

Juvenile Substance Abuse Profile: Reliability and Validity

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Abstract

The Juvenile Substance Abuse Profile (JSAP) is a juvenile offender assessment test that accurately measures juvenile risk of substance (alcohol and drugs) abuse, aggressiveness, emotional and mental health problems. There were 2,248 juvenile offenders included in this study. Reliability analyses showed that all five JSAP scales had very high reliability coefficient alphas of between .86 and .89. JSAP scales were validated in several tests of validity. Discriminant validity was shown by significant differences on JSAP scale scores between first and multiple offenders. The Aggressiveness Scale correctly identified 100% of offenders who admitted aggression problems. The Alcohol and Drugs Scales correctly identified 100% and 98.6% of the offenders who had been treated for alcohol and drug problems, respectively. JSAP classification of offender risk was shown to be very accurate. All JSAP scale scores were within 2.9% of predicted risk range percentile scores. This study demonstrated that the JSAP is a reliable, valid and accurate juvenile offender assessment test.

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Introduction

The criminal justice system is an important contact point for juvenile offenders (Hammett, Gaiter & Crawford, 1998). Juveniles who have been arrested for drinking and driving, or were in a vehicle and found to have been drinking, may be in danger of abusing alcohol. The courts can guide these youths to programs to correct their drinking behavior by having juvenile offenders screened for problems then directing them to appropriate agencies for help, treatment and rehabilitation. The Juvenile Substance Abuse Profile is a juvenile offender assessment or screening test. Screening juvenile offenders to identify problems facilitates placement of offenders into appropriate supervision levels, intervention programs and treatment. Accurate and reliable juvenile risk and needs assessment is an essential part of this process.

Risk and needs assessment involves a compilation of criminal history along with other offender behavioral history, which includes substance abuse, violence potential, emotional and mental health factors. These factors are incorporated in the JSAP. For intervention and treatment programs to be effective offenders risk level must match programs intensity level. That is, high risk offenders placed in high risk programs and low risk offenders placed in low risk programs. Andrews, Bonta & Hoge (1990) found that placing low risk offenders in programs designed for high risk offenders can be harmful to them. The JSAP was designed specifically for the purpose of aiding decisions regarding offender placement and rehabilitation.

The Juvenile Substance Abuse Profile (JSAP) is a multidimensional test that was developed to meet the needs of juvenile offender screening and assessment. JSAP scales measure aggressiveness tendencies (Aggressiveness Scale), alcohol and drug abuse severity (Alcohol & Drugs Scales) and emotional or mental health problems (Stress Coping Abilities Scale). In addition, the Truthfulness Scale measures offender truthfulness while completing the test. Offenders who deny or minimize their problems are detected by the Truthfulness Scale. Truthfulness Scale scores are used to truth-correct other scale scores. A test that is multidimensional lends itself to recidivism prediction. The present study investigated the reliability, validity and accuracy of the Juvenile Substance Abuse Profile.

Aggressiveness and stress coping abilities are personality factors that are relevant to offender risk. These factors are measured by the JSAP. Personality, attitude and behavioral factors, often referred to as “dynamic variables,” are capable of change and are amenable to intervention and treatment. Positively changing offenders’ personality, attitudes and behavior can lead to behavioral change, which in turn can lead to reductions in recidivism. Identification of problem prone juvenile offenders is the first step in directing juveniles to appropriate programs aimed at helping them to positively change their behavior.

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

This study validates the JSAP in a sample of juvenile offenders who were tested at court referral programs. Two methods for validating the JSAP were used in this study. The first method (discriminant validity) compared first and multiple offenders' scale scores. Multiple offenders were offenders with two or more arrests and first offenders had one or no arrest. It was hypothesized that statistically significant differences between multiple and first offenders would exist and JSAP scales would differentiate between first and multiple offenders. Multiple offenders would be expected to score higher on JSAP scales because having a second arrest is indicative of serious problems.

The second validation method (predictive validity) examined the accuracy at which the JSAP identified "problem offenders," i.e., aggressiveness prone offenders, problem drinkers and problem drug abusers. Tests that measure severity of problems should be able to predict if offenders have problems by the magnitude (severity) of their scores. Accurate tests differentiate between problem and non-problem offenders. An inaccurate test, for example, may too often call non-problem drinkers problem drinkers or vice versa. Responses to test items obtained from the offenders' served as criterion measures.

