

JUVENILE TREATMENT OUTCOME

An Inventory of Scientific Findings

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PREFACE

This document is a cumulative research record of the evolution of the Juvenile Treatment Outcome (JTO) into a state-of-the-art juvenile sex offender assessment instrument. The JTO evolved from the adult Sexual Adjustment Inventory, yet it is designed specifically for juvenile sex offenders. It should be noted that research studies are presented chronologically, from 1985 to the present, in the same order each of the research analyses was done. **Recent studies are most representative of the JTO.** No attempt has been made to incorporate all JTO research into this document. However, it is representative of the JTO's reliability, validity and accuracy.

The JTO is an automated computerized assessment instrument designed specifically for the assessment of juvenile sex offenders. The proprietary JTO database ensures continued research and development. The JTO is a brief, easily administered and automated (computer scored) test. It includes true/false and multiple choice items and can be completed in one hour or less. The JTO contains thirteen empirically based scales: Test-item Truthfulness, Sex-item Truthfulness, Sexual Adjustment, Child Molest, Sexual Assault (Rape), Incest, Exhibitionism, Violence (Lethality), Antisocial, Alcohol, Drug, Distress and Judgment. The JTO has been researched on juvenile sex offenders, college students, outpatients, inpatients, probationers and others.

The JTO report explains client's attained scores and makes specific intervention and treatment recommendations. It also presents Truth-Corrected scores, significant items, a concise "structured interview" and much more. The JTO is designed to measure the severity of juvenile sex offender problems in judicial, correctional, probation and parole systems. It is a risk and needs assessment instrument. The JTO has demonstrated reliability, validity and accuracy. It correlates impressively with both experienced staff judgment and other recognized tests.

JTO tests can be given directly on the computer screen or in paper-pencil test booklet format. All tests are computer scored on-site. JTO 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 JTO 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.

JTO 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 JTO is to be used in conjunction with a review of available records and respondent interview. No decision or diagnosis should be based solely on JTO results. Client assessment is not to be taken lightly as the decisions made can be vitally important as they effect peoples lives. JTO research is ongoing in nature, so that evaluJTOrs can be provided with the most accurate information possible.

INTRODUCTION

Juvenile Treatment Outcome

Over the past decade we have witnessed dramatic changes in health care systems, particularly in mental health, chemical dependency and counseling. There is renewed emphasis upon objective and accurate problem identification, appropriate referral and documented outcome. Decisions regarding the type of intervention needed, changes in inpatient-outpatient status, continuation or completion of treatment and effectiveness of treatment are now subject to review. Provider accountability, utilization review and substantiation of decision making are here to stay.

The Juvenile Treatment Outcome (JTO) was developed to help meet these needs. The JTO is designed for test-retest comparison at important stages of treatment intervention, e.g., intake, change of status, completion and outcome. The JTO combines objective assessment with the client's perception of his or her own needs. As Ulenhuth (1970) observed, "it is the patient's opinion with all its biases that is most relevant for the initiation and maintenance of treatment." The Juvenile Treatment Outcome enables staff to compare patient's opinions with empirically based objective measures of client problems and need.

This document is a cumulative research record of the evolution of the Juvenile Treatment Outcome (JTO) into a state-of-the-art clinical assessment instrument. It should be noted that research studies are presented chronologically, from 1980 to the present, in the same order each of the research analyses was done. **Recent studies are most representative of the JTO.** No attempt has been made to incorporate all JTO research into this document. However, it is representative of the JTO's reliability, validity and accuracy.

The Juvenile Treatment Outcome (JTO) is an automated computerized assessment instrument designed for use at intake (pre-treatment) and post-treatment intervals. It enables comparison of client status prior to, during and upon treatment completion. The JTO can be re-administered to the same client at 30 day intervals or at important decision making points in the treatment program, e.g., intake, referral and continuation or completion of treatment. The proprietary JTO database ensures continued research and development. The JTO is a brief, easily administered and automated (computer scored) test that is designed for clinical assessment. It includes true/false and multiple choice items and can be completed in 25 to 30 minutes. The JTO contains twelve empirically based scales: Truthfulness, Self-esteem, Outlook, Adjustment, Depression, Anxiety, Control, Suicide, Violence, Alcohol, Drugs, and Stress Coping Abilities. The JTO has been researched on outpatients, inpatients, college students and others.

The JTO report explains client's attained scores and makes specific intervention and treatment recommendations. It also presents Truth-Corrected scores, significant items, a concise "structured interview" and much more. Comparison reports compare pretest results with posttest results. This comparison report is an objective and standardized procedure for evaluating client change, program effectiveness and outcome. The JTO is designed to measure the severity of problems in clinical settings. It is a risk and needs assessment instrument. The JTO has demonstrated reliability, validity and accuracy. It correlates impressively with both experienced staff judgment and other recognized tests.

JTO users usually identify client risk, substance (alcohol and other drugs) abuse and client need prior to recommending intervention, supervision levels and/or treatment. The JTO is to be used in conjunction with a review of available records and respondent interview. No decision or diagnosis should be based solely on JTO results. Client assessment is not to be taken lightly as the decisions made can be vitally

important as they effect peoples lives. JTO research is ongoing in nature, so that evaluators can be provided with the most accurate information possible.

Information on the Juvenile Treatment Outcome (JTO) is available in the JTO Orientation & Training Manual. Computer scoring information is contained in the JTO Computer Operating Guide. Each of these manuals can be obtained upon request.

JTO MEASURES (SCALES)

Users of the Juvenile Treatment Outcome (JTO) should be familiar with each JTO scale. A description of each JTO scale follows.

TWELVE JTO SCALES (MEASURES)

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

2. Adjustment Scale: measures the youth's ability to adapt, conform, and function. This scale recognizes personal and social stressors at home, school, and in authority relationships. It incorporates personal and social forces involved in adapting to one's environment.

