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Cross-Validation Of The El Paso Risk Assessment Of Juveniles At Intake Scale (el Paso Raji)

Dilata Ranadive
University of Texas at El Paso, dranadive@miners.utep.edu

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DILATA RANADIVE

DEPARTMENT OF PSYCHOLOGY

APPROVED:

James M. Wood, Ph.D., Chair

Osvaldo F. Morera, Ph.D.

Jennifer L. Eno Louden, Ph.D.

Leanne F. Alarid Ph.D.

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Charles Ambler, Ph.D.

Dean of the Graduate School

To my mother, Smruti Ranadive, without whom none of this would have been possible.

CROSS-VALIDATION OF THE EL PASO RISK ASSESSMENT OF JUVENILES AT INTAKE SCALE (EL PASO RAJI)

By

DILATA RANADIVE

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Abstract

No published risk assessment instrument is designed for the specific purpose of identifying high-risk first-time juvenile offenders at their first contact with the juvenile justice system. The El Paso Risk Assessment of Juveniles at Intake (El Paso RAJI) was developed by Valenzuela (2011) for this purpose. The current study had three aims: i) to assess the validity of the RAJI as a predictor of recidivism among first-time juvenile offenders, ii) to compare the predictive power of RAJI items with the predictive power of similar items from another risk assessment instrument, the Pre-Positive Achievement Change Tool (PrePACT), and iii) to explore new items for possible inclusion in the next version of the RAJI. Probation officers at the El Paso Juvenile Probation Department (El Paso JPD) administered the RAJI at intake to 367 first-time juvenile offenders between January 2012 and December 2012. One-year recidivism data for these offenders was collected from JPD files. Analyses showed that the RAJI correlated significantly with Any Referrals (r =.235) and with Non-Technical Referrals (r = .212) in the present sample but not with Serious Referrals. Seven of the twenty RAJI items were cross-validated and found to have a significant correlation with Any Referrals. No PrePACT item was found to be a better predictor of recidivism than its corresponding RAJI item. However, one PrePACT item "Attitude - Belief in Physical Aggression" correlated significantly with recidivism and added incremental validity to the RAJI.

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Introduction

Assessment of recidivism risk in the fields of criminal justice and juvenile justice involves evaluating the likelihood that an individual who has already committed an offence will commit another offense within a specified future time period. To assess such risk of recidivism professionals in these fields have been using rating scales for almost fifty years. Bonta and Andrews (2007) have classified these scales, known as "risk assessment instruments" or "risk assessment tools" into what they call four "generations".

The earliest risk assessment instruments have been called “First Generation” scales by Bonta and Andrews (2007). These instruments are unstructured and rely heavily on what has sometimes been called "clinical judgment." That is, risk predictions for First Generation scales are based mainly on the impressions and intuitions of professionals regarded as having expertise in the area of criminal behavior, professionals such as probation officers or psychiatrists.

“Actuarial” or “Empirical” scales have been called “Second Generation” scales by Bonta and Andrews (2007). A primary feature of these scales is that they consist of rating items that have been shown to predict recidivism in empirical studies. An additional feature of these scales is that they contain static items, which are variables such as "age of offender" or "number of past crimes" that reflect historical events or circumstances that cannot change or can change only slowly.

Since most actuarial risk assessment scales developed before 2000 include only static items Bonta and Andrews (2007) identify a "Third Generation" of scales, mostly developed during the past 15-20 years, that include both empirically validated static items (just as traditional actuarial scales do) and also "dynamic" items. Dynamic items are variables that may

fluctuate (e.g. current school performance; recent drug use) indicating an increase or decrease in risk level over time or in response to changing environmental factors.

According to Douglas & Skeem (2005) static risk factors are indicators of "risk status" (permanent or irreversible aspects of risk) whereas dynamic risk factors are indicators of "risk state" (temporary or reversible aspects of risk). Static risk factors measure stable differences in risk between individuals (i.e., an individual's level of risk compared to other individuals). Dynamic risk factors, on the other hand, measure intra-individual fluctuations in risk. Douglas and Skeem (2005) argue that static risk factors are useful for predicting recidivism; in other words they fall under what Heilbrun (1997) calls the "risk prediction model" of risk assessment. On the other hand, dynamic risk factors are useful for designing and evaluating treatments that may lower risk of recidivism; in other words they fall under what Heilbrun (1997) calls the "risk reduction model" of risk assessment.

Measures of dynamic risk factors have been criticized on the grounds that they have poor inter-rater reliability. For example, in a study by Skeem, Kennealy & Hernandez (n.d.), 4 in 10 staffers at a juvenile justice facility were unable to score dynamic risk items with sufficient reliability (Skeem, Kennealy & Hernandez, (nd); Kennealy, Hernandez & Skeem (n.d.); Kennealy, 2013). Furthermore, measures of dynamic risk can be costly in terms of time and money, which are important considerations in juvenile justice settings.

Finally, Bonta and Andrews (2007) identify a "Fourth Generation" of risk assessment scales that not only estimate the probability (i.e. risk) of recidivism but also seek to identify the key criminogenic needs of the individual. Criminogenic needs refers to factors that make an

individual more susceptible to recidivism or factors that might prevent an offender from taking full advantage of the services intended to reduce recidivism.

The present study focuses on the cross-validation of the El Paso Risk Assessment for Juveniles at Intake (El Paso RAJI; Valenzuela, 2011), a risk assessment tool developed at the University of Texas at El Paso (UTEP) in collaboration with the El Paso Juvenile Probation Department to predict recidivism among first-time juvenile offenders. The El Paso RAJI is a typical actuarial empirical risk assessment tool and falls into the "second generation" identified by Bonta and Andrews (2007). That is, the RAJI is made up primarily of "static" items (e.g. number of times a juvenile has run away from home; failing a grade in school) that have demonstrated at least some relationship to recidivism in past research. The RAJI does not at present include any dynamic items or items intended primarily to measure criminogenic needs, although some of its items may be related to criminogenic needs.

Before discussing the RAJI in detail, this Introduction will provide additional background concerning four topics that are relevant to risk assessment in general and to risk assessment in juvenile justice setting in particular: Part I will compare two approaches to decision making – clinical versus mechanical; Part II will describe the three methods of behavioral scale construction – theoretical, actuarial and factor analysis; Part III will describe application of risk assessment scales in areas other than juvenile justice; and finally Part IV will deal with the risk assessment scales developed specifically in the area of juvenile justice.

Part I: Clinical v/s Actuarial Approach to Decision-making

Although there has been some debate in the psychological literature about the relative merits of clinical versus actuarial prediction, research from the past half century has strongly

supported the value of actuarial and other similar "mechanical" approaches for prediction of risk and other important outcomes (Dawes, 1980; Grove & Meehl, 1996). For example, Grove and Meehl (1996) conducted a meta-analysis of 136 studies in which clinical predictions were compared with "mechanical" predictions in a variety of fields, including medicine, personality, and armed forces. The mechanical prediction methods included rudimentary structured approaches (e.g., checklists) as well as more sophisticated actuarial formulas based on statistical analyses. In most of the studies in the meta-analysis clinicians were given an advantage by providing them with more information than was used in the mechanical method. Grove and Meehl (1996) found that in 64 of the 136 studies the mechanical method was more accurate than the clinical method. In another 64 studies, both methods performed equally well, and in merely 8 studies did the clinical method outperform the mechanical method. An interesting finding of this meta-analysis was that neither the years of practice nor specialized training of the clinician improved predictions significantly when compared to the mechanical method.

Further support for statistical predictions compared to clinical ones was found more recently by Ægisdóttir et al (2006) when they carried out a meta-analysis of studies from the previous 56 years. Overall, they found a 13% improvement in prediction when actuarial rather than clinical method was used. Some other key findings were: i) When professionals were well acquainted with the data setting they predicted worse than when they were not well acquainted with the data setting; ii) The more information professionals had at their disposal the worse they predicted; iii) Experts predicted as well as the statistical method while non-experts performed worse.

There are a number of reasons why human decision-making tends to be less accurate than structured and statistical methods (Dawes, 1980, 1993; Groves & Meehl 1996). Firstly, human

beings are biased in the way they attend to, perceive, and interpret information. Secondly, they can retain only a limited amount of information in their mind at any given time. Thirdly, human beings are not very good at dealing with polarities, that is dealing with two pieces of information one of which is positive and another is negative e.g. a child is doing well in school but is part of a gang. Fourthly, human beings are biased in the way they weight different pieces of information when making decision. Lastly, the weights assigned to different pieces of information are not applied consistently across different people, places and/or times.

Statistical predictions, on the other hand, are superior to clinical ones in several ways. Statistical methods have the advantage that they can collate and synthesize information from a wide variety of sources. They can assimilate information from distinct facets e.g. family life and school performance. They are not influenced by extremes or stimuli that stand out, and they take into account base-rates. Last but not least they are cost effective (Dawes, 1980; Grove & Meehl, 1996). Due to all these reasons statistical predictions tend to be more accurate and efficient than clinical predictions.

Part II: Behavioral Scale Construction and its methods

In psychology one of the most common ways of collecting information is through psychological scales. Traditionally there are three methods of constructing a behavioral scale. These have been described as the (i) Theoretical (ii) Empirical, and (iii) Factor Analysis approaches. (Burisch, 1984; Garb, Wood, & Fiedler, 2011).

