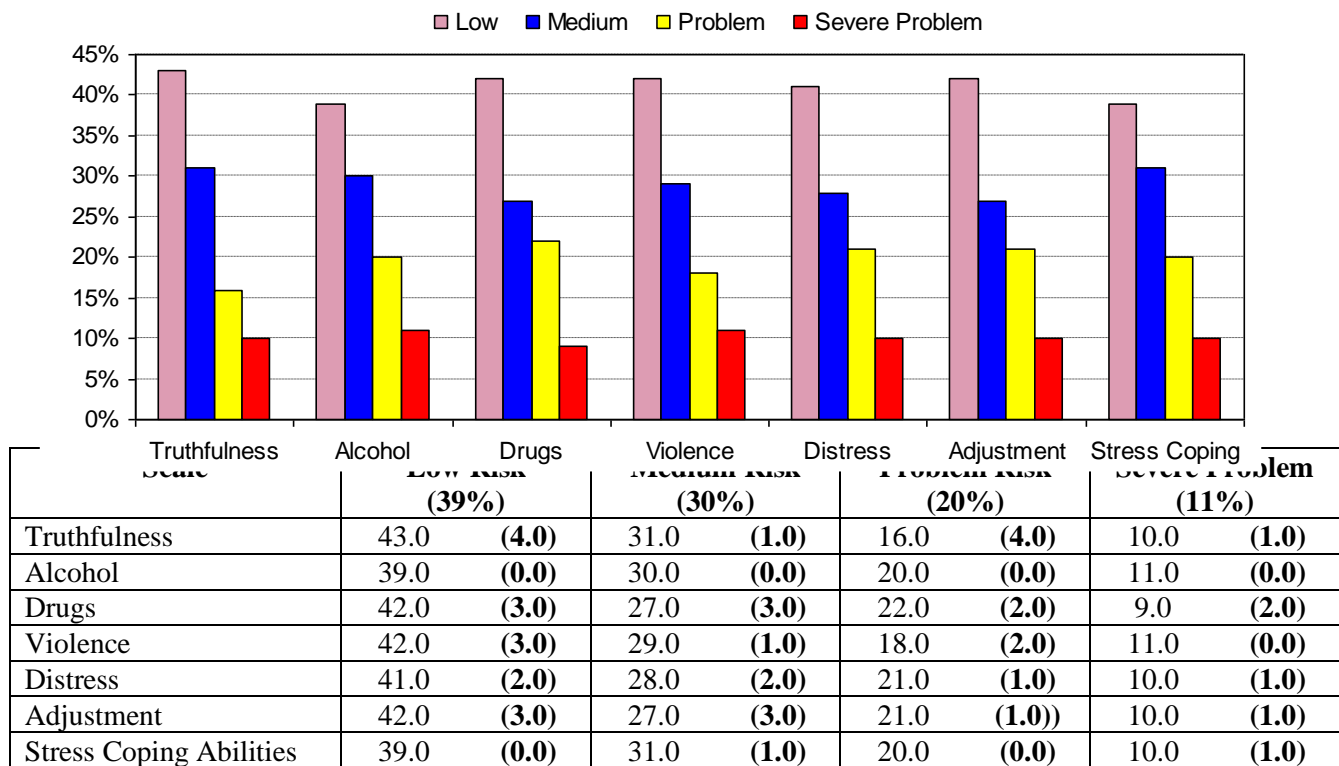
Participants in this study (2008) consisted of 100 juvenile offenders. There were 71 males (71.0%) and 29 females (29.0%). Demographic composition of participants is as follows: Age: 12 years (1.0%); 13 years (4.0%); 14 years (11.0%); 15 years (21.0%); 16 years (32.0%); 17 years (31.0%). Ethnicity: Caucasian (24.0%); African American (7.0%); Hispanic (24.0%); Asian (1.0%); Native American (44.0%). Education: 6<sup>th</sup> grade or less (2.0%); 7<sup>th</sup> grade (6.0%); 8<sup>th</sup> grade (24.0%); 9<sup>th</sup> grade (22.0%); 10<sup>th</sup> grade (22.0%); 11<sup>th</sup> grade (19.0%).

#### Accuracy

Test accuracy is demonstrated by how close attained scale scores are to predicted scores. Four categories of risk are assigned: Low Risk (zero to 39<sup>th</sup> percentile), Medium Risk (40 to 69<sup>th</sup> percentile), Problem Risk (70 to 89<sup>th</sup> percentile), and Severe Problem Risk (90 to 100<sup>th</sup> percentile). The top row of Table 47 shows the percentages of juveniles that were predicted to score within each risk range. (These predicted percentages for each ACDI-Correction Version II scale risk category were obtained from ACDI-Correction Version II standardization data.) The body of Table 47 presents actual attained risk category

percentages. Differences between attained and predicted percentages are shown in bold in parentheses. For example, in terms of the Low Risk range for the Truthfulness Scale: 39% of juveniles were predicted to score within this range; the attained percentage of juveniles who scored in this range was 43%, which is a difference of four percentage points from what was predicted.

**Table 47. ACDI-Correction Version II Accuracy (140 Items, N=100, 2008)**



Twenty-six out of 28 attained risk range percentiles were within **3.0** points of the predicted percentages. (The two exceptions- the Truthfulness Scales Low Risk and Problem Risk range percentiles- were both within just 4.0 points of the predicted percentages.) The average difference between attained percentages and predicted percentages was **1.5** points. These results strongly support the accuracy of the ACDI-Correction Version II as a juvenile-assessment instrument.

### Reliability

Test reliability refers to a scales consistency of measurement. A scale is reliable if a person gets the same score when re-tested as he/she did when originally tested. Table 48 shows the reliability scores for each ACDI-Correction Version II scale. Perfect reliability is 1.00.

**Table 48. ACIDI-Correction Version II Reliability (N=100, 2008)**

<u>Scales</u>	<u>Alpha coefficient</u>
Truthfulness Scale	<b>.85</b>
Alcohol Scale	<b>.88</b>
Drugs Scale	<b>.90</b>
Violence Scale	<b>.91</b>
Distress Scale	<b>.90</b>
Adjustment Scale	<b>.86</b>
Stress Coping Abilities Scale	<b>.90</b>

As Table 48 illustrates, **all ACIDI-Correction Version II scales have a reliability of .85 or higher**. The professionally accepted reliability standard is .75. All ACIDI-Correction Version II scales exceed this standard and demonstrate very impressive reliability.

#### Validity

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

Predictive validity refers to a test's ability to predict observable "criterion" behaviors. In this analysis, our prediction criterion was whether or not juvenile offenders considered themselves to have alcohol and/or drug problems. Direct self-admissions were utilized. It was predicted that the self-admitted "problem drinkers" and self-admitted "problem drug users" would be identified by their higher scores on the Alcohol and/or Drugs Scales. More specifically, it was predicted that a large percentage of these juveniles would have Alcohol and/or Drugs Scale scores that fell within the 70<sup>th</sup> and 100<sup>th</sup> percentile range (the High Risk range). The possibility of these juveniles scoring in the Low Risk range (zero to 69<sup>th</sup> percentile) was not discounted altogether; however, it was expected that a significantly higher percentage of these individuals would score within the High Risk range on the Alcohol and/or Drugs Scales than the Low Risk range. The results of the analysis confirmed these predictions. All (**100.0%**) of juvenile offenders who admitted to having a drinking problem scored in the High Risk range on the Alcohol Scale. Additionally, almost all (**87.0%**) of the juveniles who admitted to having a drug-related problem scored in the High Risk range on the Drugs Scale. These findings indicate that the Alcohol and Drugs Scales accurately identify juveniles who admit to having alcohol and/or drug problems.