3. Outlook Scale: measures a person's negation as reflected in their resistance, oppositional outlook and attitudes towards help. A positive attitude is often a prerequisite to behavioral change.

4. Depression Scale: provides a quantitative score that varies directly with client's self-reported symptoms and concerns. The Depression Scale identifies depression and establishes its magnitude or severity via multiple-choice answers, i.e., "rare or never", "sometimes", "often" or "very often".

5. Anxiety Scale: provides a quantitative score that varies directly with client's self-reported symptoms. The presence, severity and magnitude of these symptoms is measured by client's multiple-choice answers, i.e., "rare or never", "sometimes", "often" or "very often".

6. Self-Esteem Scale: reflects a client's explicit valuing and appraisal of self. Self-esteem incorporates an attitude of acceptance-approval versus rejection-disapproval. Self-esteem refers to a person's perception of self.

7. Alcohol Scale: measures alcohol use and the severity of abuse. Alcohol refers to beer, wine, and other liquors. This scale measures the severity of abuse while identifying alcohol-related problems.

8. Drugs Scale: measures the severity of drug (marijuana, crack, ice, LSD, ecstasy, amphetamines, barbiturates and heroin) use and abuse while identifying drug-related problems.

9. Control Scale: Control is a two-fold concept: control of others and control of oneself. Some theorists maintain the loss of control can in fact be a way of controlling others. Other theorists emphasize the attitudes and behaviors inherent in control of others. Controlling behaviors vary from swearing and intimidation to battering.

Control is often synonymous with power. Controlling behaviors can represent subtle acts of manipulation, influence and persuasion to gain power over others, or these behaviors can escalate to anger and aggression. There are many techniques of manipulation, influence and persuasion used to advantage in business and political arenas. However, when individuals go beyond these subtle techniques and become aggressive to gain power over others, then the controlling behaviors are deviant. People who lose their sense of power and ability to control others often resort to acts of anger and violence. In its extreme form, control can become an obsession. Power is found through the control of others. Unfortunately, deviant controlling behaviors can lead to serious acts of violence.

10. Violence Scale: measures propensity for using force to injure, damage or destroy. This scale identifies people that are dangerous to themselves and others.

11. Suicide Scale: measures a client's probability of committing suicide. Suicidal persons give many warnings regarding their intentions. Any elevated (70th percentile and higher) Suicidal Ideation Scale score should be taken seriously.

12. Stress Coping Abilities Scale: establishes how well the client copes with stress. Stress exacerbates symptoms of emotional and mental health problems.

The Stress Coping Abilities Scale is much more than just a measure of stress. It is a measure of how well the client copes with stress. Two people can be in the same stressful situation, however, one person is overwhelmed and the other person handles it well. The Stress Coping Abilities Scale can account for these different reactions to stress.

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

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

RESEARCH STUDIES

1. A Study of JTO Test-Retest Reliability

Any approach to detection, assessment, or measurement must meet the criteria of reliability and validity. Reliability refers to an instrument's consistency of results regardless of who uses it. This means that the outcome must be objective, verifiable, and reproducible. Ideally, the instrument or test must also be practical, economical, and accessible. Psychometric principles and computer technology insures JTO 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 JTO in a paper-pencil test format. One week later they were re-tested with the JTO 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 JTO. Test-retest consistency was very high and indicates that the JTO scores are reproducible and reliable over a one week interval.

2. Validation of the Truthfulness Scale

The Truthfulness Scale in the JTO is an important psychometric scale as these scores establish how truthful the respondent was while completing the JTO. Truthfulness Scale scores determine whether or not JTO profiles are accurate and are integral to the calculation of Truth-Corrected JTO 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 JTO 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 JTO 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 made up of the number of deviant answers given to the 21 Truthfulness Scale items.

Results

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

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

3. Validation of the JTO Truthfulness Scale using Criterion Measures

In general terms, a test is valid if it measures what it is supposed to measure. The process of confirming this statement is called validating a test. A common practice when validating a test is to compute a correlation between it and another (criterion) test that purports to measure the same thing and that has been previously validated. For the purpose of this study (1989), the JTO 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 JTO 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 JTO Truthfulness Scale reflect guardedness, evasiveness, recalcitrance or impaired reading abilities.

Method

Thirty-three (33) adjudicated delinquent adolescents (1989) were administered both the JTO and the MMPI. Tests were counterbalanced for order effects -- half were given the JTO 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 6th grade equivalent reading level.

Results and Discussion

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

**Table 1. (1989) Product-moment correlations
between MMPI scales and JTO Truthfulness Scale**

MMPI SCALES (MEASURES)	JTO Scale (Measure)	
	Truthfulness	Significance Level
F Scale	0.687	0.01
L (Lie) Scale	0.590	0.01

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

4. Validation of JTO Scales

The JTO is a juvenile assessment instrument. It is designed for use in counseling and treatment outcome evaluation. The JTO is a specific test designed for a specific population. The present study (1989) was conducted to validate JTO scales.

Selected scales in the Minnesota Multiphasic Personality Inventory (MMPI) were used as criterion measures for the different JTO 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 Adjustment Scale was validated with the MMPI Manifest Hostility Scale and Authority Conflict Scale. The MMPI scales were chosen to compare to the JTO 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 6th grade or better reading level. The JTO and MMPI were administered in counterbalanced order.

Results and Discussion

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

Table 2. JTO-MMPI Product-moment Correlations (1989, N=100)

MMPI SCALES (MEASURES)	Juvenile Offenders		
	JTO SCALES (MEASURES)	Correlation Coefficient	Significance Level
L (Lie)	Truthfulness	0.57	0.01
MacAndrew	Alcohol	0.61	0.01
MacAndrew	Drugs	0.57	0.01
Psychopathic Deviate	Drugs	0.52	0.01
Taylor Manifest Anxiety	Distress	0.57	0.01
Depression	Distress	0.56	0.01
Manifest Hostility	Adjustment	0.55	0.01
Authority Conflict	Adjustment	0.53	0.01

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

The JTO 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 JTO - MMPI relationships are impressive and support the validity of the JTO.