The first approach to scale construction, known as the" Theoretical" approach, has also been called the "Rational," "Deductive" or "Intuitive" approach (Burisch, 1984; Garb, Wood,

Fiedler, 2011; Clark & Watson, 1995). This approach is the one most commonly used to create behavioral scales and involves three steps. In the first step, the construct to be assessed is identified. In the second step, the construct is defined. If the construct is too broad it is subdivided into smaller ones. In the third and last step, items are written to represent the construct and its definitions. Regarding the types of items written, Burisch (1984) recommends using only those items closely related to the construct. Clark and Watson (1995), on the other hand, recommend using both items that are closely related and those that are not, because using a wider range of items helps identify the nature of the construct, distinguish it from other constructs and highlight what boundary conditions there might be. Clark and Watson (1995) also recommend using items that are only moderately associated with each other so as to avoid redundancy. In creating scales, emphasis is placed on homogeneity or unidimensionality i.e. the aim is to write items that represent one and only one underlying construct. It is also recommended that whenever sub-categories of items are present, ideally the more variance a sub-category contributes to the higher order category the more items the sub-category should contain (Clark & Watson, 1995).

The second approach to scale construction, known as the "Empirical," approach, has also been called the "External" "Actuarial," or "Criterion-keyed" approach (Burisch, 1984). In this type of scale development researchers assume that certain items will be endorsed differently by individuals who are characterized by a target construct (the "criterion group," for instance, depression patients) compared with individuals who are not characterized by the target construct (the "control group," for instance, non-depressed patients). The criterion and control groups are administered a pool of diverse items. Those items that are endorsed more frequently (or less

frequently) by the criterion group than the control group are retained as part of a scale. Such a scale can then be used to measure the construct that differentiates them (e.g. depression).

The third approach to scale construction, known as the "Factor Analysis" approach, has also been called the "Inductive" "Internal consistency," or "Internal" approach (Burisch, 1984). In this method, researchers assume that patterns in responses can be identified by using the statistical technique of factor analysis. Items that share some pattern (i.e., that load on the same factor) are grouped together as part of a scale (Garb, Wood & Fiedler, 2011).

There are advantages and disadvantages to using these different approaches to scale construction. One advantage of the theoretical method is that it is often an inexpensive way to construct a test or psychological scale. A second advantage is that the content is easier to understand (Burisch, 1984). One of the disadvantages according to Burisch (1984) is that there is not much empirical support for the idea that the more well-developed a theory the more valid the scale emanating from it. A second disadvantage is that often the items are chosen from pre-existing scales and/ or inventories. In such situations it is possible that we end up using the same narrow set of items over and over and therefore never fully capture the actual construct. For instance, in a study by Garb, Wood & Fiedler (2011) scales constructed using the theoretical/intuitive method performed more poorly in predicting behaviours than did scales constructed using either empirical or factor analysis methods. The authors concluded that when a theory itself has flaws, these flaws tend to detract from tests or predictions derived from the theory.

One of the advantages of the empirical methods is that it helps identify items that might have been largely unexplored or ignored by theory. Empirical method thus helps to expand

items in the existing literature and with it our understanding of the construct. One of the disadvantages of the empirical method is that it can be time consuming. It may take months if not years to develop a working scale using this method. Another reason researchers often avoid using the empirical method is because it merely tells us that an item is a good predictor but not why. In other words, the empirical method often does little to further theoretical knowledge. Lastly, the empirical method is sometimes faulted for taking advantage of chance characteristics.

An advantage of Factor analysis is that it shows statistically whether an item is related to the other items on a scale and to the construct they measure. Consistency among items can be important while constructing personality measures and can increase internal reliability of scales. A disadvantage is that factor analysis only indicates that certain items load onto certain factors but not why they do so. For this it is necessary to fall back onto theory. A second disadvantage is that factor analysis might not always be useful when a scale is being developed for prediction purposes since an item could be a good predictor but unrelated to the factor.

Part III: Application of Risk Assessment Scales in Areas Other than Juvenile Justice

Although the present thesis focuses on the prediction of criminal recidivism among juvenile offenders, risk assessment tools have also been used in other areas like adult criminal justice system, child protection services and psychiatric facilities. In these fields, they have been primarily developed to predict criminal behavior, violence, and other negative outcomes. The following section discusses some of these tools. The instruments discussed here include:

a. Three instruments in the area of adult criminal justice system
    i. Statistical Information on Recidivism
    ii. Levels of Service/Case Management Inventory

iii. Correctional Offender Management and Profiling for Alternative Sanctions

b. Four instruments used in the area of Child Protection Services

i. Child Abuse Potential Inventory

ii. Washington Risk Assessment Matrix

iii. California Family Assessment Factor Analysis

iv. Michigan's Family Risk Assessment of Abuse and Neglect

c. Three instruments used to predict violence

i. the HCR (History, Clinical & Risk Management) -20

ii. the Violence Risk Assessment Guide and

iii. Iterative Classification Tree.

Scales in the Adult Criminal Justice System

i. *Statistical Information on Recidivism (SIR)*. The SIR was constructed by Nuffield (1989) and used by the Correctional Service of Canada in parole decisions. It was originally developed to understand the reasons for parole decisions made by the Correctional Service regarding incarcerated adult offenders and to evaluate the accuracy of these decisions. The researchers identified factors that went into parole decisions regarding incarcerated offenders. The researchers then examined how well these factors predicted the offenders' subsequent outcome in the community. However, the researchers did not elaborate on what outcomes they examined nor did they specify what outcomes are considered positive and what ones are considered negative. It appears, therefore, that the SIR was originally developed using an

empirical approach, although Nuffield (1989) is not absolutely clear on this issue. The SIR was later validated empirically on two different sample of offenders, one from 1970-72 (N = 2,475) and another from 1983-84 (N = 534). Results showed that the offenders who were identified as high risk by the SIR had poorer outcomes than offenders who were identified as low risk by the SIR. In other words only a small percentage, 33% of the first sample and 37% of the second sample, who were identified as high risk by the SIR did well in the community (i.e did not reoffend). In comparison a considerable percentage, 84% and 87% respectively, of those identified as low risk did well in the community (i.e did not reoffend).

The SIR has gone through multiple revisions. Most of them have been shown to have good predictive validity. For instance, Motiuk and Porporino (as cited in Nafekh & Motiuk, 2002) studied 231 offenders and found that that one version of the SIR, the General Statistical Information on Recidivism (GSIR), correctly differentiated offenders who were like to complete parole successfully and those who were not (as cited in Nafekh & Motiuk, 2002). Hann & Harman in 1989 (as cited in Nafekh & Motiuk, 2002) followed 534 male offenders for 30 months. The GSIR correctly differentiated those offenders more likely to reoffend from those less likely. They found similar results in 1992 with 2,998 male offenders and a three-year follow-up.

Nafekh and Motuik (2002) assessed the reliability and predictive validity of another version of the SIR, the Statistical Information on Recidivism – Revised1 (SIR-R1) in predicting both general and violent reoffending. However, they do not define what constitutes reoffending. Their sample was comprised of 6,881 males who were followed up for three years between 1995 and 1998. Results revealed a

significant correlation between SIR-R scores and general recidivism (r = .36, p <.0001, AUC = .745).

ii. *Levels of Service/Case Management Inventory (LS-CMI)* (Bonta & Andrews, 2007). One of the best known instruments for assessing criminal recidivism is the Levels of Service Inventory for Adults (LSI, Andrews, Bonta & Wormith, 2006). While it seems to be predicting general recidivism, it is used more for diagnosis and intervention purposes than prediction purposes. In its earliest iteration (Andrews, 1982), the LSI called Levels of Supervision Inventory was a 62-item inventory. The scale was theoretically developed to enable parole officers make accurate supervision decisions from intake to parole Items were gathered through interviews with probation officers as well as from recidivism studies within and outside Ontario, Canada. Each item was scored '0' or '1'. The validation sample consisted of 598 adult offenders in Ottawa. The researchers found that interrater reliability for the subscales of the LSI – VI ranged from .80 (for different raters after 2 months or greater, N=19) to .99 (for same rater within a month, N = 16).

During the past three decades the LSI has gone through multiple iterations. The LSI was followed by the LSI-Revised, a "third generation" instrument that included both actuarial and dynamic variables. In a meta-analysis of 131 studies, Gendreau, Little and Goggin (1996) found that the LSI-Revised showed the largest effect size (*r* = .35) in predicting general recidivism when compared to four other instruments, the PCL-R, the Salient Factor Score, Wisconsin Classification System, and Minnesota Multiphasic Personality Inventory. However, its predictive power was not significantly greater than that of the other scales [*F* (3, 119) = 1.52].

The most recent iteration of the Levels of Service Inventory is the Levels of Service/Case Management Inventory (LS-CMI). The authors identify it as a "fourth generation scale," because it assesses both risk and crimogenic needs (Bonta & Andrews, 2007). The LS-CMI is intended to assess the requirements of an offender from case intake to case closure. An unpublished meta-analytic study carried out by Andrews, Bonta & Wormith in 2004 (as cited in Andrews, Bonta & Wormith, 2006) found that the LS-CMI correlated with both general recidivism (r = .41) and with violent recidivism (r = .29).

iii. *Correctional Offender Management and Profiling Alternative Sanctions (COMPAS).* This is used in California (Skeem & Eno Louden, 2007). According to the Brennan, Fretz and Wells (2003) the COMPAS is made up of five scales which are completed based on both self-reports by offenders and archival information (as cited in Skeem & Eno Louden, 2007). According to the authors, there are two outcome variables – how the individual offenders perform with respect to their peers and how likely are they to relapse. Skeem & Eno Louden (2007) were tasked with evaluating how good the COMPAS is using the previous reports by Brennan & Oliver (2002), Brennan, Dietrich & Oliver (2006) and Lin (2007), Skeem & Eno Louden (2007) concluded that there is no indication that it possess predictive validity, construct validity or inter-rater reliability and discouraged the use of this scale.