Another analysis was performed for the Violence Scale. Two comparative groups- "violent juvenile offenders" and "nonviolent juvenile offenders"- were established using direct admissions. The violent group made the self-admission that they were violent individuals, whereas the nonviolent group did not. It was predicted that a large percentage of violent individuals would score within the High Risk range (70<sup>th</sup> to 100<sup>th</sup> percentile) on the Violence Scale. Analysis results confirmed this prediction. Almost all (**90.9%**) of juvenile offenders in the violent group were Violence Risk Scale "High Risk" offenders. The Violence Scale accurately identifies violent individuals. This finding and the findings from the Alcohol and Drugs scale analyses support the predictive validity of the ACIDI-Correction Version II.



### 32. ACDI-Corrections Version II Reliability and Validity in a Sample of 1,364 Juvenile Offenders

This study (2009) examined ACDI-Corrections Version II test statistics for juveniles tested by a Juvenile Services Department in a Southeastern US state. Data was obtained for tests administered over the course of one year (January 2009 through December 2009). There were 1,364 juvenile offenders tested with the ACDI-Corrections Version II. ACDI-Corrections Version II reliability, validity and accuracy were examined.

#### Method

Participants in this study (2009) consisted of 1,364 juvenile offenders. There were 71 males (71.0%) and 29 females (29.0%). Demographic composition of participants is as follows: Age: 12 years (1.0%); 13 years (4.0%); 14 years (11.0%); 15 years (21.0%); 16 years (32.0%); 17 years (31.0%). Ethnicity: Caucasian (24.0%); African American (7.0%); Hispanic (24.0%); Asian (1.0%); Native American (44.0%). Education: 6<sup>th</sup> grade or less (2.0%); 7<sup>th</sup> grade (6.0%); 8<sup>th</sup> grade (24.0%); 9<sup>th</sup> grade (22.0%); 10<sup>th</sup> grade (22.0%); 11<sup>th</sup> grade (19.0%).

#### Reliability

Test reliability refers to a scales consistency of measurement. A scale is reliable if a person gets the same score when re-tested as he/she did when originally tested. Table 48 shows the reliability scores for each ACDI-Correction Version II scale. Perfect reliability is 1.00.

**Table 49. ACDI-Correction Version II Reliability (N=1,364, 2009)**

<u>Scale</u>	<u>Alpha coefficient</u>
Truthfulness Scale	<b>.89</b>
Alcohol Scale	<b>.85</b>
Drugs Scale	<b>.90</b>
Violence Scale	<b>.87</b>
Distress Scale	<b>.92</b>
Adjustment Scale	<b>.81</b>
Stress Coping Abilities Scale	<b>.89</b>

As Table 49 illustrates, **all ACDI-Correction Version II scales have a reliability of .85 or higher**. The professionally accepted reliability standard is .75. All ACDI-Corrections Version II scales exceed this standard and demonstrate very impressive reliability.

#### Validity

Validity analysis compared first-time offenders' and multiple offenders' ACDI-Corrections Version II scale scores. Offenders classified as first-time offenders are those having no more than one arrest, whereas multiple offenders are those that have been arrested two or more times. Self-report arrest information was obtained from ACDI-Corrections Version II answer sheet responses. Because ACDI-Corrections Version II scales measure problem severity, it was predicted that multiple offenders would obtain higher (more severe) scale scores than first-time offenders. Validity analysis results are presented in Table 50. Stress Coping Abilities Scale scores are reversed, meaning that higher scores are associated with better stress coping skills. For all other DVI scales, higher scores represent more severe problems.

**Table 50. ACDI-Corrections Version II Scale Validity (N=1,364, 2009)**

<u>Scales</u>	<u>First Offenders’ Mean Scores</u>	<u>Multiple Offenders’ Mean Scores</u>	<u>T-value</u>	<u>Level of Significance</u>
Truthfulness	10.95	10.47	$t=1.46$	n.s.
Alcohol	2.99	15.00	$t=-3.32$	$p<.001$
Drugs	8.22	20.61	$t=-9.13$	$p<.001$
Violence	20.80	25.75	$t=-7.92$	$p<.001$
Distress	18.10	20.29	$t=-3.24$	$p<.001$
Adjustment	18.18	19.29	$t=-2.23$	$p<.001$
Stress Coping Abilities	91.64	87.88	$t=1.75$	$p<.001$

For comparing Alcohol Scale and the Drugs Scale scores of first-time and multiple offenders, the number of alcohol-related and drug-related arrests, respectively, were used to determine offender status. For analysis of the other ACDI-Corrections Version II Scales, the total number of arrests was used to determine offender status.

As shown in Table 50, multiple offenders’ average scores on nearly all ACDI-Corrections Version II scales indicated more severe problems, with the exception of the Truthfulness Scale. Truthfulness Scale scores of first-time and multiple offenders were comparable. For all other ACDI-Corrections Version II scales, multiple offenders’ average ACDI-Corrections Version II scores were higher than those of first offenders, indicating more acute problem severity. Multiple offenders’ more severe problems are manifested as higher ACDI-Corrections Version II scale scores. **These results corroborate the discriminant validity of the ACDI-Corrections Version II.** This is important because it shows that ACDI-Corrections Version II scales effectively differentiate offenders that are known to have more severe problems (multiple offenders) from offenders that usually have less severe problems (first-time offenders).

### **33. ACDI-Corrections Version II Reliability and Validity in a Sample of 1,248 Juvenile Offenders**

This study (2011) examined ACDI-Corrections Version II test statistics for juveniles tested by a Juvenile Services Department in a Southeastern US state. Data was obtained for tests administered over the course of one year (January 2011 through December 2011). There were 1,248 juvenile offenders tested with the ACDI-Corrections Version II. ACDI-Corrections Version II reliability, validity and accuracy were examined.

#### Method

There were 965 males (77%) and 283 females (23%) who participated in this study. Race/ethnicity results were 6% Caucasian, 93%, African American, 7% Hispanic, less than 1% were Asian, and there were no Native Americans in the study. Education results were, 11% completed 6<sup>th</sup> grade or less, 15% completed 7<sup>th</sup> grade, 27% completed 8<sup>th</sup> grade, 24% completed 9<sup>th</sup> grade, 15% completed 10<sup>th</sup> grade, 6% completed 11<sup>th</sup> grade, and 1% completed high school.

#### Reliability

Test reliability refers to a scales consistency of measurement. A scale is reliable if a person gets the same score when re-tested as he/she did when originally tested. The reliability scores for each ACDI-Correction Version II scale are presented in Table 51, and demonstrate high reliability.

**Table 51. ACIDI-Corrections Version II Reliability (N=1, 248, 2011)**

<u>Scales</u>	<u>Cronbach's Alpha</u>
Truthfulness	<b>.89</b>
Alcohol	<b>.83</b>
Drugs	<b>.88</b>
Violence	<b>.87</b>
Distress	<b>.81</b>
Adjustment	<b>.81</b>
Stress Coping Abilities	<b>.89</b>

Validity

Validity analysis compared first-time offenders' and multiple offenders' ACIDI-Corrections Version II scale scores. Offenders classified as first-time offenders are those having no more than one arrest, whereas multiple offenders are those that have been arrested two or more times. Self-report arrest information was obtained from ACIDI-Corrections Version II answer sheet responses. Because ACIDI-Corrections Version II scales measure problem severity, it was predicted that multiple offenders would obtain higher (more severe) scale scores than first-time offenders. Validity analysis results are presented in Table 52.