5. Replication Study of the Validation of JTO Scales

Another study was conducted (1990) to replicate a previous validation study of the JTO scales and to further evaluate the validity of the JTO in a different juvenile sample. Again, selected scales in the Minnesota Multiphasic Personality Inventory (MMPI) were used as criterion measures for the different JTO 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 JTO 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 JTO validity, each JTO scale is briefly summarized below.

Table 3. JTO-MMPI Product-moment Correlations (1990, N=35)

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

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

The JTO **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 JTO Truthfulness Scale invalidates the other JTO scale scores.

The JTO **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 JTO **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 JTO Drugs Scale is an independent measure (scale) from the JTO Alcohol Scale. Without independent measures of alcohol and drugs, many drug (marijuana, cocaine, crack, heroin, etc.) abusers would remain undetected.

The JTO **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 JTO **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 JTO Adjustment scale.

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

6. Inter-item Reliability of the JTO

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 JTO. The JTO is a highly reliable instrument.

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

JTO SCALES MEASURES	Private School Students (N = 98)	Adjudicated Delinquents (N = 151)
Truthfulness Scale	0.81	0.83
Alcohol Scale	0.86	0.87
Drugs Scale	0.80	0.85
Distress Scale	0.73	0.89
Adjustment Scale	0.81	0.87

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

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

The F statistics show that each JTO scale measures essentially one factor (or trait). In addition, all JTO 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 JTO scale are significantly related and measure just one factor. In other words, each JTO scale measures one factor, yet the factor being measured is different from scale to scale.

The inter-item reliability coefficients show very similar results across the 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 JTO 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 JTO is a reliable instrument.

7. Replication of JTO Reliability in a Large Sample of Adjudicated Delinquents

In a replication of earlier JTO research, adjudicated delinquents (1990) were used to evaluate the reliability of the JTO scales. This study involved combining adjudicated delinquent JTO test data from three jurisdictions. Because the JTO is a risk and needs juvenile assessment instrument it is important to study JTO statistical reliability in different juvenile offender samples.

Method and Results

The JTO 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 as in the previous study. The results of the present study support the reliability of the JTO.

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

<u>JTO 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 JTO 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 JTO scale. These analyses demonstrate that each JTO scale measures one factor or trait. All JTO scales demonstrate high inter-item congruency, as reflected in the standardized Cronbach Coefficient Alpha. The items on each JTO scale are significantly related to the factor or trait each scale was designed to measure. In other words, each JTO scale measures one factor, and the factor (or trait) being measured differs from scale to scale.

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

This study supports the reliability (internal consistency) of the Juvenile Treatment Outcome. The JTO scales are highly reliable in the offender population for whom the JTO is designed.

8. JTO Reliability Study in a Samples of Juvenile Offenders

The present (1991) study was conducted to evaluate the statistical properties of the JTO in a different juvenile sample. As the JTO 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.

JTO-Corrections Version Scales	Juvenile Offenders N = 372	Significance Level p<
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 JTO-Corrections Version. Reliability coefficient alphas for all JTO scales are very high. These results strongly support the reliability of the JTO.

9. A Study of JTO Reliability in a Sample of Students

This (1992) study was conducted to evaluate the statistical reliability of the JTO 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>JTO 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 JTO. The coefficient alpha is the most widely used statistic of internal consistency or reliability. The JTO produces similar results upon repetition. The JTO is a reliable juvenile assessment instrument.

10. A Study of JTO Reliability in a Sample of Juvenile Offenders

The present study (1993) was conducted to investigate reliability of the JTO using juvenile offender participants. Since the JTO is a risk and needs assessment instrument designed for troubled youth, it is important to test the reliability of the JTO 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 JTO 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>JTO 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 JTO studies. These results again demonstrate the internal consistency of the JTO. The JTO is a reliable risk and needs assessment instrument juvenile offender assessment.

11. A Study of the JTO

Violence became a major concern in juvenile court and probation department assessment in the 90's. Consequently, a Violence Scale was added to the JTO-Corrections Version in 1993. In addition to the five JTO-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 **JTO**.

The JTO and JTO-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 JTO. The purpose of the present study (1994) was to test the reliability of the JTO. 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 JTO was administered to 921 juvenile participants as part of routine evaluation programs. Subjects were administered the JTO 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 JTO. 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 JTO.

Table 9. Reliability coefficient alphas for JTO (1994, N = 921).
All coefficient alphas are significant at $p < .001$.

<u>JTO Scale</u>	<u>Adjudicated Defendants N = 459</u>	<u>Juvenile Probation N = 462</u>
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. JTO Reliability Study on Different Samples of Juveniles

In 1995 several juvenile samples (total N = 5,872) were studied to test the reliability of the JTO. 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 felonies 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: 6th grade or less (174, 5.2%); 7th grade (338, 10.0%); 8th grade (678, 20.2%); 9th grade (854, 25.4%); 10th grade (629, 18.7%); 11th 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: 6th grade or less (78, 5.9%); 7th grade (121, 9.2%); 8th grade (195, 14.9%); 9th grade (316, 24.1%); 10th 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.

JTO Scale	Group 1 N = 1,195	Group 2 N = 3,364	Group 3 N = 1,313
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 JTO. The JTO 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 JTO is applicable across different national juvenile offender samples. It is important to emphasize that JTO reliability statistics are very

high in the offender population it is designed to test. The JTO is a reliable juvenile risk assessment instrument.