Scales in Child Protection Services

i. *Child Abuse Potential Inventory (CAPI).* Risk assessment has also been used by Child Protection Services (CPS) to estimate the likelihood of re-abuse or re-neglect by parents and/or caregivers who have abused or neglected their children in the past. One scale that assesses the risk of re-abuse or re-neglect is the Child Abuse Potential Inventory (CAPI) which was developed by Milner & Wimberley (1979) using the theoretical approach. The CAPI is a self-report questionnaire used to assess the likelihood of abuse by a caregiver. The inventory has 160 binary items scored as agree or disagree. Of these 160 items, 77 pertain to abuse which are spread throughout the inventory. The abuse scale comprises of seven factors that were identified through factor analysis: "*i) distress, ii) rigidity, iii) child with problems, iv) problems from family and others, v) unhappiness, loneliness, and vii) negative concept of child and of self*" (pp. 879). The Inventory has KR-20 reliability coefficients between .92 to .96. (Milner, Gold, Ayoub & Jacewitz, 1984).

Milner et al. (1984) carried out a study to establish the predictive validity of the CAPI with 200 parents from the At Risk Parent-Child Program in Oklahoma. Of these ten did not complete the Inventory. There were 42 confirmed reports of abuse, neglect or failure to thrive (FTT) made to the Suspected Child Abuse and Neglect (SCAN) team. Results showed that there was a significant association between parents' scores on the CAPI and follow up substantiated reports of abuse by the parents (Cramer's V = .34, $p < .01$; omega squared = .32) as well as a significant association between CAPI scores and later substantiated reports of neglect by the parents (Cramer's V = .19, $p < .05$).

ii. *NCCD predictors of Re-Abuse and Re-Neglect.* The National Council on Crime and Delinquency (NCCD) has constructed several actuarial scales with static items to identify families at high risk of re-abuse or re-neglect. Wood (1997) examined the validity of some NCCD items for predicting re-abuse or re-neglect in a predominantly Hispanic sample in El Paso. The total sample size was 409 of which 67% were Hispanic. Two year follow-up data was gathered. Results showed that 7 out of 19 NCCD items were significant predictors of new allegations and new substantiations in this sample, while another five items were predictors of allegation but not abuse/neglect.

Baird and Wagner (2000) compared the Michigan Family Risk Assessment of Abuse and Neglect, an actuarial NCCD scale, with two theoretical risk assessment scales, the Washington Risk Assessment Matrix and the California Family Assessment Factor Analysis, for predicting re-abuse and neglect. The sample studied by Baird and Wagner (2000) was collected from three different geographical locations and included a total of 2,713 families. The breakdown of index allegations was as follows: 57.4% were cases of neglect, 45.3% were cases of physical abuse, 10.5% were cases of sexual abuse and other types of ill-treatment were 2.5% of cases. The breakdown of substantiated reports was as follows: 40.7% were neglect, 25.7% physical abuse, 7.9% sexual abuse and .2% were other types of ill-treatment. Their follow-up period was 18 months.

Results showed that the Michigan Scale which was developed empirically had the best overall predictive validity and outperformed the California and Washington scales in each of the jurisdictions where the study was conducted. Every increase in

risk level on the Michigan scale was associated with a higher rate of investigations (16% to 32% to 46%) and substantiations (7% to 15% to 28%). Additionally, families rated as low risk by both the Washington and California scales, but as high risk by the Michigan scale, had recidivism rates well above average for the sample.

Scales in Prediction of Violence in Psychiatric and Non-Psychiatric Groups

i. *HCR-20 (historical, clinical & risk management scale).* The HCR-20 is a scale used to predict violence among psychiatric patients (Douglas, Ogloff, Nicholls, & Grant, 1999). It was developed using the theoretical method (Douglas, Guy, Reeves & Weir, 2008) and includes 20 predictor variables in three categories: historical, clinical and risk management. A study by Douglas, Ogloff, Nicholls & Grant (1999) compared the HCR-20 with the Psychopathy Checklist Revised -Screening Version (PCL-SV; (Hart, Cox & Hare, 1995). The sample consisted of 193 inpatients involuntarily committed to a psychiatric hospital. These patients were admitted to the hospital since they were assessed as likely to hurt themselves or others. Most were male and Caucasian, with an average age of 38.11 years (M = 61%). Both HCR-20 and PCLR-SV items were coded on a three point scale where 0 = available information contradicts the presence of the item, 1 = available information suggests the presence of the item and 2 = available information indicates the presence of the item. The patients were followed-up for about two years after being released into the community. Results showed that the AUC for the HCR-20 for prediction of violent offending ranged between .76 and .80. Those participants who scored above the median had a 6 times greater probability of violent offending and 13 times more likely to be apprehended due to a violent offence than those scoring below it.

Moreover, the HCR-20 had incremental predictive validity over and above the PCL-SV.

ii. *Violence Risk Assessment Guide (VRAG)* – The VRAG is an actuarial instrument developed by Quinsey, Rice, Harris and Cormier (1998) in Canada. Quinsey et al. reported a study that evaluated the predictive ability of the VRAG with violent re-offense as the outcome variable. Participants were followed up for approximately 6.5 years. The results showed the VRAG had an ROC of .76 (CI = ± .03, Cohen's *d* = 1.06).

A meta-analysis by Campbell, French & Gendreau (2009) compared various dynamic and static risk instruments as predictors of violent recidivism. By and large, dynamic instruments performed somewhat better than static ones. An exception to this was the VRAG which is predominantly a static instrument but performed as well as the dynamic instruments (Z+ = .32).

iii. *Iterative Classification Tree (ICT) model:* Another risk assessment technique for predicting violent recidivism is based on the multiple Iterative Classification Tree (ICT) model (Monahan et al, 2000, 2005). It involves classifying individuals into different risk groups by combining different variables. That is rather than looking at the effects of each variable individually it looks at how variables interact to lead to higher or lower risk.

In order to assess the effectiveness of the ICT method, Steadman et al (2000) compared it with the logistic regression method. Their sample comprised of 939 patients released from three psychiatric hospitals. The researchers identified 134 variables potentially related to risk. The outcome variable was violence, which was

defined as “serious acts … (i.e., excluding minor assaults that did not result in injury) committed during the first 20 weeks following hospital discharge” (Steadman 2000, pp.86). Results showed that the logistic regression yielded an AUC =.81 ($p < .001$), whereas the ICT model yielded AUC = .79, $p < .001$). Thus, the results from both methods were comparable. In a follow-up study by Monahan et al. (2000) the researchers attempted to improve the predictive ability of the model. They reduced the number of risk variables from 134 to 106 and found the AUC improved to .80 ($p < .001$).

The researchers cross validated the new ICT of 106 risk variables (Monahan et al, 2005) on a fresh sample of 157 psychiatric patients. The outcome variable was violent recidivism which included any violent acts in the community in the 20 week follow-up period. Results revealed that 9% of those categorized as low risk group recidivated as compared with 49% of those categorized as high risk. The ROC was .70 (sensitivity = .75; specificity = .77). The ICT model thus showed good predictive power.

As the preceding examples show, risk assessment is a well-accepted procedure in several different types of settings, including adult criminal justice system, child protection services and prediction of violence. In fact, Andrews (1989) concluded,

> “Research with practical risk assessment instruments has established now, beyond question, that systematic risk assessment allows the identification of lower and higher risk groups, and that the higher risk categories may be selected so that they include a majority of the cases that will recidivate.” (pp. 13)

Part IV: Risk Assessment Instruments in Juvenile Justice

As the preceding section has shown, risk assessment is used in many different settings to predict criminal recidivism and violence. The present section will focus on risk assessment instruments used in the juvenile justice system.

Juvenile probation departments have to make many important decisions regarding juvenile offenders, such as whether to take the juvenile into custody, or whether to recommend a juvenile be "petitioned" (i.e., formally charged in juvenile court) (Hoge, 1999). In order to facilitate these decisions and ensure consistency in decision making, most probation department use some form of risk assessment. The two most commonly used risk assessment tools are the Youth Levels of Service and Case Management Inventory (YLS/CMI) and the Structured Assessment for Violence Risk in Youth (SAVRY). A third risk assessment tool, the First Offender Risk Assessment Index (FORAI), is unique because it was designed to be used with juveniles who are being adjudicated for the first time and thus are at a relatively early point in their contact with the juvenile justice system. A fourth risk assessment tool, the Ohio Youth Assessment System (OYAS), has been recently developed to assess risk among juveniles at different stages during their involvement in the juvenile justice system. A fifth tool, called the Positive Achievement Change Tool (PACT) is currently being used at the El Paso Juvenile Probation Department. All five of these assessment instruments are described in the following sections.

i. The Levels of Service and Case Management Inventory - Youth version (YLSI).

