ACDI-Corrections Version II:
Violent Juvenile Offender Assessment

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ABSTRACT

The ACDI-Corrections Version II (ACDI-CV II) is a juvenile offender test that accurately measures offender risk of violence (lethality), substance (alcohol and drugs) abuse, adjustment, emotional and mental health problems. There were 8,405 juvenile offenders used in this study. Reliability analyses showed that all ACDI-CV II scales had very high alpha reliability coefficients of between .85 and .91. ACDI-CV II scales were validated in several tests of validity. Discriminant validity was shown by significant differences on ACDI-CV II scale scores between first and multiple offenders. The Violence Scale correctly identified 99% of the offenders that admitted to being violent. The Alcohol Scale correctly identified 97% of the offenders that had been treated for alcohol problems. The Drugs Scale accurately identified 97% of offenders that had drug problems. ACDI-CV II classification of offender risk was shown to be very accurate. All ACDI-CV II scale scores were within 2.4% of predicted risk range percentile scores. This study demonstrated that the ACDI-CV II is a reliable, valid and accurate juvenile offender test.

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Introduction

It is not uncommon for kids to get into trouble. For most of these kids their initial experience with the juvenile justice system sets them straight, and they never return (Hayes, 1999). Those juveniles who are not affected by juvenile judges' warnings become chronic offenders and return to the system time and time again. For these troubled kids early intervention programs are an important factor in redirecting them away from problem behavior. This is especially true for violent youths.

Many juvenile programs target high-risk juvenile offenders. Often these programs start with an evaluation of the juveniles (Hirth, 2001). According to Hirth, a juvenile offender placed in their program is surrounded with intensive supervision, therapeutic counseling and individual services appropriate to that child, such as tutoring, substance abuse treatment, drug testing and mental health treatment. Deciding on appropriate programs and placements for the juveniles can be made easier with assessment tests. A multidimensional assessment test can provide useful and timely information for identifying juvenile risk and needs, selecting appropriate supervision levels and providing information regarding what intervention and treatment programs would be appropriate for the youths. Assessment tests also help in understanding offenders who may not be at high-risk but who would benefit from programs aimed at changing juvenile delinquent behavior.

Troubled youth often send signals regarding their intentions to commit acts of violence. Violence can lead to more serious degrees of violence, including homicide. Even mild forms of violence can lead to more serious forms of violence if left unchecked. Early identification of violence can stop further violence by placing juveniles with a high probability of recidivism in appropriate programs and thereby preventing further violent acts. Intervention and treatment are long-term solutions to violent youth. Effective treatment is largely contingent upon early problem identification. Assessment tests can screen violence potential in offenders and aid in the early selection of appropriate levels of intervention and treatment.

One of the most widely used juvenile offender tests is the ACDI-Corrections Version II (ACDI-CV II). The ACDI-CV II is a multidimensional test that was developed to meet the needs of judicial court screening and assessment. ACDI-CV II scales measure violence (lethality) tendencies (Violence Scale), adjustment problems (Adjustment Scale), alcohol and drug abuse severity (Alcohol & Drugs Scales) and emotional or mental health problems (Distress Scale & Stress Coping Abilities Scale). In addition, there is the Truthfulness Scale to measure offender truthfulness while completing the test. Offenders who deny or minimize their problems are detected with the Truthfulness Scale. Truthfulness Scale scores determine the factors used for truth-correcting other scale scores. Truth-corrected scores are more accurate than raw scores because they adjust for offender untruthfulness. A test that is multidimensional lends itself to recidivism prediction. Predicting future problems such as criminal arrests is just as important as identifying problem behavior. A reliable, valid and accurate test is essential for measuring

offender risk and need as well as recidivism prediction. The present study validates the ACDI-CV II test.

Violence, adjustment, distress and stress coping abilities are personality and attitude factors that are relevant to juvenile problem-prone behavior. These factors are measured by the ACDI-CV II. Personality and attitude factors, often referred to as "dynamic variables," are capable of change and are amenable to intervention or treatment programs. Positively changing offenders' personality and attitudes can lead to behavioral change and reductions in recidivism. Early identification of problem prone individuals can lead to reductions in juvenile violence and problem behavior.