**Table 52. ACIDI-Corrections Version II Validity (N=1, 248, 2011)**

<u>Scales</u>	<u>First Offenders'</u> <u>Mean Scores</u>	<u>Multiple Offenders'</u> <u>Mean Scores</u>	<u>T-value</u>	<u>Level of</u> <u>significance</u>
Truthfulness	10.61	10.78	.477	<b>.06</b>
Alcohol	6.35	7.03	2.14	<b>.02</b>
Drugs	9.04	12.57	7.76	<b>&lt;.001</b>
Violence	20.65	27.78	13.23	<b>&lt;.001</b>
Distress	18.69	22.35	5.92	<b>.01</b>
Adjustment	17.71	19.89	4.85	<b>N.S.</b>
Stress Coping Abilities	94.99	86.65	3.74	<b>.01</b>

Multiple offenders' average scores on nearly all ACIDI-Corrections Version II scales indicated more severe problems, with the exception of the Truthfulness Scale. Truthfulness Scale scores of first-time and multiple offenders were comparable. For all other ACIDI-Corrections Version II scales, multiple offenders' average ACIDI-Corrections Version II scores were higher than those of first offenders, indicating more acute problem severity. Multiple offenders' more severe problems are manifested as higher ACIDI-Corrections Version II scale scores. **These results corroborate the validity of the ACIDI-Corrections Version II.** This is important because it shows that ACIDI-Corrections Version II scales effectively differentiate offenders that are known to have more severe problems (multiple offenders) from offenders that usually have less severe problems (first-time offenders).

### 34. ACIDI-Corrections Version II Reliability and Validity in a Sample of 790 Juvenile Offenders

This study (2011-2012) examined ACIDI-Corrections Version II test statistics for juveniles tested by a Juvenile Services Department in a southeastern US state. Data was obtained for tests administered over the course of one year (April 1 2011 through March 31, 2012). There were 790 juvenile offenders tested with the ACIDI-Corrections Version II. ACIDI-Corrections Version II reliability, validity and accuracy were examined.

#### Method

There were 572 males (72%) and 218 females (28%) who participated in this study. Race/ethnicity results were 57% Caucasian, 34%, African American, 4% Hispanic, 4 1% were Asian, and there were no Native Americans in the study. Education results were, 3% completed 6<sup>th</sup> grade or less, 9% completed 7<sup>th</sup> grade, 17% completed 8<sup>th</sup> grade, 26% completed 9<sup>th</sup> grade, 29% completed 10<sup>th</sup> grade, 15% completed 11<sup>th</sup> grade, and less than 1% completed high school.

#### Reliability

Test reliability refers to a scales consistency of measurement. A scale is reliable if a person gets the same score when re-tested as he/she did when originally tested. The reliability scores for each ACIDI-Correction Version II scale are presented in Table 53, and demonstrate high reliability.

**Table 53. ACIDI-Corrections Version II Reliability (N=790, 2012)**

<u>Scale</u>	<u>Cronbach's Alpha</u>
Truthfulness	<b>.88</b>
Alcohol	<b>.90</b>
Drugs	<b>.91</b>
Violence	<b>.88</b>
Distress	<b>.80</b>
Adjustment	<b>.85</b>
Stress Coping Abilities	<b>.91</b>

#### Validity

Validity analysis compared first-time offenders' and multiple offenders' ACIDI-Corrections Version II scale scores. Offenders classified as first-time offenders are those having no more than one arrest, whereas multiple offenders are those that have been arrested two or more times. Self-report arrest information was obtained from ACIDI-Corrections Version II answer sheet responses. Because ACIDI-Corrections Version II scales measure problem severity, it was predicted that multiple offenders would obtain higher (more severe) scale scores than first-time offenders. Validity analysis results are presented in Table 54.

**Table 54. ACIDI-Corrections Version II Validity Findings (N=790, 2012)**

<u>Scales</u>	<u>First-time Offender Mean Score</u>	<u>Multiple Offender Mean Score</u>	<u>t-value</u>	<u>Significance</u>
Truthfulness	8.74	8.55	.395	<b>N.S.</b>
Alcohol	6.84	7.86	-2.03	<b>&lt;.05</b>
Drugs	10.28	13.15	-3.92	<b>&lt;.05</b>
Violence	15.53	19.20	-5.35	<b>&lt;.05</b>
Distress	17.90	18.53	-.653	<b>N.S.</b>

Adjustment	16.67	17.73	-1.57	<b>N.S.</b>
Stress Coping Abilities	106.07	102.76	.864	<b>&lt;.05</b>

Multiple offenders' average scores on nearly all ACIDI-Corrections Version II scales indicated more severe problems, with the exception of the Truthfulness Scale. Truthfulness Scale scores of first-time and multiple offenders were comparable. First time and multiple DUI offenders attained similar or not statistically significant Truthfulness Scale scores. Similar results have been reported in earlier analyses. It may be that all offenders have similar concerns in court related assessment settings. This may account for the enduring denial and problem minimization observed in multiple offenders' scores. Moreover, the role that treatment or intervention may have on subsequent tests (multiple offenders) remains unknown. Similar Truthfulness Scale mean scale scores for first-time and multiple offenders warrant further research.

For all other ACIDI-Corrections Version II scales, multiple offenders' average ACIDI-Corrections Version II scores were higher than those of first offenders, indicating more acute problem severity. Multiple offenders' more severe problems are manifested as higher ACIDI-Corrections Version II scale scores. **These results corroborate the validity of the ACIDI-Corrections Version II.** This is important because it shows that ACIDI-Corrections Version II scales effectively differentiate offenders that are known to have more severe problems (multiple offenders) from offenders that usually have less severe problems (first-time offenders).

### 35. ACIDI-Corrections Version II on a State Juvenile Sample

There were 676 juvenile offenders who completed the ACIDI-Corrections Version II in 2012, for the Department of Juvenile Services in a Southeastern US State. Test administration, offender characteristics, and court history data were as follows: 77% male, 23% female; 93% were African American; 11% had completed 6<sup>th</sup> grade or less, 16% completed 7<sup>th</sup> grade, 23% completed 8<sup>th</sup> grade, 24% completed 9<sup>th</sup> grade, 15% completed 10<sup>th</sup> grade, 9% completed 11<sup>th</sup> grade, 1% completed high school; average age was 14.9; 92% of the juvenile offenders had one or more arrests, 76% had one or more juvenile detentions, 2% had one or more alcohol arrests, 15% had one or more drug arrests, 57% had one or more probation sentences, 11% had one or more probation revocations, and 70% had at least one court hearing.

#### Plan Supervision

The plan of supervision classification uses ACIDI-Corrections Version II test results to classify offender risk. Low Risk classification occurs when all scale scores are at or below the 69th percentile. Medium Risk applies when any one scale score is in the 70 to 89th percentile range. High Risk is defined as any scale score at or above the 90th percentile or any two or more scale scores in the 70 to 89th percentile range.

**Table 55. Plan of Supervision (N=676, 2012)**

<u>Levels of Supervision</u>	<u>N</u>	<u>%</u>
Low Risk	130	19.2
Medium Risk	146	21.5

High Risk	331	48.9
Invalid Test Results	69	10.2

As noted in Table 55, approximately 19% of offenders met the criteria for low risk, 21% for medium risk, and 49% met the criteria for high risk. There were 69 offenders whose test results were invalid because the Truthfulness Scale score exceeded the 90<sup>th</sup> percentile.

### 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 for each instrument administered by the Louisiana Department of Juvenile Services. Perfect reliability is 1.00 and the professionally accepted standard of reliability for these types of instruments is .70 - .80 (Murphy & Davidshofer, 2001). All ACDI-Corrections Version III scales exceeded accepted reliability standards. Results in Table 56 exceed professionally accepted reliability standards.