The YLSI is based on the adult LSI (which was described in the previous section of this thesis) but has fewer items (as cited in Campbell, 2009). Like the adult version it

seems to be predicting general recidivism but is often used for intervention purposes rather than prediction. The YLSI is scored using the information obtained through interviews with the juvenile, parents and/or caregivers as well as archival records from court, schools, and other sources. Risk is assessed with a 42-item risk assessment divided into eight domains: i) past offenses and current offenses (5 items), ii) school performance/employment (6 items), iii) leisure/recreation (3 items), iv) peer associations (4 items), v) substance abuse (6 items), vi) family/parenting issues (6 items), vii) attitudes/orientation (5 items), and viii) personality/behavior (7 items). Each item is binary. Risk scores can be calculated for each domain by summing the scores from each item. A total risk score for the YLSI can also be calculated by summing across domains. Based on the total risk score, juveniles can be classified into four risk categories: low (0 to 8), moderate (9 to 22), high (23 to 34), and very high (35 to 42). Space is also provided on the inventory for writing down strengths and responsivity factors. A meta-analysis by Schwalbe (2007) of 11 studies of the YLS-CMI yielded an AUC of .641 (95% CI: .506 - .777), which is approximately equal to an *r* of .247.

ii) Structured Assessment for Violence Risk in Youth (SAVRY). The SAVRY was developed by Bartel, Borum and Forth in 2000 (as cited in Borum, 2003) to predict violent recidivism. It was constructed using the theoretical method. It is divided into three domains with a total of 24 items. The three domains are *historical (10 items), individual (6 items) and social contextual (8 items)*. There are 6 additional protective factors. A protective factor is a factor that decreases the likelihood of violent recidivism.

The SAVRY is a structured professional judgment tool used to predict violent recidivism. That is, although there are a fixed number of risk factors that a clinician is required to take into consideration every time for every client, the final assessment of risk for a juvenile is left to the discretion of the clinician. There is no adding up of scores across items or domains or any form of threshold. The youth is categorized into three risk levels: low risk, moderate risk and high risk based on the clinician's discretion. The SAVRY has shown to have good predictive validity (AUC = .74 to .80) (Borum, 2003).

iii) First Offender Risk Assessment Index (FORAI). The FORAI was developed by Risler, Stuphen & Shields (2000) at the University of Georgia in partnership with a local juvenile court. It was developed using the theoretical approach to scale construction and includes seven categories of predictors, which were identified by the authors based on a review of the literature on prediction of juvenile recidivism. These categories are: age at first court referral, severity of the referring offense, parental monitoring, school performance, peer group association, substance use, and family's history of criminality. The 43 items are divided among the categories as follows: age at first court referral (1 item), severity of the referring offense (1 item), parental monitoring (5 items), school performance (13 items), peer group association (12 items), substance use (7 items), and family's history of criminality (4 items). The scale has two versions - one for the juvenile and one for the parent. These versions have the same items but phrased differently. In case of contradiction between the youth's and parent's response, the parent response is accepted as the final one.

In a validation study reported by Risler et al. (2000; see also Risler, 1998), 181 juveniles who were being adjudicated for the first time (mean age = 14) were tracked for 4 years to identify instances of recidivism. Recidivism was defined "as a new offense contained in a new complaint or charge brought before the court" (pp.119 Risler, Stuphen & Shield, 2000). The study had two aims: i) to determine the predictive validity of the FORAI and ii) to identify best predictors of re-offending. The FORAI showed a sensitivity of .877 which mean 87% of juveniles who committed an offense were correctly identified by FORAI. It showed a specificity of .389 which means 39% of those who did not commit an offense were correctly identified by the FORAI (Streiner, 2003). A forward stepwise logistic regression showed that four of the seven FORAI variables were significantly related to recidivism. These variables were family history of criminality (r = .192, p = .001), school performance (r = .157, p = .005), age of first contact with the court (r = -.104, p = .035, and severity of the referring offense (r = -.099, p = .039).

iv. *Ohio Youth Assessment System (OYAS)* – This instrument was developed to identify high risk juvenile offenders in order to provide them with the most effective treatment (Latessa, Lovins, Ostrowski, 2009). These researchers first carried out a literature review and identified variables that were valid predictors of recidivism. They then developed three instruments to be used at three different stages of the justice process: i) intake (diversion and confinement); ii) after being adjudicated; and iii) before and after extended placement. The sample size was 2,457. The average follow up period for the entire sample was 14 months. The dependent variable was "arrest" or recidivism excluding "supervision violations". However, it is not specified if these

technical violations include marijuana use which is often detected through urine-analysis. Results of logistic regressions showed that for the diversion and detention tools 6 items were found to have statistically significant association with re-arrest while the disposition instrument had 32 items over seven domains that had significant association with re-arrest.

A study by McCafferty (2013) examined the predictive validity of the OYAS disposition tool. The sample consisted of 2,841 juveniles in the state of Ohio. They had three different dependent measures – pure recidivism (i.e. recidivism excluding technical violations), only technical violations, and any recidivism i.e. recidivism including technical violations. The independent variable consisted of OYAS-disposition "risk score" and "risk level". Results of binary logistic regressions showed that both the risk score and risk level significantly predicted all three recidivism types (McCafferty, 2013). However, OYAS-DIS had lower predictive validity with pure recidivism than the original study (r = .30, AUC = .678), low to medium association with technical violation (r_{pb} = .237, AUC = .680) and medium association with any recidivism (r_{pb} = .321, AUC = .688).

v. Positive Achievement Change Tool (PACT): The PACT is what Bonta and Andrews (2007) call a "fourth generation" risk assessment instrument, meaning that it includes both dynamic and static variables and assesses needs. It was developed by Assessments.com and the Florida Department of Juvenile Justice (Assessment.com website). The PACT has two versions - the full PACT and the PreScreen PACT (PrePACT), The PrePACT is comprised of a subset of the full PACT items. The full

PACT includes 12 categories i) Report of Referrals – this refers to any formal or informal contact with the law (e.g. tickets issued for breaking curfew, warnings given etc.); , ii) Gender, iii) Academic performance, iv) Use of Leisure Time, v) Employment Patterns, vi) Non-Family Relationships, vii) Caregiver History & Present Living Arrangements, viii) Substance Use, ix) Psychological Health, x) Attitudes towards Law and Unreported Illegal Behaviors, xi) Hostility, and xii) Cognitive & Behavioral Skills.

The PrePACT is a screening instrument that identifies risk level of the juvenile. It has four domains: i) Report of Referrals, ii) Social Behavior – Past & Present, iii) Psychological Health, and iv) Attitudes towards Law and Unreported Illegal Behaviors.

The PACT was validated by Baglivio (2007, 2009) at the Florida Department of Juvenile Justice. PACT data were collected from November 2005 to February 2007. The study looked at two variables of the (full) PACT: past criminal record of the juvenile (except referrals for sex offenses) which constituted 10 items and the social history of the juveniles which constituted 18 items selected from the remaining domains of the PACT.

A part of the study by Baglivio (2009; see also Baglivio 2007) involved evaluating how well the PACT predicted recidivism among juveniles who were released into the community. The sample size of juveniles was 8,132 (M = 69.8%, F = 30.2%). The follow up period was one year. Recidivism in this study was defined as "an official delinquency referral to the Department of Juvenile Justice post-administration of a

PACT assessment." (pp.599). Results showed that the AUC for the entire sample was .593.

The recommended procedure for administering the PACT is that (a) all Juveniles are given the PrePACT, but (b) only juveniles who receive scores of "moderate-high risk" or "high risk" on the PrePACT are to be administered the Full PACT. Juveniles who score low on the PrePACT either have their cases closed or diverted to intervention programs. At EPJPD the procedures for the PrePACT and PACT are somewhat different, in that (a) all juveniles are administered the PrePACT but (b) only adjudicated juveniles are administered the Full PACT. Consequently, data for the PrePACT is available on all the juveniles referred to the JPD while PACT data is available for only a small percentage of these.

General Findings Regarding the Prediction of Recidivism among Juveniles

Other studies have looked more generally at the effectiveness of risk assessment in juvenile justice settings. Schwalbe (2007) carried out a meta-analysis of 28 risk assessment instruments in order to evaluate the predictive validity of risk instruments in the area of juvenile justice. The resulting 42 effect size estimates showed, that effect sizes were slightly larger for actuarial instruments with static and dynamic items (AUC = .646, *SD* = .028, *n* = 21, *r* = .26, CI = .588 - .704) than for actuarial instruments with only static items (AUC = .635, *SD* = .049, *n* = 21, *r* = .24, CI = .533 - .737). As can be seen, the effect sizes (AUC and *r*) were very similar for the two types of instruments and probably were not significantly different, although the meta-

analysis did not report a statistical test of whether the effect sizes differed significantly from each other.

There has been interest not only in the instruments that predict risk, but in the particular variables in these instruments that are most predictive. According to Andrews, Bonta and Wormith (2006), most of the variance in general criminal recidivism is accounted for by four factors - past antisocial behavior, antisocial personality pattern, antisocial thoughts and attitudes and antisocial peers. These are called the "big four". In addition to the big four are four other risk factors – family and/or marital issues, academic and/or employment performance, improper use of leisure and/or recreation time and substance use. Together they are known as the "central eight".

Support for the 'Central Eight' comes from various studies both within and outside the U.S. For example, Hoge, Andrew, and Leschied (1996) carried out a study to identify factors that make youth vulnerable to recidivism as well as factors that protect them. The sample consisted of 338 juvenile offenders (M = 270, F = 68) between the ages of 12 to 17 years. The Youth Level of Service Inventory was used to score the information regarding the offenders from case files at six different probation departments. The researchers studied three risk factors pertaining to family – family relationships (inadequate communication), family monitoring (e.g. inadequate supervision) and parent problems (e.g. criminal offenses by a parent) and four protective factors pertaining to peers, school performance, use of leisure time, and attitude towards authority. The juveniles were followed for 1 - 1 ½ years. The dependent variables were recidivism defined as a "new conviction …following the disposition on record at the point the individual was first studied" (pp. 421) and adherence to conditions of disposition. Both of these variables were scored as 'yes' or 'no'. The study results showed that two risk factors (impaired family

relationships, inadequate monitoring) and all four protective factors were associated with recidivism such that an increase in risk led to an increase in recidivism while an increase in protective factors led to a decrease in recidivism and better adherence to conditions of disposition.