For ease in interpreting juvenile offender risk, the ACDI-CV II scoring methodology classifies offender scale scores into one of four risk ranges: low risk (zero to 39th percentile), medium risk (40 to 69th percentile), problem risk (70 to 89th percentile), and severe problem risk (90 to 100th percentile). By definition the expected percentages of offenders scoring in each risk range (for each scale) is: low risk (39%), medium risk (30%), problem risk (20%), and severe problem risk (11%). Offenders who score at or above the 70th percentile are identified as having problems. For example, offenders' Alcohol Scale scores of 70 or above identify them as problem drinkers. Offenders scale scores at or above the 90th percentile identify severe problems. The accuracy of the ACDI-CV II in terms of risk range percentages was examined in this study.

This study validates the ACDI-CV II in a sample of juvenile offenders that were processed as part of standard offender evaluation procedures in court and community service programs. Two methods for validating the ACDI-CV II were used in this study. The first method (discriminant validity) compared first and multiple offenders' scale scores. Multiple offenders were offenders with two or more arrests and first offenders had only one or no arrest. A test that measures severity level ought to show on average that multiple offenders score higher than first offenders. It was hypothesized that statistically significant differences between multiple and first offenders would exist and the test would differentiate between first and multiple offenders. Multiple offenders would be expected to score higher on ACDI-CV II scales because having a second arrest is indicative of problem-prone behavior. Comparisons between first and multiple offenders on the ACDI-CV II scales identifies offender problems and needs.

The second validation method (predictive validity) examined the accuracy at which the ACDI-CV II identified violent prone offenders, problem drinkers and problem drug abusers. Tests that measure severity of problems should be able to predict if offenders have problems by the magnitude (severity) of their scores. Scores that fall in problem ranges should indicate that problems exist. To be considered accurate an offender test must accurately identify violent individuals, drinkers or drug abusers. Accurate tests differentiate between problem and non-problem offenders. An inaccurate test, for example, may too often call non-problem drinkers problem drinkers or vice versa. In the ACDI-CV II, treatment information is used to determine accuracy because it is readily obtained from the offenders' responses to test items. Having been in treatment identifies offenders as having an alcohol or drug problem. If a person has never had an alcohol or drug problem it is very likely they have not been treated for an alcohol or drug problem. However, there are some offenders who have an alcohol or drug problem but have not been in treatment. Nevertheless, offenders that have been in treatment would be expected to

score in the corresponding scale's problem range. In regards to violence, offenders direct admissions of problems were used as the criteria, because violence is often subsumed under other criminal statutes.

Offenders were separated into two groups, those who had treatment or admitted problems and those who have not had treatment or did not admit to problems. Then, offender scores on the relevant ACDI-CV II scales were compared. It was predicted that juvenile offenders with an alcohol and/or drug treatment history would score in the problem risk range (70th percentile and above) on the Alcohol and/or Drugs Scales. Similarly, offenders that admit problems are predicted to score higher than offenders not admitting problems. Non-problem is defined in terms of low risk scores (39th percentile and below). The percentage of offenders that have been in treatment or admit problems and also score in the 70th percentile range and above is a measure of how accurate ACDI-CV II scales are. High percentages of offenders with treatment and problem histories and elevated problem risk scores would indicate the scales are accurate.

Method

Subjects

There were 8,405 juvenile offenders tested with the ACDI-Corrections Version II. There were 5,618 males (66.8%) and 2,787 females (33.2%). The ages of the participants ranged from 11 through 20 as follows: 12 & under (3%); 13 (8%); 14 (16%); 15 (26%); 16 (30%), 17 (13%), 18 (2%) and 19 & over (1%). The demographic composition of participants was as follows. Race/Ethnicity: Caucasian (53%); Black (37%), Hispanic (7%) and Other (2%). Education: Sixth grade or less (7%); Grade 7 (12%); Grade 8 (27%); Grade 9 (27%), Grade 10 (17%), Grade 11 (8%), High School graduate/GED (2%) and Some college (1%). There were 61 cases with missing age information, 159 cases had missing race information and 291 cases did not have education information.

Nearly half (44%) of the youths were first time offenders (one or no arrest). Twenty-one percent of the participants had been arrested twice, 13 percent had three arrests and 13 percent were arrested six or more times. Seventy-seven percent of the youths had been on probation one or more times. Fifteen percent of the offenders had one or more alcohol arrests, 11 percent had one arrest, two percent had two arrests and two percent had three or more arrests. Twenty-seven percent of the youths had one or more drug arrests, 19 percent had one drug arrest, five percent had two arrests and four percent had three or more drug arrests.