**Table 56. Reliability Coefficients (N=676, 2012)**

<u>Scales</u>	<u>Alpha coefficient</u>
Truthfulness Scale	<b>.88</b>
Alcohol Scale	<b>.85</b>
Drugs Scale	<b>.88</b>
Violence Scale	<b>.86</b>
Distress Scale	<b>.90</b>
Adjustment Scale	<b>.81</b>
Stress Coping Abilities Scale	<b>.85</b>

### Validity

First-time offenders and multiple offenders mean scale scores were compared. Results found higher mean scale scores for multiple offenders on the Truthfulness, Alcohol, Drug, Violence, Distress, and Adjustment. As expected, Multiple Offenders score lower on the Stress Coping Abilities Scale.

T-test analyses were conducted to examine whether the differences between mean scores were statistically significant for the Alcohol Scale (p =.06); Drug Scale (p <.001); Violence Scale (p <.001); Distress Scale (p <.001); and Adjustment Scale (p <.001). Results for the Truthfulness Scale and Stress Coping Abilities

Scale were not statically significant; which is likely because the difference between group mean scores was too small to be detected.

### 36. ACDI-Corrections Version II Reliability and Validity in a Sample of 807 Juvenile Offenders

This study (2013) examined ACDI-Corrections Version II test statistics for 807 juveniles tested by a county court in the Northern United States. Data was obtained for tests administered over the course of one year (April 1, 2012 through March 31, 2013). In this study reliability, validity and accuracy were examined.

#### Method

Participants in this study (2013) consisted of 807 juvenile offenders. There were 572 (70.9%) males and 235 females (29.1%) with an average age of 15.2. Demographic composition of participants was as follows: Ethnicity: Caucasian (57.2%); African American (33.3%); Hispanic (4.9%); Asian (<1.0%); Native American (<1.0%), Other (3.7%). Education: 6<sup>th</sup> grade or less (4.0%); 7<sup>th</sup> grade (8.8%); 8<sup>th</sup> grade (17.1%); 9<sup>th</sup> grade (26.9%); 10<sup>th</sup> grade (30.0%); 11<sup>th</sup> grade (13.1%) 12<sup>th</sup> (<1.0%).

81% of offenders had one or more arrests, 28% reported one or more juvenile detention stays, 15% had one or more alcohol arrests, 21% had one or more drug arrests, 18% of juveniles had one ore more probation sentences, and 6% had one or more probation revocations. Eighty-two percent of offenders reported one or more hearings.

#### Reliability

Test reliability refers to a scales consistency of measurement. A scale is reliable if a person gets the same score when re-tested as he/she did when originally tested. Table 48 shows the reliability scores for each ACDI-Correction Version II scale. Perfect reliability is 1.00.

**Table 57. ACDI-Correction Version II Reliability (N=807, 2013)**

<u>Scales</u>	<u>Alpha coefficient</u>
Truthfulness Scale	<b>.87</b>
Alcohol Scale	<b>.89</b>
Drugs Scale	<b>.91</b>
Violence Scale	<b>.87</b>
Distress Scale	<b>.80</b>
Adjustment Scale	<b>.86</b>
Stress Coping Abilities Scale	<b>.91</b>

As Table 57 illustrates, **all ACDI-Correction Version II scales have a reliability of .85 or higher**. The professionally accepted reliability standard for this type of instrument is .70-.80. All ACDI-Corrections Version II scales exceed this standard and demonstrate very impressive reliability.

#### Validity

Validity analysis compared first-time offenders’ and multiple offenders’ ACDI-Corrections Version II scale scores. 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 classified as first-time offenders are those having no more than one arrest, whereas multiple offenders are those that have been arrested two or more times. Self-report arrest information was obtained from ACIDI-Corrections Version II answer sheet responses.

Because ACIDI-Corrections Version II scales measure problem severity, it was predicted that multiple offenders would obtain higher (more severe) scale scores than first-time offenders. Validity analysis results are presented in Table 50. Stress Coping Abilities Scale scores are reversed, meaning that higher scores are associated with better stress coping skills. For all other DVI scales, higher scores represent more severe problems.

**Table 58. ACIDI-Corrections Version II Validity (N = 807, 2013)**

Scales	First Offenders' Mean Scores	Multiple Offenders' Mean Scores	T-value	Level of Significance
Truthfulness	8.49	8.29	.38	<b>n.s</b>
Alcohol	6.78	7.60	1.46	<b>n.s</b>
Drugs	11.15	13.24	2.58	<b>n.s</b>
Violence	15.46	18.61	4.06	<b>&lt;.001</b>
Distress	17.74	19.57	1.91	<b>n.s</b>
Adjustment	16.89	19.32	3.24	<b>.001</b>
Stress Coping	101.94	99.31	.670	<b>n.s</b>

As shown in Table 58, multiple offenders' average scores on nearly all ACIDI-Corrections Version II scales indicated more severe problems, with the exception of the Truthfulness Scale. Higher Truthfulness Scale scores 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, multiple offenders (who have more experience with law enforcement and the courts) may be aware that denial, minimization, and deception will be detected.

For all other ACIDI-Corrections Version II scales, multiple offenders' average ACIDI-Corrections Version II scores were higher than those of first offenders, indicating more acute problem severity; however only the Violence and Adjustment Scales were statistically significant. The non significant finding were likely the result of the small different between offender groups. Overall, these findings demonstrate that the ACIDI-Corrections Version II effectively differentiates between offenders that are known to have more severe problems (multiple offenders) than first time offenders.



### **37. Reliability, Validity and Risk Range Analyses of the ACDI-Corrections Version II**

This report summarizes ACDI-Corrections Version II (Adolescent Chemical Dependency Inventory-Corrections Version II) test results for 542 juvenile offenders tested for a county Juvenile Justice Department. Data were returned between June 1, 2010 and October 31, 2013.

#### Participants

Juvenile offenders in this sample were predominately male, age 15, and approximately 92% had completed the ninth grade. The age at first arrest for both male and female offenders was approximately age 13. This information seems particularly relevant given the extensive criminal history reported by the offenders. For example, all offenders had at least one arrest; 67% had four or more arrests. 92% reported one or more juvenile detention stays, 56% had one or more drug arrests, 73% had one or more probation revocations, almost 30% of juvenile offenders reported 4 or more revocations, 98% reported one or more court hearings and 75% reported four or more hearings.

#### Reliability

Test reliability refers to a scales consistency of measurement. A scale is reliable if a person gets the same score when re-tested as he/she did when originally tested. Table 59 shows the reliability scores for each ACDI-Correction Version II scale. Perfect reliability is 1.00. The professionally accepted reliability standard is .70-.80.

**Table 59. ACDI-Correction Version II Reliability (N=542, 2013)**

<u>Scale</u>	<u>Alpha coefficient</u>
Truthfulness Scale	<b>.92</b>
Alcohol Scale	<b>.87</b>
Drugs Scale	<b>.92</b>
Violence Scale	<b>.89</b>
Distress Scale	<b>.76</b>
Adjustment Scale	<b>.83</b>
Stress Coping Abilities Scale	<b>.89</b>

As noted in Table 59, all ACDI-Corrections Version II scales exceed this standard and demonstrate very impressive reliability.

### Validity

Validity analyses compared first-time offenders' and repeat offenders' ACIDI-Corrections Version II scale scores. Offenders classified as first-time offenders were those having no more than one arrest, whereas repeat offenders were those who had been arrested two or more times. Self-report arrest information was obtained from ACIDI-Corrections Version II answer sheet responses. It was predicted that repeat offenders would obtain higher (more severe) scale scores than first-time offenders. Validity analysis results are presented in Table 60. Stress Management Scale measures prosocial behaviors, meaning that higher scores are associated with better stress coping skills. For all other DVI scales, higher scores represent more severe problems.