A study done in Singapore by Ang and Huan (2008) examined court records of 772 youths (Males = 83.93% Females = 16.06%; average age = 15 years). Of these 772 youths, 621 had committed an offense for the first time while the remaining 151 had "technical violations" (i.e. breach of court orders). The researchers identified four variables that were predictors of recidivism "defined as violation of the court order, which could include reoffending" (pp. 899). They found that the father having a CJS (Criminal Justice System) record, history of being a runaway, history of violence, and age of first offense were all significantly related to reoffending in juvenile offenders.

A meta-analysis by Cottle, Lee & Heilbrun (2001) analyzed 23 studies carried out between 1983 and 2000 to ascertain the best predictors of juvenile recidivism. They defined recidivism as "re-arrest for offending of any kind". The total number of participants in the meta-analysis were 15, 265 of which the majority were males (83.31%). The average age of the participants was 14.7 years. A total of 30 variables were included in this meta-analysis. Of these, 24 were found to be significantly correlated with recidivism. The seven strongest predictors were: (1) age at first confinement (r = -.346), (2) age at first involvement with the law (r = -.341), (3) past instances of clinical dysfunction (r = .305), (4) family issues (r =.227), (5) conduct issues (r = .255), (6) productive use of leisure time (r = -.233), and (6) negative peers (r = .204).

Current Study

As the Introduction has described, several risk assessment instruments for juveniles have been developed in the past. However, almost all were designed for use with serious and chronic juvenile offenders, rather than specifically for use with first-time offenders. Furthermore, they were not designed specifically for use in region of El Paso with its unique demographics.

El Paso is a town on the border of U.S. and Mexico. According to the U.S. Census bureau 2012-2013 statistics (U.S. Census Bureau website), about 81% of the population of El Paso is Hispanic compared to about 38% for the rest of Texas. Non-Hispanic whites constitute about 13% of the county population while they constitute 44% of the state population. A quarter of the El Paso population is foreign born, compared to 16% for Texas. There are economic differences as well. The average income is $18, 000 in El Paso compared to $25,000 for the rest of Texas. The median household earnings between 2008 and 2012 was $39,000 while for Texas it was $51,000. A risk assessment instrument that is employed here needs to take these socio, economic and cultural differences into account.

A first-time juvenile offender can be defined as a juvenile who has never before been referred for intake at a juvenile probation department. At present, no risk assessment tool for first-time offenders (i.e., juveniles who are being referred to the juvenile probation department for the first time) has been reported in the published literature. The *First Offender Risk Assessment Index* (FORAI; Risler et al, 2000), which was discussed earlier in this thesis, was designed for juveniles referred for adjudication in a juvenile court for the first time. Most juveniles who are referred to juvenile probation departments are charged with very minor offenses, and only those charged with serious or chronic offending are referred to juvenile court

for adjudication. Thus, the juveniles in the present study were generally younger and less serious offenders than those included in research on the FORAI.

Similarly the OYAS has two instruments that were developed with juvenile offenders at intake. One is the "diversion" tool for which the derivation sample was juvenile offenders at intake that were not referred to the custody of juvenile facility. The second was the "detention" tool for which the derivation sample was juveniles who had been referred to the custody of juvenile facility. Thus, there is no instrument that was developed to be used with first-time offenders at probation irrespective of whether the juvenile is referred to diversion or detention.

The El Paso Risk Assessment of Juveniles at Intake (El Paso RAJI) is currently under development for the El Paso Juvenile Probation department (El Paso JPD) in order to improve identification of first-time juvenile offenders who are at a high risk for re-offending (Valenzuela, 2011). *The cross-validation of the RAJI is the central focus of the present study*.

This study has three aims: i) to assess the predictive validity of the RAJI on a fresh cross-validation sample, ii) to compare the predictive power of items common to the RAJI and the PrePACT, and iii) to explore new items for possible inclusion in the next version of the RAJI. Each of these aims is discussed in the following paragraphs.

The first and primary aim of the study is to cross-validate the RAJI on a fresh sample i.e. we seek to assess whether the variables that predicted recidivism in Valenzuela's (2011) study can be cross-validated in a new sample of juvenile offenders. RAJI variables that prove valid in the cross-validation sample will be retained in future versions of the RAJI, whereas variables that do not prove valid will be evaluated to determine whether they should be deleted from future versions of the RAJI.

The second aim of the study is to compare the predictive validity of RAJI items with PrePACT items that measure similar constructs but using somewhat different criteria and scoring formats than the RAJI does. As a result of these differences in criteria and scoring format, one way of measuring the constructs may produce higher predictive validity than the other. Or it may be that the two ways of measuring the construct produce greater predictive validity together than either one does alone. Four PrePACT variables are similar to RAJI items in regard to the construct they measure, and their validity was explored in the present thesis, as listed in Table 1.

Table 1. Similar variables of the RAJI and PrePACT

RAJI	PrePACT
No. of runaways • 2 or less • 3 to 4 • 5 or more	**Runaways or kicked out of home** • Never been kicked out • Has runaway or been kicked out • Is currently a runaway or kicked out
Prior Alcohol use • No alcohol use • Rare, Mild, or Experimental Alcohol Use • Moderate or Consistent Alcohol Use • Severe Alcohol Use	**History of Alcohol Use** • No use of Alcohol • Past use of Alcohol • Alcohol disrupted education • Alcohol caused family conflict • Alcohol interfered with keeping pro-social friends • Alcohol caused health problems • Alcohol contributed to criminal behaviour • Minor needed increasing amounts of alcohol to achieve same level of

	intoxication or high • Minor experienced withdrawal problems
Prior Drug use • No drug use • Rare, Mild, or Experimental Drug Use • Moderate or Consistent Drug Use • Severe Drug Use	**History of Drug Use** • No use of Drug • Past use of Drug • Drug disrupted education • Drug caused family conflict • Drug interfered with keeping pro-social friends • Drug caused health problems • Drug contributed to criminal behaviour • Minor needed increasing amounts of alcohol to achieve same level of intoxication or high • Minor experienced withdrawal problems
Negative peers • No • Yes **Type of gang involvement** • None • Suspected • Associated • Former • Member	**History of Anti-social friends/ Companions** • Never had consistent friends/companions • Had pro-social friends • Had anti-social friends • Been a gang member/ associate

The third aim of the present study is to identify potential predictors that are not currently included in the RAJI but could be added to it in the future to increase its predictive validity. We began by searching the scientific literature and identifying a set of variables that have been shown to be predictive in past studies of juvenile recidivism. We then eliminated variables from

this set if they (a) were already empirically tested and rejected in the previous RAJI study by Valenzuela (2011), or (b) were not currently measured by El Paso JPD. Through this process, we identified two potential predictors that have shown predictive validity in some past studies of juvenile recidivism and could be scored from data currently collected by JPD, as described in the following paragraphs.

Variable 1: Severity of referring offense (*Risler, Stuphen & Shields, 2000)*

Risler, Stuphen and Shields (2000) attempted to validate the First Offender Risk Assessment (FORAI) with 181 juvenile first-time offenders who were followed up for four years. These researchers found that four FORAI variables were significant predictors of recidivism: (a) juvenile's age at first referral, (b) family's criminal activities, (c) juvenile's school performance and (d) severity of the current offense.

Two of these four variables, family involvement in criminal activities and school performance, are already measured by the RAJI. Another of these variables, age at first referral, was examined by Valenzuela (2011) for potential inclusion in the RAJI, but was found not to be predictive with first-time offenders at JPD and therefore will not be re-examined in the present study. However, the fourth variable, the severity of offense, is not currently measured by RAJI and was not examined by Valenzuela. This variable is not measured by the PACT either. However, information in JPD case files is available to score this variable.

For the present study, we will be using Texas Department of Public Safety (Texas Commission on Jail Standards; El Paso county website) guidelines to score the severity of offense which is different from Risler et al. (2000) who used the FBI severity of offense index 1997 to score the 'seriousness of offense variable'. The Texas Department of Public Safety

guidelines classify offenses into two broad categories: misdemeanors and felonies. Misdemeanors are less severe than felonies.

Misdemeanors, in the order of increasing severity, are further classified as:

1. Class C misdemeanors (MC) – fine up to $500
2. class B misdemeanor (MB) - person found guilty could be fined up to $ 2, 000 or jailed for 180 days or both
3. class A misdemeanor (MA) – person found guilty could be fined up to $4,000 or jailed upto 1 year or both

Felonies, in order of increasing severity, are further classified as:

a. Felony State Jail (FS) – jail for 180 to two years or fine up to $ 10, 000 ,
b. Felony 3 (F3) – imprisonment for a minimum two years to a maximum of 10 years or fine up to $10,000.
c. Felony 2 (F2) – imprisonment for a minimum of 2 to a maximum of 20 years, and
d. Felony 1 (F1) – imprisonment for minimum 5 to a maximum of 99 years or fined up to $10,000.

Variable 2: Antisocial Attitude (*Hoge, Andrews and Leschied, 1994)*

Hoge, Andrews and Leschied (1994) studied 338 juvenile offenders (Males = 79.88, Females = 20.12) between 12 to 17 years of age. All had been adjudicated. The Predisposition Report was used to score the YLSI. The study included four predictor variables – i) family bonding (affiliation, warmth etc. primarily in the parent child relationship), ii) Behavior

regulation (supervision and monitoring of the juvenile), iii) Negative peers and iv) Antisocial attitudes.