13. JTO-Corrections Version Reliability

A study (1995) was conducted to determine the reliability of the JTO-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: 6th grade or less (129, 5.3%); 7th grade (318, 13.2%); 8th grade (605, 25.0%); 9th grade (596, 24.7%); 10th grade (407, 16.8%); 11th 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 $p < .001$.**

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

These results support the internal consistency (reliability) of the JTO-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. JTO-Corrections version test results are reliable.

14. JTO Reliability in a Sample of Students

A study (1995) was conducted to determine the reliability of the JTO 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: 6th grade or less (49, 6.9%); 7th grade (101, 14.2%); 8th grade (265, 37.3%); 9th grade (189, 26.6%); 10th grade (74, 10.4%); 11th 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 JTO 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 JTO.

Table 12. Reliability coefficient alphas (1995, N = 710).
All coefficient alphas are significant at p<.001.

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

15. Reliability of the JTO in Two Samples of Juvenile Offenders

Reliability of the JTO 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: 6th grade or less (84, 5.6%); 7th grade (144, 9.5%); 8th grade (257, 17.0%); 9th grade (358, 23.7%); 10th grade (348, 23.0%); 11th 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 JTO. All coefficient alphas are significant at p<.001. All scale reliability coefficients maintained high levels. These results show that the JTO is a reliable juvenile offender risk assessment instrument.

Table 13. Reliability coefficient alphas (1996, N = 2,124).
All coefficient alphas are significant at $p < .001$.

JTO Scale	Group 1 N = 611	Group 2 N = 1,513
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 JTO

People often develop firm masculine and feminine identifications that contribute to consistent "sex differences" or gender differences on psychometric tests. The JTO 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 JTO scales. The purpose of the present study (1996) was to investigate sex differences in JTO scales.

Method

There were 393 juvenile offenders included in the present study (1996). The JTO 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: 6th grade or less (40, 10.2%); 7th grade (76, 19.3%); 8th grade (108, 27.5%); 9th grade (92, 23.4%); 10th grade (55, 14.0%); 11th 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 $p < .001$.

JTO Scales	Juvenile Offenders N = 393
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 JTO scales with juvenile offender participants. Reliability refers to consistency of test results regardless of who uses the test. JTO test results are reliable, objective, verifiable and reproducible. These results support the internal consistency (reliability) of the JTO.

T-tests were calculated for all JTO 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

<u>JTO Scale</u>	<u>Juvenile Offenders N = 393</u>
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 JTO Truthfulness Scale.

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

17. Reliability of the JTO

Reliability of the JTO 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: 6th grade or less (32, 3.7%); 7th grade (63, 7.4%); 8th grade (131, 15.3%); 9th grade (214, 25.1%); 10th grade (211, 24.7%); 11th 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: 6th grade or less (2, 4%); 7th grade (12, 24%); 8th grade (6, 12%); 9th grade (11, 22%); 10th grade (6, 12%); 11th 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.

JTO Scale	Group 1 N = 3,312	Group 2 N = 854	Group 3 N = 50
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 JTO. All coefficient alphas are significant at p<.001. Scale reliability coefficients for all juvenile groups maintained high levels. These results show that the JTO is a reliable juvenile offender risk assessment instrument.

18. Reliability and Scale Risk Range Accuracy of the JTO

This study (1998) was conducted to test the reliability and accuracy of the JTO for the assessment of juvenile offenders. Risk range percentile scores are calculated for each JTO 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 JTO risk range percentile scores involves comparing the risk range percentile scores obtained from JTO 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: 6th grade or less (37, 5.2%); 7th grade (75, 10.5%); 8th grade (123, 17.3%); 9th grade (165, 23.1%); 10th grade (181, 25.4%); 11th 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.

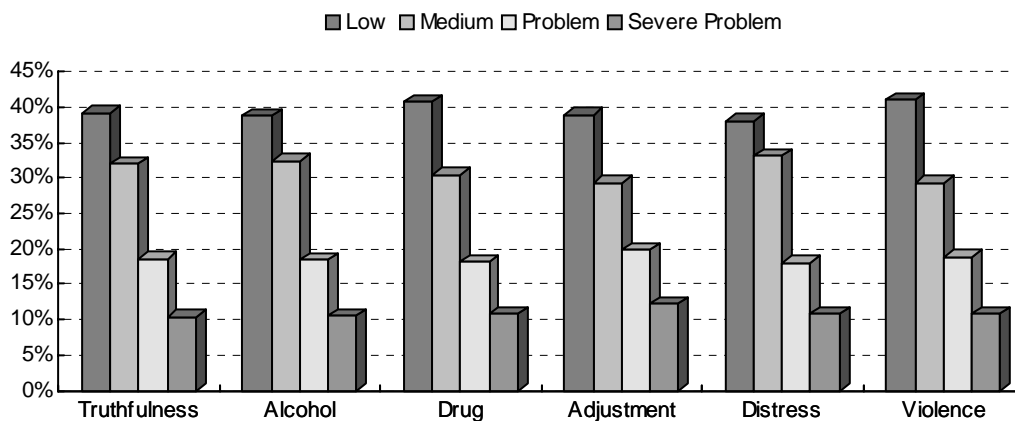
Table 17. Reliability coefficient alphas (1998, N = 713).
All coefficient alphas are significant at p<.001.

JTO Scale	Juvenile Offenders N = 713
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 JTO. All coefficient alphas are significant at p<.001. All scale reliability coefficients maintained high levels. These results show that the JTO is a reliable risk assessment instrument for juvenile offenders.

The risk range percentile score results for juvenile offenders using the JTO 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	39%
Medium	32.0	32.4	29.2	30.4	33.1	29.3	30%
Problem	18.5	18.4	19.8	18.1	18.0	18.9	20%
Maximum	10.4	10.5	12.2	10.8	10.8	10.8	11%

These results show that obtained risk range percentile scores closely approximated the predicted risk range percentile scores for each of the six JTO scales presented in Table 18 for the juvenile offenders included in the study. **These results indicate that the JTO 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 JTO

In 1998 the JTO was reviewed and even further sophisticated. 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 JTO 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 JTO assessment instrument. Reading levels of the test items were also analyzed to improve readability and comprehension for juveniles. Reliability research on the JTO 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 JTO was investigated in the present study.