Having been in alcohol treatment identifies offenders as having an alcohol problem. It is acknowledged that there are some juvenile offenders who have an alcohol problem but have not been in treatment. Nevertheless, offenders who have been in alcohol treatment would be expected to score in the Alcohol Scale's problem range. Similarly, having been in drug treatment identifies offenders who have drug problems. In regards to aggressiveness, offenders direct admissions of problems were used as the criteria.

For the predictive validity analyses offenders were separated into two groups, those who had treatment or admitted problems (problem group) and those who did not have treatment or did not admit to problems (no problem group). Then, offender scores on the relevant JSAP scales were compared. It was predicted that problem group offenders would score in the problem risk range (70th percentile and above) on the relevant JSAP scales. Non-problem was defined in terms of low risk scores (39th percentile and below). The percentage of problem group offenders who scored in the 70th percentile range and above is a measure of how accurate JSAP scales are. High percentages (above 90%) of problem group offenders who had problem risk scores would indicate the scales are accurate. Conversely, the percentages of problem group offenders who score in the low range are predicted to be very low (less than 10%). Because criterion measures were gotten from the JSAP database, a lack of suitable criterion measures prevented carrying out predictive validity analyses on the other two JSAP scales. The test items used in these analyses were, "I have been in counseling or treatment for my drinking." "I have been in counseling or treatment for my drug use." "I rate my aggressiveness as very aggressive and competitive."

Method

Subjects

There were 2,248 juvenile offenders tested with the JSAP. There were 1,813 males (80.6%) and 435 females (19.4%). The ages of the participants ranged from 15 through 21 as follows: 15 & under (0.4%); 16 (10.0%); 17 (29.8%); 18 (20.4%); 19 (18.3%); 20 (13.1%) and 21 & over (8.0%). The demographic composition of participants was as follows. Race/Ethnicity: Caucasian (94.%); Black (3.0%), Hispanic (0.9%) and Other (1.6%). Education: Sixth grade or less (0.2%); 7th grade (0.2%); 8th grade (1.4%); 9th grade (6.5%); 10th grade (18.5%); 11th grade (30.1%); High school graduate/GED (32.5%) and Some college (10.6%).

Over 36 percent of the participants were arrested two or more times. Nearly three percent of the

juveniles had six or more arrests. Nearly 12 percent of the participants had two or more alcohol arrests and 6.2 percent had two or more drug arrests.

Procedure

Participants completed the JSAP as part of offender screening and assessment in court referral settings. The JSAP contains five measures or scales. These scales are briefly described as follows. The Truthfulness Scale measures the truthfulness, denial and problem minimization of the respondent while taking the JSAP. The Alcohol Scale measures severity of alcohol use or abuse. The Drugs Scale measures severity of drug use or abuse. The Aggressiveness Scale measures offender proneness toward aggressiveness or violence. The Stress Coping Abilities Scale measures ability to cope with stress. A score at the 90th percentile or higher on this scale identifies established emotional and mental health problems.

Results and Discussion

The inter-item reliability coefficient alphas for the five JSAP scales are presented in Table 1. All scales were highly reliable. Reliability coefficient alphas for all JSAP scales were at or above 0.86. These results demonstrate that the JSAP is a very reliable juvenile offender assessment test.

Table 1. Reliability of the JSAP (N=2,248)

<u>JSAP SCALES</u>	<u>Coefficient Alphas</u>	<u>Significance Level</u>
Truthfulness Scale	.86	p<.001
Alcohol Scale	.86	p<.001
Drugs Scale	.88	p<.001
Aggressiveness Scale	.86	p<.001
Stress Coping Abilities	.89	p<.001

Discriminant validity results are presented in Table 2. In these analyses the answer sheet item “Total number of times arrested” was used to define first offenders (one or no arrest) and multiple offenders (2 or more arrests). T-test comparisons were used to study the statistical significance between the offender groups. There were 1,435 first offenders and 813 multiple offenders. The Alcohol and Drugs Scales were again analyzed using alcohol and drug arrests. “Number of alcohol arrests” was used for the Alcohol Scale, which had 1,990 first offenders and 258 multiple offenders (2 or more arrests). “ Number of drug arrests” was used for the Drug Scale, which had 2,110 first offenders and 138 multiple offenders (2 or more arrests).