**Table 60. ACIDI-Corrections Version II Scale Validity (N=542, 2013)**

Scales	First Offenders	Repeat Offenders	<i>T</i> -value	Level of Significance
Truthfulness	11.52	9.18		.003
Alcohol	9.37	10.52		n.s.
Drug	13.19	24.19		<.001
Violence	20.90	33.90		<.001
Distress	22.75	30.97		<.001
Adjustment	19.33	24.85		<.001
Stress Management	102.57	87.24		n.s.

As shown in Table 60, repeat offenders' average scores on nearly all ACIDI-Corrections Version II scales indicated more severe problems, with the exception of the Truthfulness Scale. Truthfulness Scale scores of first-time and repeat offenders were comparable. For all other ACIDI-Corrections Version II scales, repeat offenders' average ACIDI-Corrections Version II scores were higher than those of first offenders, indicating more acute problem severity. Repeat offenders' more severe problems are manifested as higher ACIDI-Corrections Version II scale scores.

**T-test** analyses were conducted to examine whether the mean scores were statistically significant. Adjustments were made for unequal variances and to control for experimentwise error. **Results were statistically significant for all scales except the Alcohol and Stress Management Scales.** These findings support the ability of the ACIDI-Corrections Version II to effectively differentiate offenders who are known to have more severe problems (repeat offenders) from offenders that usually have less severe problems (first-time offenders).

Risk Range Analyses

A secondary analysis was conducted using offender status (first time and repeat) and selected risk ranges for each of the behavioral scales. First time offenders comprised 12% of the sample, repeat offenders made up 88% of the sample. Problem Risk and Severe Problem percentages were selected as these juvenile offenders typically present the greatest risk and most complex treatment/intervention needs. The expected percentage of offenders for the Problem Risk range is 20% and the expected percent for Severe Problem classification is 11%. Frequencies and percentages are presented in Table 61.

**Table 61. Offender Status and Risk Classification (N = 542, 2013)**

<u>Offender Status</u>	<u>Scales</u>	<u>Problem Risk</u>		<u>Severe Problem</u>	
		<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
First Time	Alcohol	11	17.5	6	9.5
	Drug	3	4.8	6	9.5
	Violence	5	7.9	5	7.9
	Distress	7	11.1	6	9.5
	Adjustment	5	7.9	6	9.5
	Stress Management	10	15.9	7	11.1
Repeat	Alcohol	98	20.5	49	10.2
	Drug	116	24.2	42	8.8
	Violence	107	22.3	47	9.8
	Distress	109	22.8	40	8.4
	Adjustment	92	19.2	48	10.0
	Stress Management	96	20.0	50	10.4

As a group, first time offenders’ scale scores were consistent with expected risk range thresholds (see above description) with most falling below expected thresholds. There are relatively few offenders who comprise the severe risk range on any of the scales. This confirms the validity of the ACIDI-Corrections Version II test; first time offenders represent less risk. *This finding also presents corrections staff with areas for targeted intervention for severe risk, first time offenders. With targeted interventions it may be possible to disrupt a possible pattern of delinquent behavior.*

Despite repeat offenders representing the majority of offenders in the sample, the obtained percentages were fairly consistent with expected ranges. The Problem Risk range for the Drug, Violence, and Distress Scales were approximately 2% higher than expected. Again, these findings confirm the validity of the ACIDI-Corrections Version II to differentiate between offenders who present with greater risk (repeat offenders), as well as provide corrections staff with areas for targeted intervention to reduce juvenile offender recidivism.

### **38. Predicting Juvenile Recidivism: Accuracy and Validity of the Adolescent Chemical Dependency Inventory-Corrections Version II (ACDI-Corrections Version II)**

*This study was submitted for publication and is currently under review. A brief synopsis of the results is presented here.*

The purpose of this study was to examine the validity of ACDI-Corrections Version II, as a juvenile screening instrument while simultaneously replicating earlier work on juvenile risk prediction (Lattimore et al., 2004; Trulson et al., 2011). Three analyses were conducted to examine validity and recidivism prediction.

#### Participants

There were 14, 415 juvenile delinquents who completed the ACDI-Corrections Version II from December 2001 through June 2013. Data were submitted by corrections, probation, and treatment staff across the United States who implemented the ACDI-Corrections Version II as part of their juvenile screening or clinical intake procedures.

Gender: 75% male, 25% were female. Age: average was 15. Race/Ethnicity: 57%, were African Americans, 34% were Caucasian, 5% were Hispanic, less than 1% were Asian and Native American, and approximately 2% of offenders selected Other. Education: 9% of offenders graduated 6<sup>th</sup> grade, 13% completed 7<sup>th</sup> grade, 22% completed 8<sup>th</sup> grade, 23% completed 9<sup>th</sup> grade, 11% completed 10<sup>th</sup> grade, 1% completed 11<sup>th</sup> grade, and less than 1% had completed some college.

#### Construct Validity

Use of contrast groups were used to differentiate between juvenile offenders known to have higher risk factors and those known to have lower risk factors by comparing mean scale scores (DeVon, et al., 2007). Juvenile offenders with one arrest were categorized as first-time offenders (59%) and repeat offenders (41%). Repeat offenders had higher scale scores than first time offenders; *t*-test results were statistically significant. Effect sizes using Cohen's *d* were calculated and ranged from about .02 -.7, representing small to large effects respectively.

#### Predictive Validity

Three negative binomial regression analyses were conducted to ensure that the addition of scale scores contributed to the overall fit of the model and prediction capabilities. The first analysis was the baseline model which included no predictor variables, the second analysis included the demographic variables and criminal history variables. The final analysis included all static factors used in the prior analysis and added ACDI-Corrections Version II scale scores on the Alcohol Scale, Drug Scale, Violence Scale, Distress Scale, Adjustment Scale, and Stress Management Scale.

The model including the dynamic factors fit the data well,  $\chi^2(11883) = 4202.52, p = <.001$ , and resulted in a significant improvement in fit beyond the model including only the demographic and static factors,  $\chi^2_{diff}(6) = 69.94, p < .001$ . These results indicated that, beyond demographic and static variables, scale scores, representing factors amenable to change, are important for the prediction of probation revocations.

African American offenders were 3% less likely to have a probation revocation than Caucasian juvenile offenders. It was estimated juvenile offenders in the Other racial/ethnicity category were 225% more likely than Caucasian offenders to have probation revocations. Those with more detentions had a 53%

increase in expected rates of probation revocations. Probation revocations rose 14% for every 10% increase in violence propensity and violent behaviors. The largest predictor of probation revocations was adjustment to incarceration; juvenile offenders who reported adjusting poorly to incarceration had 112% increase in expected probation revocations. Poor stress management and coping abilities were associated with a 4% increase in expected probation revocations

### ROC/AUC Analysis

This analysis used risk classifications (Low Risk, Medium Risk, Problem Risk, Severe Problem) for each of the ACDI-Corrections Version II scales, along with the new binary variable. Any finding with an AUC above .50 had predictive validity better than chance (50/50). Results of the ROC/AUC analysis identified five of the seven scales above the .50 threshold—5 out of the 7 scales predicted recidivism better than chance.

### Discussion

Findings in the current study indicate that the ACDI-Corrections Version II juvenile assessment is a valid test that distinguishes between low risk and severe risk juvenile offenders. Moreover, the inclusion of dynamic factors (violence, adjustment, stress management) in the ACDI-Corrections Version II enhances the predictive capabilities of recidivism and identifies areas of offender need and treatment targets. These findings add to the existing literature on juvenile offender rates of reoffending.

## **39. Reliability and Validity Study Using a Small County Court Sample**

This study was conducted to confirm reliability and validity findings using a sample of juvenile delinquents from a county court in Northcentral United States. There were 580 tests submitted and analyzed for this study.