Two statistical procedures were used in this study to test the validity of the JTO 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 JTO 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 JTO 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 JTO risk range percentile scores involves comparing the risk range percentile scores obtained from offender JTO 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: 6th grade or less (9, 4.9%); 7th grade (30, 16.4%); 8th grade (37, 20.2%); 9th grade (43, 23.5%); 10th grade (42, 23.0%); 11th 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.

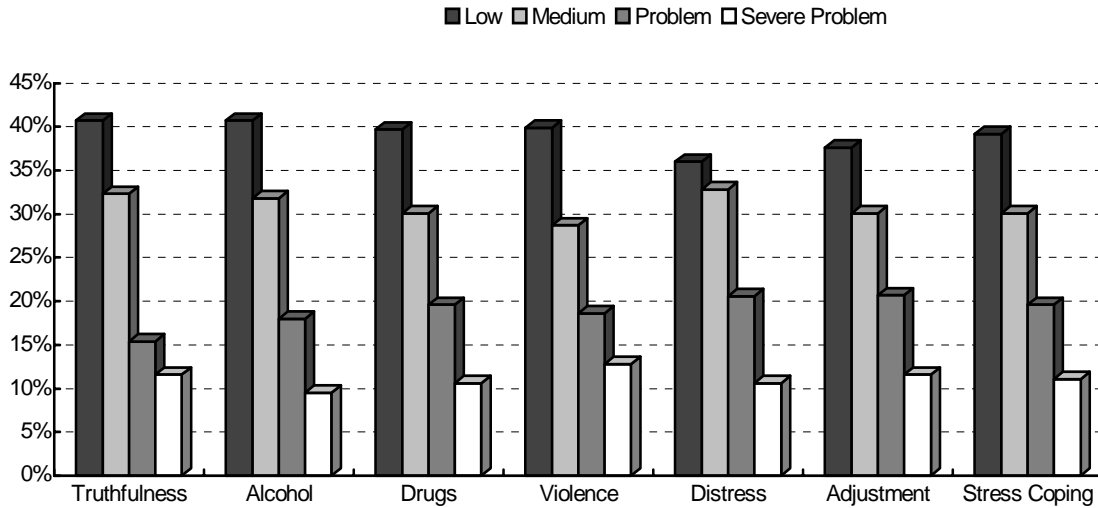
Table 19. Reliability coefficient alphas (1998, N = 189).
All coefficient alphas are significant at p<.001.

JTO Scale	Juvenile Offenders N = 189
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 JTO. 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 JTO scales were maintained or improved from previously reported studies. The results of the revised JTO show that the test has been improved. These results show that the JTO 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 JTO. The risk range percentile score results for the juvenile offenders using the JTO are presented in Table 20.

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



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

The percentages of juveniles falling into each risk range are presented for each of the seven JTO 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 JTO.**

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 JTO answer sheet.

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

Offender status defined by total number of arrests.

JTO-CV II Scale	First Offenders Mean (N=83)	Multiple Offenders Mean (N=106)	T-value	Level of significance
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 JTO. 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 JTO test items.

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

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.

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 JTO for assessment of juvenile offenders. Reliability coefficient alphas were significant at $p < .001$ for all JTO 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 JTO.

20. Study of the JTO in a Large Sample of Juveniles

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

Method and Results

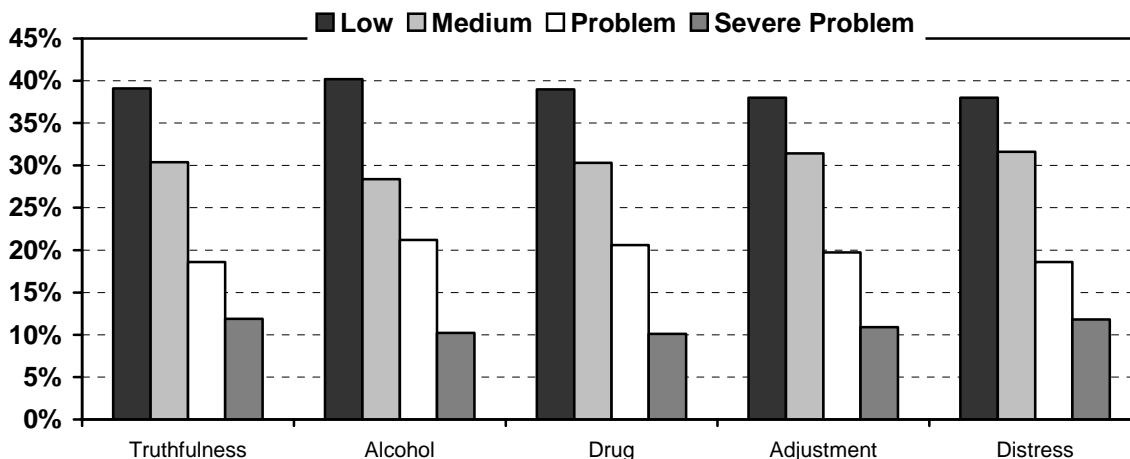
There were 3,180 juveniles included in this study (2000). There were 2,285 males (71.9%) and 895 females (28.1%). The demographic composition of this sample was as follows. Age: 12 & under (2.7%), 13 years old (6.0%), 14 years old (14.4%), 15 years old (24.2%), 16 years old (27.4%), 17 years old (19.9%), 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: 6th grade or less (5.0%), 7th grade (11.0%), 8th grade (22.9%), 9th grade (26.6%), 10th grade (20.3%), 11th grade (11.7%), high school graduate (1.8%), some college (0.8%).