Procedure

Participants completed the ACDI-CV II as part of the normal routine for juvenile offender evaluation in court service programs and community service programs. The ACDI-CV II contains seven measures or scales. These scales are briefly described as follows. The Truthfulness Scale measures the truthfulness of the respondent while taking the ACDI-CV II. The Alcohol Scale measures severity of alcohol use or abuse. The Drugs Scale measures severity of drug use or abuse. The Adjustment Scale assesses youths' adaptation to life conditions that confront them. The Violence Scale measures offender proneness to commit violence. The Distress Scale measures

experienced anxiety and depression. The Stress Coping Abilities Scale measures ability to cope with stress.

Results and Discussion

The inter-item reliability (alpha) coefficients for the seven ACDI-CV II scales are presented in Table 1. All scales were highly reliable. All of the alpha reliability coefficients for all ACDI-CV II scales were between 0.85 and 0.91. These results demonstrate that the ACDI-CV II is a very reliable juvenile offender assessment test.

Table 1. Reliability of the ACDI-CV II

ACDI-CV II Scale	Alpha	Significance Level
Truthfulness Scale	.87	p<.001
Alcohol Scale	.91	p<.001
Drugs Scale	.91	p<.001
Adjustment Scale	.85	p<.001
Distress Scale	.91	p<.001
Violence Scale	.87	p<.001
Stress Coping Abilities	.91	p<.001

T-tests were calculated for all ACDI-CV II scales to assess possible sex or gender differences. T-test results are presented in Table 2.

Table 2. Comparisons between Males and Females

ACDI-CV II Scale	Males Mean	Females Mean	T-value	Significance
Truthfulness Scale	9.97	8.34	t =13.09	p<.001
Alcohol Scale	4.81	3.96	t = 5.01	p<.001
Drugs Scale	10.47	8.03	t = 10.37	p<.001
Violence Scale	17.21	16.38	t = 3.30	p<.001
Distress Scale	18.58	24.02	t = 17.17	p<.001
Adjustment Scale	15.79	18.86	t = 14.84	p<.001
Stress Coping Abilities	94.81	85.76	t = 9.79	p<.001

Note: The Stress Coping Abilities Scale is reversed in that the higher the score the better one copes with stress. Highly elevated (90th percentile or higher) Stress Coping Abilities scores indicate the presence of identifiable emotional or mental. health problems.

These results demonstrate significant male/female differences on all ACDI-CV II scales. The Truthfulness, Alcohol, Drugs and Violence Scales show that males scored significantly higher than females. The Distress, Adjustment and Stress Coping Abilities Scales show that females scored significantly higher than males. These results demonstrate that separate scoring procedures are needed for males and females. Accurate juvenile assessment must take into account differences between male and female scale scores. With few exceptions (other than the ACDI-CV II), juvenile tests rarely report these important differences. Yet, of the 8,405 juvenile

offenders that participated in the present study there were 2,787 (33.2%) female offenders. In the interest of accurate juvenile offender assessment, any accurate contemporary test must include both male and female scoring distributions. This has been done in the ACDI-CV II, which has sex-related (male/female) distributions built into its scoring methodology.

Over half (55%) of the participants in this study had two or more arrests. These multiple offenders scored significantly higher than first-time offenders on the ACDI-CV II Alcohol Scale, Drugs Scale, Adjustment Scale, Distress Scale, Violence Scale and Stress Coping Abilities Scale. Higher scores on these ACDI-CV II scales are associated with more severe problems. Discriminant validity results for the comparisons between first and multiple offenders are presented in Table 3. The table presents the mean scale scores for each ACDI-CV II scale for first and multiple offenders along with t-test comparisons.

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 ACDI-CV II scale are presented in Table 3 (N=8,405). Multiple offenders had two or more arrests as reported on the ACDI-CV II answer sheet.

Table 3. T-test Comparisons between First Offenders and Multiple Offenders.

ACDI-CV II Scale	First Offenders Mean	Multiple Offenders Mean	T-value	Level of significance
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. The Stress Coping Abilities Scale is reversed in that the higher the score the better one copes with stress. It is accepted that stress exacerbates emotional and mental health symptomatology.

All ACDI-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. Truthfulness Scale results suggest that both first and multiple offenders are equally open, honest and cooperative when completing the ACDI-CV II.

ACDI-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 ACDI-CV II scale scores than first offenders and the results reported in Table 3 support this conclusion. Offenders who have a history of arrests score higher on ACDI-CV II scales than first time offenders. ACDI-CV II scale scores identify problem prone offenders.