Table 2 shows that mean (average) scale scores of first offenders were significantly lower than scores for multiple offenders on all JSAP scales with the exception of the Truthfulness Scale. As expected, multiple offenders scored significantly higher than did first offenders. Truthfulness Scale results indicate that fist offenders and multiple offenders were not statistically different. First offenders and multiple offenders answered truthfulness items about the same. JSAP severity measurement scales differentiated between first offenders and multiple offenders. These results support the validity of the JSAP.

As shown in Table 2, Alcohol Scale and Drugs Scale score differences were even more dramatic when defendant status was defined by alcohol and drug arrests. The mean Alcohol Scale score for the multiple offender group, at 12.12, was two times as high as the first offender group mean score which was 6.50. The mean Drugs Scale score for the multiple offender group (18.47) was also more than three times that of the first offender group mean score (5.41). The higher the JSAP scale

score the more severe the problem behavior. These results support the hypothesis that multiple offenders, because of their history of arrests, score higher than first-time offenders do.

Table 2. Comparisons between first offenders and multiple offenders (N=2,248).

JSAP Scale	First Offenders Mean	Multiple Offenders Mean	T-value	Level of significance
Truthfulness Scale	7.96	7.53	t = 1.62	n.s.
Alcohol Scale	6.46	8.36	t = 5.08	p<.001
Drugs Scale	4.53	9.20	t = 11.58	p<.001
Aggressiveness Scale	9.66	12.05	t = 5.75	p<.001
Stress Coping Abilities	130.11	122.99	t = 3.48	p<.001
*Alcohol Scale	6.50	12.12	t = 9.20	p<.001
*Drugs Scale	5.41	18.47	t = 13.56	p<.001

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

Multiple offenders scored significantly higher on the Stress Coping Abilities Scale than did first offenders. Juveniles who have multiple arrests demonstrate emotional problems beyond the expected problem-prone behaviors. Juveniles’ emotional and personality problems must be addressed if these youths are to be helped. Changing juvenile problem-prone behavior entails resolving emotional and personality problems.

Predictive validity results for the correct identification of problem behavior (aggressive tendencies, drinking and drug abuse problems) are presented in Table 3. Table 3 shows the percentages of juveniles who had or admitted to having problems and who scored in the problem risk range. For the Alcohol and Drugs Scales criteria, problem behavior means the youth had alcohol or drug treatment. For the Aggressiveness Scale criterion the youth admitted having been arrested for a violent crime. In these analyses scale scores in the Low risk range (zero to 39th percentile) represent “no problem,” whereas, scores in the Problem and Severe Problem risk ranges (70th percentile and higher) represent alcohol, drugs and aggression problems.

The Alcohol Scale is very accurate in identifying juveniles who have alcohol problems. There were 164 juveniles who had been in alcohol treatment and these youths were classified as problem drinkers. Of these 164 juveniles, 162 of them, or 98.8 percent, had Alcohol Scale scores at or above the 70th percentile. The Alcohol Scale correctly identified all of the juvenile offenders categorized as problem drinkers. This result validates the Alcohol Scale. It is likely that some juveniles have alcohol problems but have not been in treatment. For these individuals scoring at or above the 70th percentile on the Alcohol Scale alcohol treatment is recommended.

Table 3. Predictive Validity of the JSAP

JSAP Scale	Correct Identification of Problem Behavior
Alcohol	98.8%
Drugs	100%
Aggressiveness	98.6%

The Drugs Scale was also very accurate in identifying juveniles who have drug problems. There were 195 juveniles who had been in drug treatment, all 195 youths, or 100 percent, had Drugs

Scale scores at or above the 70th percentile. This result strongly substantiates the accuracy of the JSAP Drugs Scale.

The Aggressiveness Scale accurately identified juvenile offenders (**98.6%**) who admitted aggression problems. Offenders who rated their aggressiveness as a very serious aggressiveness problem scored in the problem range. The direct admission of an aggressiveness problem validates the Aggressiveness Scale. The Alcohol and Drugs Scale accurately identified juveniles who had alcohol and drug problems. These results strongly support the validity of the JSAP Aggressiveness, Alcohol and Drugs Scales. The other two JSAP scales were not included in these analyses because of a lack of direct admission or other criterion measure within the JSAP database.

JSAP risk range percentile accuracy is presented in Table 4. Risk range percentile scores are derived from scoring equations based on juveniles' pattern of responding to scale items and criminal history, when applicable. There are four risk range categories: Low Risk (zero to 39th percentile), Medium Risk (40 to 69th percentile), Problem Risk (70 to 89th percentile) and Severe Problem or Maximum Risk (90 to 100th percentile). Risk range percentile scores represent degree of severity. The higher the percentile score is the higher the severity of the juvenile's problems.