The outcome variables studied by Hoge, Andrews & Leschied (1994) were the Serious Crime Index (SCI) and the New Conviction Index (NCI). The serious offenses were, in addition to violent crimes, breaking and entering with intent, breaking-entering-theft, theft above $1,000, vehicle theft, arson and drug trafficking. A new conviction was any conviction during the follow-up period of 12 to 18 months.

Hoge et al. (1994) found that i) Behavior regulation and Negative Peers were significantly correlated with both new offenses and seriousness of offense. Family bonding was significantly correlated only with new offenses. These correlations ranged from .15 to .49 ($p <$ .05 to $p <$.001). Antisocial attitudes uniquely contributed to the variance in both SCI and NCI over and above that contributed by Family Bonding and Negative Peers (R^2 *change* = .03, $p <$ .01).

Two of the variables studied by Hoge et al. (1994), Behavior regulation and Negative peers, are already included in the RAJI, where they are called 'Parental Control' and 'Negative Peers'. Another one of these variables, family bonding, is included in the full PACT but not the PrePact. Because the full PACT is not typically administered to first-time offenders at El Paso JPD, this variable is not available for inclusion in the present study. The fourth variable, anti-social attitudes, is not currently measured by the RAJI but is measured by PrePACT. Therefore the present study included Antisocial Attitudes as a potential predictor as measured by the PrePact. The PrePACT measure of Anti-social Attitudes comprises 6 variables –i) Attitude Toward Responsible Law Abiding Behavior, ii) Accepts Responsibility for Anti-Social

Behavior, iii) Belief in Yelling and Verbal Aggression to Resolve a Disagreement or Conflict, iv) Belief in Fighting and Physical Aggression to Resolve a Disagreement or Conflict, v) Reports/Evidence of Violence Not Included in Criminal History, and vi) Reports of Problems with Sexual Aggression Not Included in Criminal History. The present study analyzed each of these Anti-Social attitudes separately. The relationships among these attitudes were examined, to see if it would make logical and/or mathematical sense to combine them into one or more composite variables.

Method

Participants: There were 367 juveniles in the present sample (M = 73.6%, F = 26.2%, Missing = .3%). Their ages ranged from 10 to 17 years (*M* =14.63, *SD* =1.491). The majority were Hispanic (81.5%) while a smaller percentage were non-Hispanic white (14.4%). The primary language of most of the participants was either English (89.9%) or Spanish (9.5%). The majority were U.S. citizens (94.0%) while a small percentage were Mexican citizens (5.4%).

The Probation officers who work in the Intake department identified juveniles who were referred to the Probation department for the very first time between January 2012 and December 2012. This sample of juvenile was followed for a year after their first referral between January 2013 and December 2013.

Outcome Measures: The main outcome measure was Any Referral, defined "as a referral or re-arrest within a twelve month period following the first offense" (Valenzuela, 2011). This is a very commonly used outcome variable in the literature. The advantage of using this outcome variable in our study is that it allows us to compare our findings with those of past studies. Two additional outcome measures were also examined – Non-Technical Referral (i.e. referrals excluding technical violations such as breaking a curfew) and Serious Referral (i.e. referral excluding technical violations and referrals for marijuana use). The advantage of using Non-Technical referral is that it focuses on offenses that would be illegal irrespective of age. Lastly, the advantage of using Serious Referral is that it focuses attention on the most serious of the offense i.e. offenses against property and/or person. This is of practical importance as Probation Departments might be more interested such juveniles as decision regarding interventions and prosecutions often depend on the seriousness of the offense.

The data were retrieved from three computerized databases at El Paso JPD: i) Caseworker, ii) the JJC Case Management database, and iii) Assessments.com. The Caseworker database is maintained by EPJPD. Here information regarding personal details of the child, demographic information, and offense related information is retained. The JJC Case Management database is also maintained by the EPJPD. It stores personal details and demographic information, as well as data collected by JPD intake workers for the RAJI from January 2012 to December 2012. The PrePACT information is maintained by a company called Assessments.com at EPJPD. EPJPD Probation Officers enter the PrePACT information and Assessments.com scores it using its own algorithm. The data is stored on the Assessment.com servers.

The author of this thesis and her research assistants gathered all data on-site at EPJPD. They de-identified the information by using the Personal Identification Numbers (PID) that are assigned by EPJPD to protect the confidentiality of the juveniles. All information gathered at EPJPD was coded and transferred to Excel worksheets. IRB approval was sought and received for the above procedures and the study.

Instruments: Five instruments were used in this study: i) The El Paso RAJI, ii) the Juvenile Interview and Juvenile Worksheet for the RAJI, iii) the Parent interview and Parent Worksheet for the RAJI, iv) the RAJI Records Worksheet, and v) the PrePACT. Each is described below in brief.

i) The RAJI (Valenzuela, 2011) is provided in Appendix A of this thesis. As the literature review demonstrates there are no published scales for evaluating risk in first-time offenders. Two that come closest are FORAI & OYAS-DIV. However, the derivation sample for the FORAI

consisted of juveniles who were referred to the juvenile court for the first time, and the cross-validation sample for the OYAS-DIV consisted of juveniles who had already been diverted. Hence, there was a need for a scale with first time offenders. RAJI was developed to meet this need.

Sixty-one predictor variables for 321 first-time juvenile offenders were gathered from the files and data bases of the El Paso Juvenile Probation Department. The relationship of these variables with two outcome measures– general recidivism and felony recidivism - was examined. General recidivism was operationally defined as “any referral or arrest within one year of intake. Felony recidivism was defined as “any referral or arrest for a felony within one year of intake”.

Valenzuela's (2011) participants were divided randomly into two samples. A total of 21 items were identified that correlated significantly with one of the two outcome variables in at least one of the two samples. These items were used to construct the RAJI. One of the items in the original scale referred to ‘self-report of truancy’. Since this item was redundant with another item measuring truancy, it was deleted from the RAJI. The RAJI for this study therefore has 20 items.

The RAJI is what Bonta and Andrews (2007) call a "Second Generation" risk assessment instrument. That is, it uses the actuarial method of decision-making and was developed using the empirical method of scale construction. It is composed of static items measuring past events since these can be measured more reliably and economically than dynamic ones. Like similar "Second Generation" instrument, the RAJI measures stable, unchangeable characteristics (e.g., number of past runaways), and not dynamic variables. Hence it is not well suited for measuring change over time.

The RAJI total score was calculated by summing all the 20 items. The total score ranges from 0 to 29. It is a continuous measure of risk. The higher the total scores on the RAJI Long the higher the risk of recidivism.

The RAJI total score is used to assign each juvenile to a RAJI Risk Level (Very Low, Low, Moderate, High, or Very High). The RAJI risk level is a categorical measure of risk that translates numerical RAJI total scores into labeled categories. The RAJI risk level is designed to clearly demarcate juveniles who are more at risk than others and make the decision-making process of the JPD staff easier. Thus these categories serve a practical purpose.

The rules for translating RAJI total scores into RAJI risk levels were developed by Valenzuela (2011). The procedures she followed to develop these rules were as follows:

Valenzuela (2011) first plotted a smoothed loess graph of data from her sample of juveniles,, with RAJI total scores of juveniles on the X-axis and recidivism (1 or 0) on the Y axis. Based on visual inspection of the graph, she then developed cut-offs for RAJI risk scores. (a) A large group of juveniles in her sample had a score of 2 or less on the RAJI and their recidivism rate was very low. Hence, the first cut-off was established at 2/3, and all juveniles with scores of 2 or less were labeled as Very Low risk. (b) A set of cut-points was then tentatively tested at 4/5, 6/7, and 8/9. In this way, four groups were formed (3-4, 5-6, 7-8, and 9 or higher). It was found that the number of juveniles was approximately equal in each of the four groups, and that the rate of recidivism monotonically increased from one group to the next as the RAJI score increase. Accordingly, cut-points were established at 4/5, 6/7, and 8/9, and the resulting five groups were labeled as “Very Low”, "Low," "Moderate," "High," and "Very High." A total score of 0 to 2 on the RAJI Long was equal to ‘Very Low’ risk level; a total score of 3 to 4 on the RAJI Long was equal to ‘Low’ risk level; a total score of 5 to 6 was equal to a

'Medium' risk level; a total score of 7 to 8 was equal to a 'High' risk level; and a total score of 9 and higher was equal to a 'Very High' risk level.

ii) Juvenile Interview and Juvenile Worksheet for the RAJI. These measures are provided in Appendices B and C respectively of this thesis). The author of this thesis has developed a structured interview with accompanying worksheet that Probation Officers can use to gather information from juveniles to score the RAJI. Each question on the juvenile interview corresponds to an item on the RAJI. For example, RAJI Item 8 assesses whether the youth is 'Currently failing one or more classes'. Three questions on the structured interview assess this item: Q1A. When was the last time you attended school? Q1B. [If juvenile is currently attending school] Are you failing any classes at school? Q1C. [If juvenile is not currently attending school] During the last term you were in school, did you fail any classes? The Probation Officer records the information for this and other RAJI items on the Juvenile Worksheet.

iii) Parent interview and Parent Worksheet for the RAJI. The measures are provided in Appendices D and E respectively of this thesis. The author of this thesis has also developed a structured interview that Probation Officers can use to gather information from juveniles' parents to score the RAJI. Each question on the parent interview corresponds to an item on the RAJI. For example, as already noted, RAJI Item 8 assesses whether the juvenile is 'Currently failing one or more classes.' It is scored by asking the following three questions on the structured interview. Q1A. When was the last time [juvenile's name] attended school? Q1B. [If juvenile is currently attending school] Is he/she failing any classes at school? Q1C. [If juvenile is not currently attending school] During the last term he/she was in school, did he/she fail any classes?