### Participants

Gender: 70% male, 30% were female. Age: average was 15. Race/Ethnicity: 52%, were African Americans, 35% were Caucasian, 6% were Hispanic, less than 1% were Asian and Native American, and approximately 2% of offenders selected Other. Education: 4% of offenders graduated 6<sup>th</sup> grade, 8% completed 7<sup>th</sup> grade, 15% completed 8<sup>th</sup> grade, 24% completed 9<sup>th</sup> grade, 31% completed 10<sup>th</sup> grade, 17% completed 11<sup>th</sup> grade, and less than 1% had completed some college.

### 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 for each instrument administered by the Oakland County Court. Perfect reliability is 1.00 and the professionally accepted standard of reliability for these types of instruments is .70 - .80 (Murphy & Davidshofer, 2001).

**Table 61. ACDI-Correction Version II Reliability (N=584, 2014)**

<b><u>Scale</u></b>	<b><u>Alpha coefficient</u></b>
Truthfulness Scale	<b>.86</b>
Alcohol Scale	<b>.87</b>
Drugs Scale	<b>.91</b>
Violence Scale	<b>.89</b>
Distress Scale	<b>.78</b>
Adjustment Scale	<b>.86</b>
Stress Coping Abilities Scale	<b>.92</b>

All scales exceed accepted reliability standards.

### Validity

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

First-time offenders and repeat offenders mean scale scores were compared. Results found higher mean scale scores for repeat offenders on the Alcohol, Drug, Violence, Distress, and Adjustment Scales. As expected, repeat offenders scored lower on the Stress Coping Abilities Scale. On the Truthfulness Scale first-time offenders had slightly 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 and results were statistically significant on the Violence Scale. The non-significant findings for the Truthfulness, Alcohol, Drug, Distress, Adjustment and Stress Coping Abilities scales were likely the result of the small differences between offender groups

**Table 62. ACIDI-Corrections Version II Scale Validity (N=584, 2014)**

Scales	First Offenders	Repeat Offenders	T-value	Level of Significance
Truthfulness	8.52	7.76	1.36	>.01
Alcohol	5.21	6.10	-1.06	<.001
Drugs	10.56	12.70	-1.79	<.001
Violence	14.51	18.70	-4.35	<.001
Distress	18.62	21.80	-2.47	.02
Adjustment	17.20	19.64	-2.89	.005
Stress Coping Abilities	100.48	96.73	.80	>.01

Overall, these findings demonstrate that the ACIDI-Corrections Version II effectively differentiates between offenders who are known to have more severe problems (repeat offenders) than first-time offenders.

### **37. Study of the ACIDI in a Small Sample of Juveniles (2009-2013, N=451)**

The study (2009-2013) investigated the statistical properties of the ACIDI. There were 451 juvenile participants. ACIDI reliability, validity and accuracy were studied. The ACIDI does not include court history information as does the ACIDI-Corrections Version II, consequently, comparisons between first and multiple offenders could not be done. The participants were screened using the ACIDI as part of program procedures at agencies from around the US.

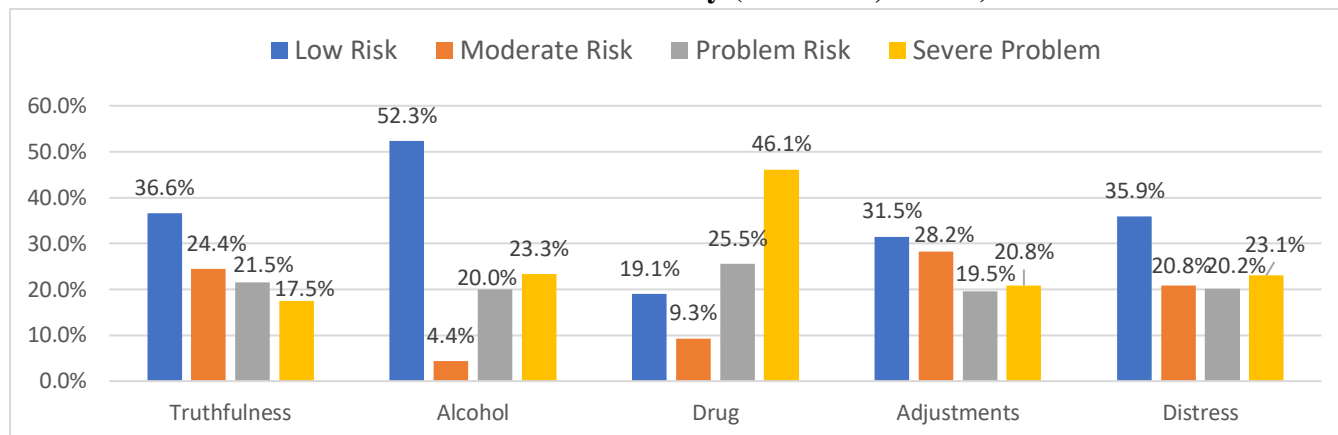
#### Method and Results

There were 451 juveniles included in this study (2009-2013). There were 331 males (73.4%) and 120 females (26.6%). The demographic composition of this sample was as follows. Age: 12 & under (2.2%), 13 years old (5.3%), 14 years old (12.0%), 15 years old (16.4%), 16 years older (23.7%), 17 years old (26.6%), 18 years old (8.4%), 19 & over (4.9%). Race: Caucasian (87.1%), African American (5.5%), Hispanic (0.9%), Asian (1.1%), Native American (1.3%), Other (2.0%). Education: 6<sup>th</sup> grade or less (3.1%), 7<sup>th</sup> grade (6.9%), 8<sup>th</sup> grade (12.4%), 9<sup>th</sup> grade (14.9%), 10<sup>th</sup> grade (25.5%), 11<sup>th</sup> grade (27.5%), graduated high school (3.3%), and some college (2.4%).

#### Accuracy of the ACIDI

The percentage of juveniles scoring in each of four risk categories (low, moderate, problem and severe problem risk) and the predicted percentage for each of the five ACIDI scales are presented in Table 63. 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.

**Table 63. ACIDI Accuracy (105 Items, N=422)**



Scale	Low Risk (39%)	Moderate Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	36.6% <b>-2.4%</b>	24.4% <b>-5.6%</b>	21.5% <b>1.5%</b>	17.5% <b>6.5%</b>
Alcohol	52.3% <b>13.3%</b>	4.4% <b>-25.6%</b>	20.0% <b>0.0%</b>	23.3% <b>12.3%</b>
Drugs	19.1% <b>-19.9%</b>	9.3% <b>-20.7%</b>	25.5% <b>5.5%</b>	46.1% <b>35.1%</b>
Adjustment	31.5% <b>-7.5%</b>	28.2% <b>-1.8%</b>	19.5% <b>-0.5%</b>	20.8% <b>9.8%</b>
Distress	35.9% <b>-3.1%</b>	20.8% <b>-9.2%</b>	20.2% <b>0.2%</b>	23.1% <b>12.1%</b>

Most scales show risk ranges within 10 percentage points of the expected percentage of offenders for each range. The Alcohol Scale shows greater than expected percent of offenders in the Low Risk and Alcohol Ranges in this sample. This sample also shows a large percentage of offenders in the Severe Problem range. These results are likely due to the decrease in ACIDI tests administered. The creation of the ACIDI-Corrections Version II, with a greater amount of test item questions, scales, and criminal history, has become the primary and most utilized version of the ACIDI. Larger samples show the ACIDI scales to be very accurate. This sample may be skewed by a client administering a large portion of tests used in this sample.