These results are important because they show that the Alcohol, Drugs, Adjustment, Distress, Violence and Stress Coping Abilities scales do measure levels of severity. The offenders who were believed to have more severe problems (multiple offenders) scored significantly higher on these scales than first-time offenders. Multiple offenders also scored significantly higher on the Stress Coping Abilities Scale than did first offenders. Offenders who have prior arrests demonstrate poorer stress coping skills.

Correlation coefficients between ACDI-CV II scales and court history are presented in Table 4. These correlation results show that the Violence Scale is significantly correlated with number of arrests and age at first arrest. These results suggest that violent youth get arrested young and have many arrests. The Alcohol Scale is significantly correlated with alcohol arrests and the Drugs Scale is significantly correlated with drug arrests. These results are in agreement with the above discriminant validity results. These results also support the validity of ACDI-CV II scales.

Table 4. Correlations between Court History with ACDI-CV II Scales

	Alcohol Scale	Drugs Scale	Violence Scale	Distress Scale	Adjustment Scale	Stress Coping
Age at first arrest	-.0764	-.0775	-.4425	-.2401	-.2753	.1683
Times arrested	.2032	.2555	.5270	.2171	.2294	-.0843
Alcohol arrests	.3763	.1624	.1018	.0271	.0351	.0185
Drug arrests	.1863	.4116	.2140	.1034	.1180	-.0233

Predictive validity results for the correct identification of problem behavior (violence tendencies, drinking and drug abuse problems) are presented in Table 5. Table 5 shows the percentage of offenders that had or admitted to having problems and who scored in the problem risk range. For the Alcohol and Drugs Scales problem behavior means the offender had alcohol or drug treatment. For the Violence Scale the offenders admitted they were violent. In these analyses scale scores in the Low risk range represent "no problem," whereas, scores in the Problem and Severe Problem risk ranges (70th percentile and higher) represent problems.

In separate analyses the ACDI-CV II demonstrated it accurately identified 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 problem. Having been in drug treatment identifies them as having a drug problem. Similarly, ACDI-CV II Alcohol and Drugs Scale scores at or above the 70th percentile identify youths who have alcohol and drug problems, whereas, scores at or below the 39th percentile indicate youths do not have an alcohol or drug problem. In this analysis it was predicted that youths with an alcohol and/or drug treatment history would score in the problem risk range (70th percentile and above) on the Alcohol Scale and/or Drugs Scale. Alcohol treatment information was obtained

from participant answers to ACDI-CV II test item "I have been in alcohol treatment for my drinking problem." regarding alcohol treatment and "I have been in counseling or treatment for my drug use." regarding drug treatment.

The ACDI-CV II Alcohol Scale was very accurate in identifying youths who have had alcohol problems. There were 7,112 youths who had Alcohol Scale scores in the low risk (0-39th percentile) and problem risk ranges (70-100th percentile). There were 519 youths who reported having been in alcohol treatment and these youths were classified as problem drinkers. Of these 519 youths, 501 individuals, or 96.5 percent, had Alcohol Scale scores at or above the 70th percentile. The Alcohol Scale correctly identified nearly 97 percent of the youths categorized as problem drinkers.

The ACDI-CV II Drugs Scale was also very accurate in identifying youths who have had 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 70th percentile. These results validate the ACDI-CV II Drugs Scale.

For Violence Scale comparisons there were 1,067 juveniles who admitted being a violent person. Of these 1,067 offenders, 1,056 individuals or **99 percent** had Violence Scale scores in the Problem or Severe Problem ranges. These results validate the Violence Scale.

Table 5. Predictive Validity of the ACDI-CV II

ACDI-CV II Scale	Correct Identification of Problem Behavior
Alcohol	96.5%
Drugs	96.9%
Violence	99.0%

The Violence Scale accurately identified offenders (**99%**) who described themselves as a violent person. The direct admission of a violence problem validates the Violence Scale. The Alcohol and Drugs Scale accurately identified offenders who had alcohol and drug treatment. The Alcohol Scale correctly identified nearly all (**97%**) of the offenders categorized as problem drinkers and the Drugs Scale correctly identified nearly all (**97%**) of the offenders categorized as problem drug users. In comparison to other tests, this is very accurate assessment. These results strongly support the validity of the ACDI-CV II Violence, Alcohol and Drugs Scales.