Accuracy of the JTO

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 JTO 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. JTO 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 JTO 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 JTO scale scores accurately identify juvenile risk.

Gender Comparisons

Gender comparisons of JTO scale scores demonstrate that significant male/females differences exist on all JTO 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 JTO incorporates separate male and female scoring procedures in all JTO scales. This procedure contributes to JTO scale score accuracy and fairness for all juveniles tested with the JTO regardless of gender. The built-in JTO database enables these comparisons to be made and demonstrates an advantage of JTO. 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>JTO 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 JTO scales are above the professionally accepted level of .75 for test reliability. These results show that the JTO was very reliable in this juvenile sample.

Validity

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

Validity of the JTO is demonstrated by the correct identification of problem prone clients. Youths who responded positively to JTO 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 (39th percentile and below) range were used to represent the no problem group, whereas scores in the Problem and Severe Problem (70th 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 JTO. The JTO 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 JTO in a Juvenile Probation Sample

This study (2000) included 1,718 juveniles from a Midwest juvenile probation department. Statistical reliability, validity and accuracy of the JTO (JTO-CV II) were studied. This sample of juvenile offenders represents the target population for the JTO-CV II. The test was designed to be used in corrections

settings and test score recommendations which are presented in the JTO-CV II report are tailored to corrections departments.

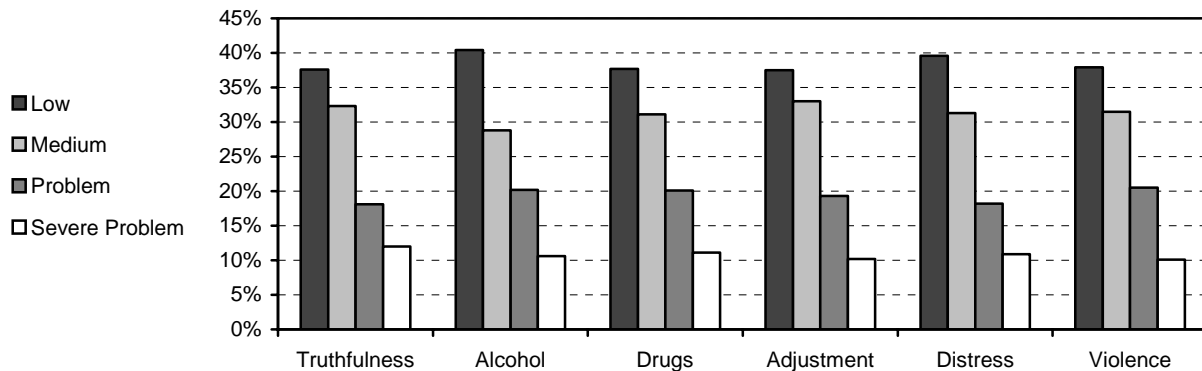
Methods and Results

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: 6th grade or less (81, 4.7%); 7th grade (148, 8.6%); 8th grade (277, 16.1%); 9th grade (369, 21.5%); 10th grade (391, 22.8%); 11th grade (311, 18.1%); High School Graduate/G.E.D. (129, 7.5%); and Some College (12, 0.7%).

Accuracy

JTO 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 JTO-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 JTO-CV II accurately identifies juvenile offender risk. There were 1,718 juveniles included in this analysis.

Table 23. JTO-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 JTO 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 predict 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 JTO accurately measures juvenile offender risk.

Reliability

The reliability coefficients of each of the six JTO scales are presented in Table 24.

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

<u>JTO-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 JTO-CV II scales have very high reliability coefficients. All scales have professionally accepted (.75 or higher) reliability. The JTO 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 JTO-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 (N=1,002) and multiple offenders (N=716).

<u>JTO-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	p<.001
Adjustment Scale	11.84	13.15	t = 5.27	p<.001
Drugs Scale *	8.20	18.76	t = 6.97	p<.001
Distress Scale	7.35	6.87	t = 1.68	p=.093
Violence Scale	13.14	21.16	t = 20.68	p<.001

* 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 JTO-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 JTO test items (#12, #42, #38 & #75) concerning alcohol or drug treatment. Offenders who scored in the problem risk ranges (70th percentile & above) are compared with offenders who scored in the low risk range (39th 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 JTO-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 JTO-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 JTO-CV II Drugs Scale.

Taken together these results demonstrate that the JTO is a accurate, reliable and valid juvenile offender assessment test.

22. Study of the JTO in a Large Sample of Juvenile Offenders

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

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

Methods and Results

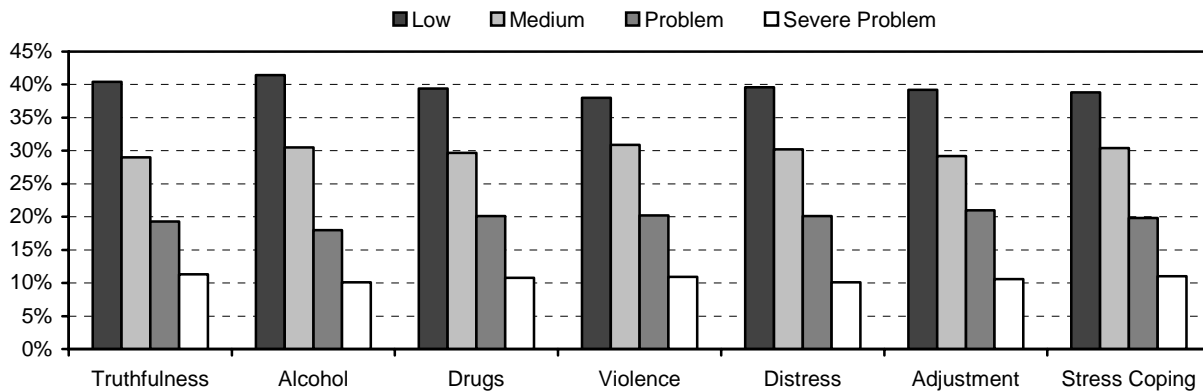
The participants in this study (2000) consisted of 8,405 juvenile offenders. There were 5,618 males (66.8%) and 2,787 females (33.2%). Demographic composition of these participants is as follows: Age: 12 years or younger (259, 3.1%); 13 years (676, 8.0%); 14 years (1,350, 16.1%); 15 years (2,180, 25.9%); 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: 6th grade or less (535, 6.6%); 7th grade (930, 11.5%); 8th grade (2,181, 26.9%); 9th grade (2,214, 27.3%); 10th grade (1,374, 16.9%); 11th 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