Reliability

Reliability is synonymous with reproducibility. A test that is reliability will result in similar scores for a respondent time and time again. The most common reliability statistic is coefficient alpha. Coefficient alpha varies from 0 for random responding or no reliability to 1 for perfect reliability. ACIDI scales' reliability is presented in table 64.

**Table 64. Reliability coefficient alphas for the ACIDI.**

<u>Scale</u>	<u>Alpha</u>
Truthfulness Scale	<b>.88</b>
Alcohol Scale	<b>.92</b>
Drugs Scale	<b>.88</b>
Distress Scale	<b>.92</b>
Adjustment Scale	<b>.86</b>

The professionally accepted reliability standard is .70 and higher. As shown in Table 64, ACIDI scales reliability coefficients were .86 or higher. All ACIDI scales are reliable.



### 38. Study of ACIDI Accuracy Reliability and Accuracy

This study (2014-2019) include 714 adolescents and includes statistical accuracy and reliability of the Adolescent Chemical Dependency Inventory (ACDI). The ACIDI test data were gathered from tests administered by Behavior Data Systems’ clients from 2014 to June 2019. The adolescents tested were largely male (72.5%), Caucasian (81.5%), and between ages 15 and 17 years old (71.3%).

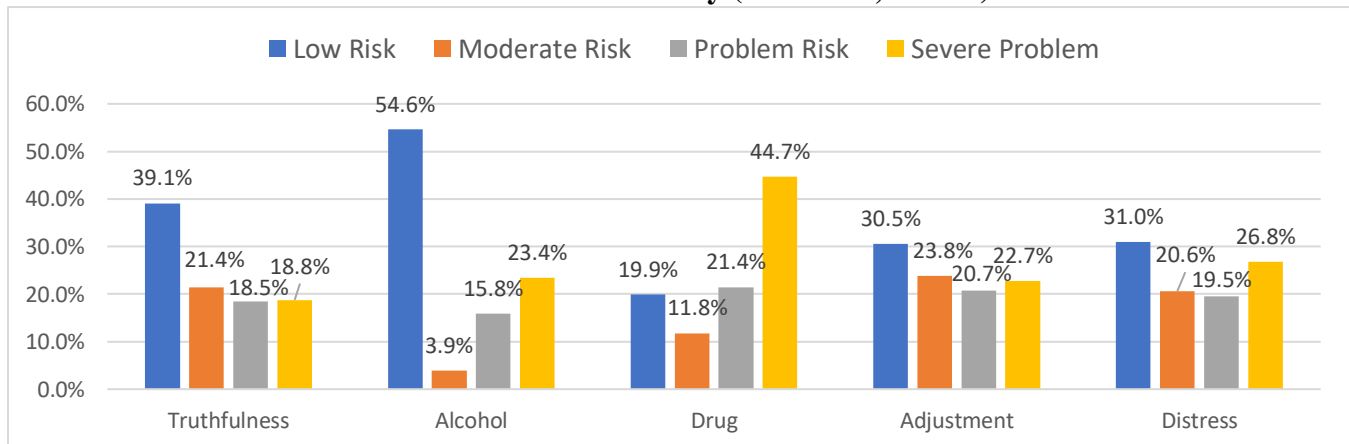
#### Methods and Results

**The participants in this study consisted of 714 adolescents.** There were 518 males (72.5) and 196 females (27.5%). Demographic composition of these participants is as follows: **Age:** 12 years or younger (15, 2.1%); 13 years (34, 4.8%); 14 years (62, 8.7%); 15 years (120, 16.8%); 16 years (179, 25.1%); 17 years (210; 29.4%); 18 years (59, 8.3%); and 19 years or older (34, 4.8%). **Ethnicity:** Caucasian (582, 81.5%); African American (55, 7.7%); Hispanic (23, 3.2%); Native American (8, 1.1%); and Other (28, 3.9%). **Education:** 6<sup>th</sup> grade or less (41, 5.7%), 7<sup>th</sup> grade (108, 15.1%); 8<sup>th</sup> grade (49, 6.9%); 9<sup>th</sup> grade (114, 16.0%); 10<sup>th</sup> grade (148, 20.7%), 11<sup>th</sup> grade (163, 22.8%); graduated high school (30, 4.2%), and some college (20, 2.8%).

#### Accuracy

ACDI accuracy for this adolescent sample is presented in Table 65. Test accuracy is demonstrated by the differences between obtained percentage scale scores and expected or predicted percentages. Four categories of risk include: Low Risk (0 to 39<sup>th</sup> percentile), Moderate Risk (40<sup>th</sup> to 69<sup>th</sup> percentile), Problem Risk (70<sup>th</sup> to 89<sup>th</sup> percentile), and Severe Problem (90<sup>th</sup> to 100<sup>th</sup> percentile) risk. Offender-obtained percentages for the four risk categories are subtracted from predicted percentages which are shown in the bold to the right of each risk range.

**Table 65. ACIDI Accuracy (105 Items, N=714)**



Scale	Low Risk (39%)	Moderate Risk (30%)	Problem Risk (20%)	Severe Problem (11%)
Truthfulness	39.1% <b>0.1%</b>	21.4% <b>-8.6%</b>	18.5% <b>-1.5%</b>	18.8% <b>7.8%</b>
Alcohol	54.6% <b>15.6%</b>	3.9% <b>-26.1%</b>	15.8% <b>-4.2%</b>	23.4% <b>12.4%</b>
Drug	19.9% <b>-19.1%</b>	11.8% <b>-18.2%</b>	21.4% <b>1.4%</b>	44.7% <b>33.7%</b>
Adjustment	30.5% <b>-8.5%</b>	23.8% <b>-6.2%</b>	20.7% <b>0.7%</b>	22.7% <b>11.7%</b>
Distress	31.0% <b>-8.0%</b>	20.6% <b>-9.4%</b>	19.5% <b>-0.5%</b>	26.8% <b>15.8%</b>

In Table 65, most scales show risk ranges within 10 percentage points of the expected percentage of offenders for each range. The Alcohol Scale shows greater than expected percent of offenders in the Low Risk and Alcohol Ranges in this sample. This sample also shows a large percentage of offenders in the Severe Problem range. These results are likely due to the decrease in ACDI tests administered. The creation of the ACDI-Corrections Version II, with a greater amount of test item questions, scales, and criminal history, has become the primary and most utilized version of the ACDI. Larger samples show the ACDI scales to be very accurate. This sample may be skewed by a client administering a large portion of tests used in this sample.

Reliability

Reliability is synonymous with reproducibility. A test that is reliability will result is similar scores for a respondent time and time again. The most common reliability statistics is coefficient alpha. Coefficient alpha varies from 0 for random responding or no reliability to 1.00 for perfect reliability. ACDI scales’ reliability is presented in Tables 66.

**Table 66. Reliability coefficient alpha for the ACDI**

<u>Scale</u>	<u>Alpha</u>
Truthfulness Scale	<b>.88</b>
Alcohol Scale	<b>.92</b>
Drugs Scale	<b>.88</b>
Distress Scale	<b>.92</b>
Adjustment Scale	<b>.86</b>

The professionally accepted reliability standard is .70 or higher. As shown in Table 66, ACDI scales reliability coefficients varied from .86 or higher. All ACDI scales are reliable.

**39. Reliability, Validity and Risk Range Analyses of the ACDI-Corrections Version II**

This report summarizes ACDI-Corrections Version II (Adolescent Chemical Dependency Inventory-Corrections Version II) test results for 5,624 offenders tested by BDS clients. Data were returned between January 1, 2014 and June 14, 2019.