Probation Officers record the responses to these questions on the Parent Worksheet. The Parent Interview and Parent Worksheet

iv) Records worksheet. This measure is provided in Appendix F of this thesis. Some RAJI items are scored using archival information available to JPD probation offenders. For example RAJI Item 6 assesses the number of Child Protective Services (CPS) cases opened on a juvenile. The Probation officer is expected to contact Child Protective Services to obtain this information and record it on the Records worksheet.

Scoring rules were developed to transfer information from the three worksheets to the RAJI. For example, for RAJI Item 8 "Currently failing one or more classes," the scoring rule was **"**Based on Juvenile Worksheet Item 1 and Parent Worksheets Item 1, RAJI score should be "Yes" (= 1 point) if either Parent Worksheet or Juvenile Worksheet indicates that the juvenile has failed one or more classes. Otherwise RAJI score should be "No" (= 0 points)." These scoring rules have been translated into a computer program used at JPD, so that once the Juvenile, Parent and Records worksheets have been completed, a computer uses information from these worksheets to score the RAJI. This use of a computer avoids human errors in coding while transferring information from worksheets to the RAJI. The scoring rules used to combine the data from the Juvenile, Parent, and Records worksheets are provided in Appendix G.

v) PrePACT – The PrePACT is comprised of a subset of items from the PACT, which was described in the Introduction. The Pre-Pact has four domains: i) Record of Referrals, ii) Social History, iii) Psychological Health, and iv) Attitudes and Behaviors. The PrePACT is designed to screen out low risk juveniles. Juveniles who score low on the PrePACT either have their cases closed or are diverted to community intervention programs. At EPJPD, all juveniles are

administered the PrePACT, but only adjudicated juveniles are administered the Full PACT. Consequently, data for the PrePACT is available for all the juveniles who come to the JPD while PACT data is available on a much smaller percentage of juveniles. Hence, this study used items from the PrePACT to compare with the RAJI.

Procedure: In the present study probation officers at EPJPD gathered RAJI data on 367 first time juvenile offenders and their parents between January 2012 and December 2012. The EPJP intake department has 11 probation officers and all have at least a Bachelor's degree. These officers were trained to use the RAJI questionnaires and worksheets. They gathered information from juveniles and parents during intake by asking the questions on the juvenile and parent questionnaires respectively. The answers were noted on the juvenile and parent worksheets electronically. Caseworkers also retrieved data from archival records and recorded the information electronically on the Records worksheet. These archival records included, the following:

i) Massachusetts Youth Screening Instrument (MAYSI) -2. This self-report questionnaire was developed by Grisso, Barnum, Fletcher, Cauffman, & Peuschold (2001) to assess mental health issues in juvenile offenders. The scale has 52 items and seven factors identified through factor analysis. The Alcohol/Drug use subscale of the MAYSI comprises of eight items and deals with history of substance use. This subscale is used to score one item of the Record worksheet.

ii) Justice Information Management System (JIMS). This is a computerized data management system used by the El Paso County law enforcement system, including EPJPD.

Information regarding adult arrests is entered into this database and is available to the authorities of jails, law enforcement, prosecutors and courts (Texas Department of Public Safety).

iii) El Paso Child Protective Services. This agency is responsible for investigating reports of abuse or neglect of children. The agency's files can be used to determine the number of times that a juvenile has been the identified victim in a CPS investigation of abuse or neglect. This information is used to score RAJI item 6.

iv) Rap sheet. This is a document in EPJPD files that records prior arrests and other basic information about a juvenile, such as age and gender.

Information from these four sources as well as the Probation Officers' own knowledge was then used to automatically score the El Paso RAJI, using the scoring rules in Appendix G.

The author of the present study and her assistants collected recidivism data and PrePACT data from EPJPD files between June 2013 and August 2014. In addition to the variables already described, data was gathered from EPJPD files on basic demographic information: age, ethnicity, sex, primary language, and citizenship.

Main Predictions

The main predictions of the study were as follows:

i) The El Paso RAJI will significantly predict recidivism among juveniles, such that total scores on the RAJI will be significantly related to higher recidivism.
ii) The El Paso RAJI will significantly predict recidivism among juveniles, such that the risk level on the RAJI will be significantly related to higher recidivism.

iii) The individual items of the RAJI will be significantly and positively correlated with recidivism.

iv) In the comparison of correlations between RAJI items and similar PrePACT items, PrePACT items will predict better than the RAJI items.

v) The two potential predictor variables – severity of the first offense and attitude towards law items – will have significant bivariate correlations with recidivism.

vi) Both the potential predictor variables – severity of offense and attitude towards law items – will add incremental validity to the RAJI for the prediction of recidivism.

Results

Of the 367 juvenile offenders, only 58 (15.8%) of the juveniles recidivated (i.e., had a referral) during the one-year follow-up period. When referrals due to technical violations (e.g. violating a court order or running away from home) were excluded, the number of juveniles who recidivated dropped to 55 (15.0%). Once both technical violations and referrals for marijuana use were excluded from the analysis the number of juveniles who recidivated dropped further to 40 (10.9%).

Correlation of RAJI Items with Recidivism

Table 2 shows the correlations of individual RAJI items with juvenile recidivism during the one-year period following intake. Recidivism was operationalized in three ways: (a) Any kind of recidivism (Any Referrals), (b) Recidivism Excluding Technical Violations like violating court order or running away from home (Non-Technical Referral) and (c) Referral Excluding Technical Violations and Referrals for Marijuana Use (Serious Referrals). As can be seen in Table 2, eight RAJI items were significantly correlated with Any Referral: RAJI Item 1 "Currently Failing One or More Classes" (r = .152), RAJI Item 3 "Chronic Truancy" (r = .197), RAJI Item 4 "Behavioral Problems at School" (r = .127,), RAJI Item 6 "Prior Drug Use" (r = .172), RAJI Item 8 "Negative Peers" (r = .192), RAJI Item 13 "Number of Runaways" (r = .189), RAJI item 14 "History of Witnessing Abuse" (r = .120), and RAJI Item 16 "MAYSI-2 Alcohol/Drug Use Score" (r = .127). Further, as can be seen in the same table, these eight items were also significantly correlated with the second outcome, Non-Technical Referrals. Finally, as shown in Table 2, only one RAJI item, RAJI Item 3 "Chronic Truancy", was significantly correlated (r = .145) with the third outcome, Serious Referrals. All other RAJI items failed to correlate significantly with this outcome variable.

Performance of RAJI Items: Comparison with Valenzuela (2011).

As a preliminary step, the demographic characteristics of the current sample were compared with those of the sample in Valenzuela's (2011) derivation study of the RAJI. The sample size in Valenzuela's study was 321 juveniles, compared with the current sample size of 367. The average age of juveniles in the Valenzuela study was 14.43 (SD = 1.43), which was nearly the same as the average age of 14.63 (SD = 1.5) in the current study. Males comprised 63% of Valenzuela's sample while they comprised 73.6 % of the current sample. The percentage of Hispanic was slightly higher in Valenzuela study (89%) compared with the current study (81.5%). Finally and most importantly, the recidivism rate (Any Referral) was 15.6% in Valenzuela's study while it was 15.9% in the current study.

Table 3 compares the performance of RAJI items in the present study with their performance in the original study by Valenzuela (2011) that developed the scale. Valenzuela reported the items' correlation with Any Referral during a one-year follow-up. Hence, the focus in this section is the correlation between RAJI Long and Any Referral.

As can be seen, seven of the twenty RAJI items were found to be significantly correlated with Any Referral in both the current study and in the Valenzuela study. These seven items were: RAJI Item 3 “Chronic Truancy (r = .197 in current study, r = .245 in Valenzuela study), RAJI Item 13 “Number of Runaways” (r = .189 in the current study; r = .331 in Valenzuela study), RAJI Item 6 “Prior Drug Use” (r = .172 in the current study; r = .220 in Valenzuela study), RAJI Item 8 “Negative Peers” (r = .192 in the current study; r = .158 in Valenzuela study), RAJI Item 1 “Currently Failing One or More Classes” (r = .152, in the current study; r = .157 in Valenzuela study), RAJI Item 4 “Behavioral Problems at School” (r = .127, in the current study; r = .209 in

Valenzuela study) , RAJI Item 16 “MAYSI-2 Alcohol/Drug Use Score” (r = .127 in the current study; r = .154 in Valenzuela study). An additional item, RAJI Item 14 “History of Witnessing Abuse”, was significantly correlated with Any Referral in the current study (r = .120, p = 0.021), but fell just short of significance in the Valenzuela study (r = .108, p = .052).

Eleven RAJI items were significantly correlated with Any Referral in the Valenzuela (2011) study but not in the current study, thus representing a failure to replicate. These items were – RAJI Item 5 “Prior Alcohol Use” (current study r = .102; Valenzuela study r = .281), RAJI Item 7 “History of Drug or Alcohol Offenses” (current study r = 0.041; Valenzuela study r = .144), RAJI Item 9 “Type of Gang Involvement” (current study r = 0.035; Valenzuela study r = .154), RAJI Item 10 “History of Theft” (current study r = -0.04; Valenzuela study r = .147), RAJI Item 11 “History of Criminal Mischief” (current study r = 0.007; Valenzuela study r = .119), RAJI Item 12 “History of Assault” (current study r = 0; Valenzuela study r = .134), RAJI Item 15 “Parental Control” (current study r = 0.069; Valenzuela study r = .208), RAJI Item 17 “Total Number of CPS Cases” (current study r = - .008; Valenzuela study r =.179), RAJI Item 20 “Either Parent Involved with the Criminal Justice System” (current study r = 0.043; Valenzuela study r = .131), RAJI Item 18 “History of Evading Arrest” (current study r = .075, Valenzuela study r = .048) and RAJI Item 19 “History of Disorderly Conduct” (current study r = .038; Valenzuela r = .953).