JTO-CV II scale risk range percentages are presented in Table 26. The percentages of juveniles placed in each risk range classification category for each JTO-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 JTO-CV II accurately identifies juvenile offender risk. There were 8,405 juveniles included in this analysis.

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



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

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 JTO 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 JTO 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.

JTO Scale	Juvenile Offenders N = 8,405
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 JTO. All coefficient alphas are significant at p<.001. All scale reliability coefficients maintained high levels. These results show that the JTO is a reliable risk assessment instrument for juvenile offenders.

Gender Differences

T-tests were calculated for all JTO-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

JTO Scale	Males Mean Score	Females Mean Score	T-value	Level of significance
Truthfulness Scale	9.97	8.33	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

Significant sex differences were demonstrated on all seven JTO-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 JTO-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 JTO-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 JTO-CV II

JTO-CV II scale score comparisons between first offenders and multiple offenders determine the extent to which JTO-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 JTO-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 JTO-CV II scale are presented in Table 29 (N=8,405). Multiple offenders had two or more arrests as reported on the JTO-CV II answer sheet.

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

JTO-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. Also the Stress Coping Abilities Scale scores are reversed in that the higher the score the lower the risk.

All JTO-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 JTO-CV II accurately differentiates between first offenders and multiple offenders. These results support the validity of the JTO-CV II.

JTO-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 JTO-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 JTO-CV II scales than first time offenders. JTO-CV II scale scores identify problem prone offenders.

Predictive validity

In separate analyses the JTO-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 identifies them as having a drug problem. Similarly, JTO-CV II Alcohol and Drugs Scale scores at or above the 70th percentile identify youths who have alcohol and drugs problems, whereas, scores at or below the 39th 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 (70th percentile and above) on the Alcohol Scale and/or Drugs Scale. Alcohol treatment information is obtained from client answers to JTO-CV II test item #96 regarding alcohol treatment and #85 regarding drug treatment.

Predictive validity analyses show that the JTO-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 (0-39th percentile) and problem risk ranges (70-100th 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 70th percentile. The Alcohol Scale correctly identified over 96 percent of the youths categorized as problem drinkers.

The JTO-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 70th percentile. These results validate the JTO-CV II Drugs Scale.

Conclusion

Taken together these results demonstrate that the JTO-CV II is a very accurate, reliable and valid assessment instrument for screening youth offender risk. The JTO-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 JTO-CV II provides a wealth of information not found in any other assessment instrument.

23. JTO Study in a Juvenile Sample

This study (2000) included 1,205 juveniles from a Southern state juvenile services department. This research included statistical reliability, validity and accuracy of the JTO (JTO-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.

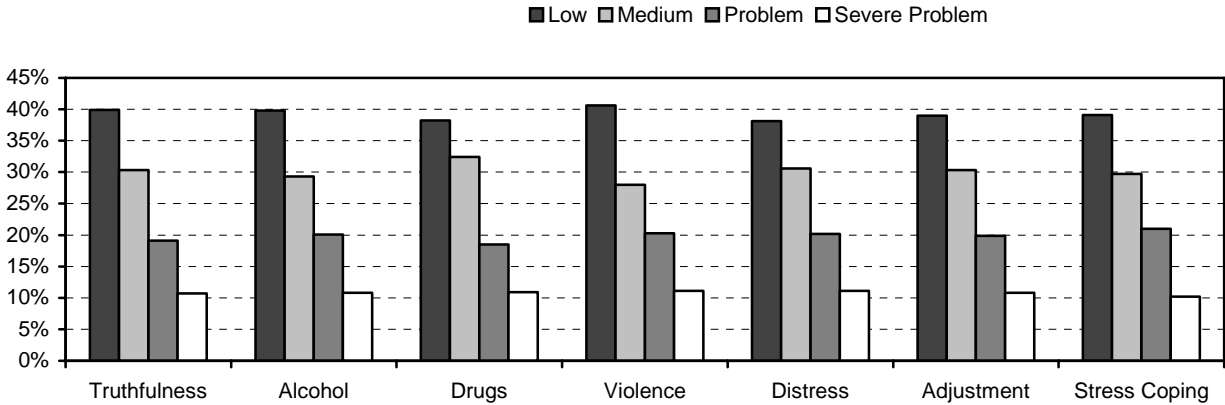
Methods and Results

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: 6th grade or less (178, 14.9%); 7th grade (217, 18.1%); 8th grade (289, 24.2%); 9th grade (226, 18.9%); 10th grade (181, 15.1%); 11th grade (87, 7.3%); High School Graduate/G.E.D. (18, 1.5%); and Some College (0, 0.0%).

Accuracy

JTO 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 JTO-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 JTO-CV II accurately identifies juvenile offender risk. There were 1,205 juveniles included in this analysis.

Table 30. JTO-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 JTO.

Reliability

The reliability coefficients of each of the seven JTO scales are presented in Table 31.

Table 31. Reliability of the JTO-CV II. (2000, N = 1,205)
All coefficient alphas are significant at p<.001.

<u>JTO-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 JTO-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 JTO.

Validity

Comparisons between first time offenders and multiple offenders are expected to show that multiple offenders score higher on JTO-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 (N=503) and multiple offenders (N=702).