Risk range percentile scores are derived from scoring equations based on offender pattern of responding to scale items, truth-corrected scores and criminal history, if applicable. These results are presented in Table 6. 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 ACDI-CV II risk range percentile scores involved comparing the offender's obtained risk range percentile scores to predicted risk range percentages as defined above. The percentages of offenders expected to fall into each risk range are: Low Risk (39%), Medium Risk (30%), Problem Risk (20%) and Severe Problem or Maximum Risk (11%). These percentages are shown in parentheses in the top row of Table 6. 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. The differences between predicted and obtained are shown in parentheses.

Table 6. Accuracy of ACDI-CV II Risk Range Percentile Scores

Scale	Low Risk (39%)		Medium Risk (30%)		Problem Risk (20%)		Severe Problem (11%)	
Truthfulness Scale	40.4	(1.4)	29.0	(1.0)	19.3	(0.7)	11.3	(0.3)
Alcohol Scale	41.4	(2.4)	30.5	(0.5)	18.0	(2.0)	10.1	(0.9)
Drugs Scale	39.4	(0.4)	29.7	(0.3)	20.1	(0.1)	10.8	(0.2)
Violence Scale	38.0	(1.0)	30.9	(0.9)	20.2	(0.2)	10.9	(0.1)
Distress Scale	39.6	(0.6)	30.2	(0.2)	20.1	(0.1)	10.1	(0.1)
Adjustment Scale	39.2	(0.2)	29.2	(0.8)	21.0	(1.0)	10.6	(0.4)
Stress Coping Abilities	38.8	(0.2)	30.4	(0.4)	19.8	(0.2)	11.0	(0.0)

Table 6 demonstrates that the obtained risk range percentages for these juvenile offenders were 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.

Conclusions

This study demonstrated that accurate juvenile offender assessment could be achieved with the ACDI-CV II. Results corroborate and support the ACDI-Corrections Version II as an accurate assessment test for juvenile offenders. The ACDI-CV II accurately measures juvenile risk of violence (lethality), substance (alcohol and drugs) abuse, adjustment, emotional and mental health problems. Results demonstrate that juvenile offenders have many personality and behavioral problems.

Reliability results demonstrated that all seven ACDI-CV II scales were highly reliable. Six alpha coefficients were at 0.87 or 0.91 and one scale was at 0.85. Such high reliability statistics is very impressive for any test. Reliability is necessary in juvenile screening tests for accurate measurement of offender risk. Evaluators can be confident that ACDI-CV II scale scores can be reproduced on retest. These results demonstrate that the ACDI-CV II is a reliable test for juvenile offender assessment.

Validity analyses confirm that the ACDI-Corrections Version II measures what it purports to measure, that is, juvenile offender risk. The ACDI-CV II accurately identified juvenile offenders who admit violence-related problems. Multiple offenders (having prior arrests) scored significantly higher than first offenders (discriminant validity). Moreover, the Violence Scale identified 99% of the offenders who admitted being a violent person. The Alcohol and Drugs Scales correctly identified juveniles who have had treatment for alcohol and drugs, 96.5% and 96.9%, respectively (predictive validity). And, obtained risk range percentages on all ACDI-CV II scales very closely approximated predicted percentages. All ACDI-CV II scale classifications of offender risk were within 2.4% of predicted risk range percentile scores. These results strongly support the validity of the ACDI-CV II.

Violence prone youth exhibit many behavioral characteristics that can be identified with the ACDI-CV II. Early identification of these problems and prompt intervention can reduce a juvenile offender's risk of recidivism or future violence. ACDI-CV II measures facilitate juvenile offender understanding. They provide an empirical basis for recommending appropriate intervention and treatment programs.

One of the most important decisions regarding a juvenile offender is what supervision level and/or intervention program is appropriate for the offender. The ACDI-CV II can be used to tailor intervention (levels of supervision and treatment) to each juvenile offender based upon their assessment results. For example, scale scores in the low risk range suggest educational programs and minimum levels of supervision. Medium risk scores suggest counseling with medium levels of supervision, whereas, problem risk scores may require outpatient treatment along with increased supervision levels. Severe problem risk scores are often associated with intensive outpatient or even inpatient treatment. In short, the ACDI-CV II can be instrumental in establishing levels of supervision and when warranted recommend treatment and/or intervention options. Early problem identification with appropriate treatment can reduce youths' violent behavior. This would lead to reductions in recidivism and future violence.

References

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