Participants

**Juvenile offenders in this sample were predominately male, age 15-16, and approximately 63% had completed the ninth grade. The average age at first arrest for both male and female offenders was approximately age 14. 75.6% of offenders reported at least one arrest; 17.6% reported 3 or more arrests. 41.9% reported one or more juvenile detention stays and 27.6% reported one or more drug arrests.**

Reliability

Test reliability refers to a scale’s consistency of measurement. A scale is reliable if a person gets the same score when re-tested as he/she did when originally tested. Table 63 shows the reliability scores for each ACDI-Correction Version II scale. Perfect reliability is 1.00. The professionally accepted reliability standard is .70-.80.

**Table 63. ACIDI-Correction Version II Reliability (N=5,624)**

<u>Scale</u>	<u>Alpha coefficient</u>
Truthfulness Scale	<b>.88</b>
Alcohol Scale	<b>.91</b>
Drugs Scale	<b>.92</b>
Violence Scale	<b>.88</b>
Distress Scale	<b>.78</b>
Adjustment Scale	<b>.85</b>
Stress Coping Abilities Scale	<b>.92</b>

As noted in Table 63, all ACIDI-Corrections Version II scales exceed this standard and demonstrate very impressive reliability.

#### Validity

Validity analyses compared first-time offenders' and repeat offenders' ACIDI-Corrections Version II scale score. Offenders classified as first-time offenders were those having no more than one arrest, whereas repeat offenders were those who had been arrested two or more times. Self-report arrest information was obtained from ACIDI-Corrections Version III answer sheet responses. It was predicted that repeat offenders would obtain higher (more severe) scale scores than first-time offenders. Validity analysis results are presented in table 64. Stress Management Scale measures prosocial behaviors, meaning that higher scores are associated with better stress coping skills.

**Table 64. ACIDI-Corrections Version II Scale Validity (N=5,624)**

Scales	First Offenders	Repeat Offenders	T-value	Level of Significance
Truthfulness	8.69	9.03	-2.13	.030
Alcohol	4.13	7.54	-16.32	<.001
Drug	8.92	17.62	-28.16	<.001
Violence	14.16	25.61	-37.81	<.001
Distress	17.98	24.64	-17.81	<.001
Adjustment	16.45	21.60	-21.55	<.001
Stress Management	103.84	96.20	5.93	<.001

As shows in Table 64, repeat offenders' average scores on all ACDI-Corrections Version II scales indicated more severe problems. For all ACDI-Corrections Version II scales, repeat offenders' average ACDI-Corrections Version II scores were higher than those of first offenders, indicating more acute problem severity. Repeat offenders' more severe problems are manifested as higher ACDI-Corrections Version II scale scores.

**T-test** analyses were conducted to examine whether the mean scores were statistically significant. Adjustments were made for unequal variances and to control for experimentwise error. **Results were statistically significant for all scales.** These findings support the ability of the ACDI-Corrections Version II to effectively differentiate offenders who are known to have more severe problems (repeat offenders) from offenders that usually have less severe problems (first-time offenders).

Risk Range Analyses

A secondary analysis was conducted using offender status (first-time and repeat) and selected risk ranges for each of the behavioral scales. First time offenders comprised 67.0% of offenders, repeat offenders comprised 29.8% of the sample. Problem Risk and Severe Problem percentages were selected as these juvenile offenders typically present the greatest risk and most complex treatment/intervention needs. The expected percentage of offenders for the Problem Risk range is 20% and the expected percent for Severe Problem classification is 11%. Frequencies and percentages are presented in Table 64.

**Table 61. Offender Status and Risk Classification (N = 542, 2013)**

<u>Offender Status</u>	<u>Scales</u>	<u>Problem Risk</u>		<u>Severe Problem</u>	
		<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
First Time	Alcohol	204	5.4	213	5.7
	Drug	613	16.3	229	6.1
	Violence	361	9.6	252	6.7
	Distress	343	9.1	622	16.6
	Adjustment	684	18.2	558	14.9
	Stress Management	577	15.4	338	9.0

Repeat	Alcohol	188	11.2	191	11.4
	Drug	493	29.5	341	20.4
	Violence	369	22.1	379	22.7
	Distress	288	17.2	329	19.7
	Adjustment	464	27.7	332	19.8
	Stress Management	347	20.7	142	8.5

First time offenders' scale scores were mostly consistent with the expected risk range thresholds (see above description) with more falling below expected thresholds. The Distress and Adjustment Scales each had a greater than expected percent of first-time offenders in the Severe Problem range. As expected, repeat offenders scored in the Problem Risk or Severe Problems more often than first-time offenders. This confirms the validity of ACIDI-Corrections Version II test; first time offenders represent less risk.

### SUMMARY

The Adolescent Chemical Dependency Inventory (ACDI) evolved into the ACIDI-Corrections Version and ACIDI-Corrections Version II. Research on the ACDI began in the 1980's and has continued to the present. This research has led to refinements in the ACDI and development of ACIDI Corrections Versions specifically for juvenile corrections and probation. The ACDI and ACIDI-Corrections Versions have a long history of research and development. The ACDI, ACIDI-Corrections Version and ACIDI-Corrections Version II are the state-of-the-art in juvenile assessment.

With regard to reliability, all ACDI and ACIDI-Corrections Version scales have reliability coefficients at .80 or higher. As shown in the most recent large sample (N=300+) study all ACIDI-Corrections Version II scales reliability coefficients are at or above .87, and many scales are close to or above .90. These are very impressive reliability statistics, well above the accepted reliability coefficient standard of .75. The ACDI and ACIDI-Corrections Versions are highly statistically reliable juvenile assessment instruments.

With regard to validity, the ACDI and ACIDI-Corrections Versions scales have been shown to be highly correlated with established criterion measures. For example, the ACDI Truthfulness Scale is highly statistically correlated with MMPI L Scale and F Scale. ACDI Alcohol Scale is correlated with MMPI MacAndrew Scale. ACDI Drugs Scale is correlated with MMPI MacAndrew and Psychopathic Deviate scales. ACDI Distress Scale is correlated with MMPI Taylor Manifest Anxiety, Depression and Psychasthenia scales. The ACDI Adjustment Scale is correlated with MMPI Manifest Hostility, Authority Conflict, Delinquency and Family Discord scales. In addition to these traditional validation studies, the most recent study (p.43) shows that ACIDI-Corrections Version II database analysis continues to demonstrate

discriminant validity and predictive validity. For example, multiple offenders scored significantly higher on the different ACDI scales than first offenders. Alcohol and Drugs scale scores accurately predicted alcohol and drug problems, respectively.

With regard to accuracy, comparisons between obtained scale scores risk range percentages and predicted risk range percentages show that the ACDI is accurate to within 2.0 percentage points for stable (300+) samples. Compared to the predicted risk ranges (39% Low risk, 30% Medium risk, 20% Problem risk and 11% Maximum risk) the actual percentage of clients that are placed in each risk range based on their ACDI scale scores has been shown in the above study to be very close to these predicted percentages. This is very accurate assessment.

In summary, the statistical properties of the ACDI, ACDI-Corrections Version and ACDI-Corrections Version II are very impressive and strongly support reliability, validity and accuracy of the ACDI and all of its versions. It should be emphasized that the ACDI and Corrections Versions tests have been researched on the juvenile population the tests were designed for and ACDI scoring procedures are standardized on these juvenile populations. Studies reported herein contain thousands of juvenile ACDI test results from several areas of the country and jurisdictions. The ACDI and Corrections Versions have been researched on adjudicated juvenile delinquents, students, juvenile offenders, and adolescent community corrections program clients. Research on the ACDI, ACDI-Corrections Version and ACDI-Corrections Version II is ongoing and refinements will continue to be made to keep pace with the ever-changing needs of today's juvenile population.

Herman Lindeman, Ph.D.  
Risk & Needs Assessment, Inc.