Analysis of the accuracy of JSAP risk range percentile scores involved comparing the juvenile's obtained risk range percentile scores to predicted risk range percentages as defined above. The percentages of juveniles expected to fall into each risk range are: Low Risk (**39%**), Medium Risk (**30%**), Problem Risk (**20%**) and Severe Problem or Maximum Risk (**11%**). These percentages are shown in parentheses in the top row of Table 5. The actual percentage of juveniles falling in each of the four risk ranges, based on their risk range percentile scores, was compared to these predicted percentages. The differences between predicted and obtained are shown in parentheses.

Table 4. Accuracy of JSAP Risk Range Percentile Scores

Scale	Low Risk (39% Predicted)		Medium Risk (30% Predicted)		Problem Risk (20% Predicted)		Severe Problem (11% Predicted)	
Truthfulness	37.6	(1.4)	30.7	(0.7)	20.9	(0.9)	10.8	(0.2)
Alcohol	39.3	(0.3)	30.6	(0.6)	19.7	(0.3)	10.4	(0.6)
Drugs	38.8	(0.2)	31.1	(1.1)	19.4	(0.6)	10.7	(0.3)
Aggressiveness	41.5	(2.5)	27.1	(2.9)	20.7	(0.7)	10.7	(0.3)
Stress Coping	38.6	(0.4)	30.2	(0.2)	20.5	(0.5)	10.7	(0.3)

As shown in Table 4, JSAP scale scores are very accurate. The objectively obtained percentages of participants falling in each risk range are very close to the expected percentages for each risk category. All of the obtained risk range percentages were within 2.9 percentage points of the expected percentages and most (16 of the 20) were within 1.0 percentage points. These results demonstrate that the JSAP scale scores accurately classify juvenile offender risk.

Obtained percentages set risk range cut-off scores. Scores associated with the 39th, 69th and 89th cumulative percentile separate juveniles into the four risk ranges. This method standardizes scoring procedures in the JSAP. These results show that JSAP risk range percentile scores accurately classify juvenile offender risk.

Conclusion

This study demonstrates that accurate juvenile offender assessment is achieved with the Juvenile Substance Abuse Profile (JSAP). Results corroborate and support the JSAP as an accurate assessment or screening test for juvenile offenders. The JSAP accurately measures juvenile offender risk of aggressiveness, substance (alcohol and drugs) abuse, and emotional and mental health problems. In short, the JSAP provides a wealth of information concerning juvenile offenders' adjustment and problems that contributes to understanding the juvenile offenders.

Reliability results demonstrated that all five JSAP scales are highly reliable. Reliability is necessary in juvenile assessment or screening tests for accurate measurement of juvenile offender risk. Tests cannot be valid or accurate without being reliable. Validity analyses confirm that the JSAP measures what it purports to measure, that is, juvenile risk. Results demonstrate that repeat offenders exhibit more problem-prone behavior than first offenders. Multiple offenders (having 2 or more arrests) scored significantly higher than first offenders (discriminant validity). The JSAP accurately identified juvenile offenders who have problems. And, obtained risk range percentages on all JSAP scales very closely approximated predicted percentages. These results strongly support the validity of the JSAP.

JSAP results provide important risk/needs assessment for courts to make informed decisions regarding juvenile offender sentencing options. Problem-prone individuals exhibit many characteristics that are identified with the JSAP. Relationships between juveniles' criminal history variables and JSAP scale scores demonstrate that the JSAP measures relevant behaviors that identify juveniles as problem-prone. Identification of these problems and prompt intervention can reduce a juvenile's risk of future arrests or recidivism. The JSAP facilitates understanding of juvenile offender aggressiveness tendencies, substance abuse, and emotional and mental health problems. JSAP results also provide an empirical basis for recommending appropriate supervision level, intervention and treatment programs.

Many of the exacerbating conditions that act as problem-prone triggering mechanisms are also identified by the JSAP. The Alcohol and Drugs Scales measure substance abuse problems. The Stress Coping Abilities scales measure emotional and mental health problems. The JSAP is an important tool for decision making regarding juvenile offender supervision level, rehabilitation, and treatment. Courts can direct juveniles to appropriate programs to affect behavioral change. Positively changing juvenile behavior can lead to reductions in recidivism and crime.

References

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