<u>JTO-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	p<.001
Adjustment Scale	13.18	16.10	t = 6.45	p<.001
Drugs Scale	3.74	6.89	t = 7.06	p<.001
Distress Scale	15.04	18.31	t = 4.98	p<.001
Violence Scale	13.24	20.18	t = 13.31	p<.001
Stress Quotient Scale	101.98	91.22	t = 4.39	p<.001

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 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 JTO-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 JTO test items (#12, #42, #38 & #75) concerning alcohol or drug treatment. Offenders who scored in the problem risk ranges (70th percentile & above) are compared with offenders who scored in the low risk range (39th 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 JTO-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 JTO-CV II Alcohol Scale.

The Drugs 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 JTO-CV II Drugs Scale.

These results demonstrate that the JTO is an accurate, reliable and valid juvenile offender assessment test.

24. Study of JTO Accuracy and Reliability in a Juvenile Sample

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

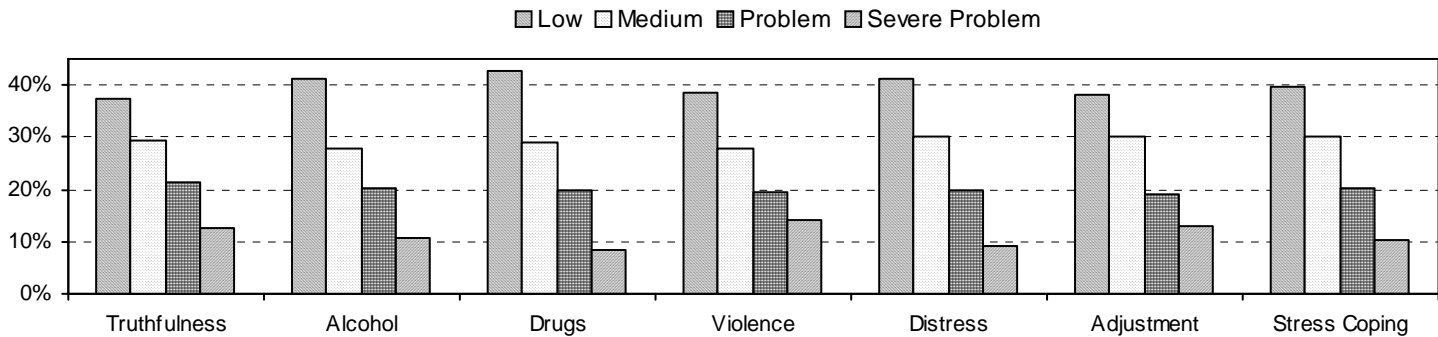
Method and Results

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: 6th grade or less (30.9%), 7th grade (21.7%), 8th grade (18.3%), 9th grade (16.2%), 10th grade (8.3%), 11th grade (3.1%), high school graduate (1.5%).

Accuracy of the JTO

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 JTO 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. The differences between obtained and predicted percentages are presented in parentheses in the table below the graph.

Table 33. JTO 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 JTO scales were within 3.9 percent points of predicted percentages. The JTO accurately measures juvenile offender risk. The very small differences between obtained risk range percentages and predicted percentages show just how accurate the JTO is. Juveniles' scores can be considered about 96% accurate. This is a very accurate assessment.

Reliability coefficient alphas are presented in Table 34 for 329 juveniles.

Table 34. Reliability coefficient alphas (2004, N = 329).

All coefficient alphas are significant at p<.001.

<u>JTO Scales</u>	<u>Coefficient Alphas</u>
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 JTO scales are above the professionally accepted level of .80 for test reliability. These results show that the JTO was very reliable in this juvenile sample.

The results of this study demonstrate that the JTO is an accurate and reliable juvenile offender assessment.

SUMMARY

The Juvenile Treatment Outcome (JTO) evolved into the JTO-Corrections Version and JTO. Research on the JTO began in the 1980's and has continued to the present. This research has led to refinements in the JTO and development of JTO Corrections Versions specifically for juvenile corrections and probation. The JTO and JTO-Corrections Versions have a long history of research and development. The JTO, JTO-Corrections Version and JTO are state-of-the-art in juvenile assessment.

With regard to reliability, all JTO and JTO-Corrections Version scales have reliability coefficients at .80 or higher. As shown in the most recent study all JTO scales reliability coefficients are at or above .85, 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 JTO and JTO-Corrections Versions are highly statistically reliable juvenile assessment instruments.

With regard to validity, the JTO and JTO-Corrections Versions scales have been shown to be highly correlated with established criterion measures. For example, the JTO Truthfulness Scale is highly statistically correlated with MMPI L Scale and F Scale. JTO Alcohol Scale is correlated with MMPI MacAndrew Scale. JTO Drugs Scale is correlated with MMPI MacAndrew and Psychopathic Deviate scales. JTO Distress Scale is correlated with MMPI Taylor Manifest Anxiety, Depression and Psychasthenia scales. The JTO 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 (page 20) shows that JTO database analysis demonstrates discriminant validity and predictive validity. For example, multiple offenders scored significantly higher on the different JTO 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 JTO is accurate to within 1.6 percentage points. 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 JTO 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 JTO, JTO-Corrections Version and JTO are very impressive and strongly support reliability, validity and accuracy of the JTO and all of its versions. It should be emphasized that the JTO and Corrections Versions tests have been researched on the juvenile population the tests were designed for and JTO scoring procedures are standardized on these juvenile populations. Studies reported herein contain thousands of juvenile JTO test results from several areas of the country and jurisdictions. The JTO and Corrections Versions have been researched on adjudicated juvenile delinquents, students, juvenile offenders, and adolescent community corrections program clients. Research on the JTO, JTO-Corrections Version and JTO is on-going and refinements will continue to be made to keep pace with the ever changing needs of today's juvenile population.

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