RAJI Items Partitioned versus Continuous

As can be seen in Table 3a, 3b and 3c, we also examined the predictive validity of RAJI items when they were partitioned compared to when they were scored continuously. For example, Parental Control is scored Mostly effective = 0, Some difficulty = 0, No Control = 2 instead of

continuously as Mostly effective = 0, Some difficulty = 1 and No Control = 2). There were five such items. As can be seen from Tables 3a, 3b and 3c, only one item, RAQ15. “Parental Control” correlated significantly (z = 2.16, p = .031) with both Any Referral and Non-Technical Referrals when scored continuously (r = .166, p = .001) compared to when it was partitioned (r = .078, p = .135).

Predictive Validity of RAJI Total Scores

The 20-item version of the RAJI administered to juveniles in the present study was based on the findings of Valenzuela (2011). In the following parts of the thesis, this version will be referred to as the "RAJI Long."

A second version of the RAJI, the RAJI Mini, was also created for the present study. As already reported, the current study identified seven RAJI items that were significantly correlated with Any Referral in Valenzuela's (2011) study and the present cross-validation sample. The RAJI Mini was created using only these seven items. It should be emphasized that because the RAJI Mini was created by post hoc "cherry picking" of the strongest RAJI items, the Mini needs to be cross-validated in future studies.

The correlations of the RAJI Long and RAJI Mini with recidivism in the present study are shown in Table 2. As can be seen in the table, (a) the RAJI Long and RAJI Mini were significantly correlated with Any Referral (r =.235 & r = .252 respectively) and with Non-Technical Referrals (r = .212 & r = .233 respectively) in the present sample; (b) Only the RAJI Mini was significantly correlated with Serious Referrals (r = .109, p =.038); and (c) in general, the RAJI Mini performed somewhat better than the RAJI Long, though not by a large margin.

RAJI risk level also correlated significantly with Any Referral (r = .232, p < .01), with Non-Technical Referrals (r = .216, p < .01) and with Serious Referrals (r = .102, p = .05).

Analysis of Predictive Power of RAJI and PrePACT

A second aim of the study was to compare items on the RAJI with similar items on the PrePACT to evaluate whether RAJI or PrePACT items predict each of the three types of recidivism better. Before examining individual items, however the predictive validity of the RAJI as a whole was compared with the validity of the PrePACT as a whole.

Overall Comparison of RAJI and Pre-Pact Validity

In practice, PrePACT scores are reported as four risk levels – low, medium, medium-high and high (Baglivio, 2007). To allow a fair comparison between the PrePACT and RAJI, therefore, the predictive performance of PrePACT levels of risk was compared with the predictive performance of RAJI risk levels (rather than RAJI continuous scores).

It was found that Any Referral correlated .229 (p < .01) with RAJI Long risk levels and .236 (p < .01) with PrePACT risk levels. The difference between the two correlation coefficients was not statistically significant (z = .10, p = .916). Non-Technical Recidivism correlated .217 (p < .01) with RAJI Long risk levels and .244 (p <.01) with PrePACT risk levels. This difference was not statistically significant (z = .40, p = .686).

Area Under the Curve or AUC is another index of predictive validity (Swets, 1986; Rice & Harris, 2005; Streiner & Cairney, 2007). Previous research has shown that unlike the correlation coefficient, the AUC is robust to base-rates and thus is often favored as a means of evaluating the validity of risk assessment tools. Additionally, the AUC is derived from the Receiver Operating Curve (ROC), which shows the relationship between the "True Positive rate"

(i.e. the proportion of recidivating juveniles correctly identified by the risk assessment instrument) and the “False Positives rate” (i.e. the proportion of non-recidivating juveniles incorrectly identified by the instrument) at different “cut-points” on the scores for the instrument. Previous research has also shown that when plotted on a graph, the True Positives can be represented on the Y-axis and the False Positives can be represented on the X-axis. Furthermore, the Area Under the Curve (AUC) is the geometric area of the region of the graph that lies under the ROC. Previous research further shows that a test that has no predictive validity will produce an ROC that runs diagonally from one corner of the graph to the other, dividing the graph into two equal halves, so that the AUC is .50. Moreover, a test with perfect validity will produce a ROC that lies far above the diagonal of the graph, with an AUC of 1.00. Thus AUC = .50 indicates no validity or "chance probability", AUC = 1.00 indicates perfect validity, and AUCs between these two extremes indicate that a measure performs above chance but without perfect validity (Swets, 1986; Rice and Harris, 2005; Streiner and Cairney, 2007).

As can be seen in Table 4, the AUC for the RAJI Long Risk Score for Any Referral was .678 (95% CI = .602 - .753, SE = .039) and AUC for RAJI Long Risk Level was .674 (95% CI = .598 - .751, SE = .039). The AUC for PrePACT Levels of Risk to Reoffend was lower at .572 (95% CI =.480 - .663, SE = .047).

Comparison of Validity of Similar RAJI and Pre-Pact Items

Four constructs (runaways, alcohol use, drug use, and antisocial peers) were measured by similar items on both the RAJI and the PrePACT. The analyses in the present section are focused on comparing RAJI and PrePACT items that corresponded to each other (i.e., that measured the same construct).

Table 8 presents the correlations of *all* PrePACT items with recidivism. Table 9 compares the RAJI Long Risk Level with the PrePACT Levels of Risk to Reoffend. Tables 10, 11 and 12 focus specifically on comparing the PrePACT and RAJI items that measured the four constructs named in the previous paragraph. Correlations of the RAJI and the PrePACT with recidivism are compared in each of these tables. The statistical test used to determine whether these correlations differed significantly was based on a method developed by Meng, Rosenthal & Rubin (1992). Bivariate correlations yield the relationship between a predictor variable and a criterion variable. However previous research shows that, given a relationship between two predictor variables and a common criterion variable we cannot determine whether the two predictors differ significantly from each other merely by looking at their correlation coefficients. An additional relationship that needs to be taken into account is the correlation between the two predictor variables. For example, to determine whether RAJI item13 "Number of Runaways" and a PrePact Item 2.5 "Runaway or Kicked out" differ significantly from each other in their ability to predict a common criterion variable "Any Referral" we need to take into account not only their individual correlations with the criterion ($r = .149$ and $r = .166$ respectively) but also their correlation with each other ($r = .623$). In this case, the statistical test developed by Meng et al. indicates that the two predictor variables were not significantly different from each other in their predictive validity ($z = .36$, $p = .722$).

Correlations in Tables 10, 11 and 12 are based only on those cases ($N = 323$) that had complete data for all RAJI items and PrePACT items. Thus the correlations of RAJI items with recidivism shown in these tables may differ slightly from the correlations reported in some earlier tables in the Results section.

We first compared the differences in predictive validity of similar variables on the RAJI and PrePACT in relation to the first dependent variable, Any Referral Recidivism (Table 8). The first construct compared was Runaways. RAJI measures this construct as RAJI Item 13 "Number of Runaways" while PrePACT measures it with PrePACT Item 2.5 “Runaway or Kicked out of home". Both these items significantly predicted any type of recidivism. Although the RAJI item had a slightly weaker correlation with recidivism (r = .149; p = .007) than the PrePACT item did (r = .166; p = .003), these correlations did not significantly differ from each other (z = .36, p = .722).

The second construct compared was alcohol use. RAJI measures alcohol use as RAJI Item 5 “Prior Alcohol Use” and “History of Drug/ Alcohol Offenses” while the PrePACT measures it with PrePACT Item 2.8a “History of Alcohol Use” which has eight response categories - i) past ii) alcohol disrupted education iii) alcohol led to family conflict iv) alcohol interfered with prosocial friendships v) alcohol led to health problems vi) alcohol led to criminal behaviour vii) juvenile needed alcohol in increasing amounts viii) juvenile experienced withdrawal problems. Since the variable is categorical each response was treated as a separate binary item and coded ‘No’ = 0 and ‘Yes’ = 1. Comparisons were made between RAJI Item 5 “Prior Alcohol use” and all eight PrePACT items and between RAJI Item 5 “History of Drug/Alcohol offenses” and PrePACT Item 2.8 (vi) “Alcohol use led to criminal behavior”. The analysis found no significant difference between the predictive validity of the two RAJI items (RAJI Item 5 “Prior Alcohol Use" and RAJI Item 7 "History of Drug/ Alcohol Offenses") and the predictive validity of the eight PrePACT items measuring alcohol use. PrePACT Item 2.8a (vii) “History of Alcohol –Needed alcohol in increasing amounts” and 2.8a (viii) “History of

Alcohol – Experienced Withdrawal Symptoms" could not be computed because there was no variability within the scores.

We also assessed whether the RAJI alcohol use items were significantly correlated with their PrePACT counterparts. The RAJI Item 5 "Prior Alcohol Use" was significantly correlated with all PrePACT items (r = .25 to r = .40).

The third construct evaluated was drug use. The RAJI measures drug use with two items RAJI Item 6 "Prior Drug Use" and RAJI Item 7 "Drug/Alcohol Offenses". The PrePACT measures drug use as PrePACT Item 2.8b "History of Drug Use" which has eight response categories i) past ii) drug use disrupted education iii) drug use led to family conflict iv) drug use interfered with prosocial friendships v) drug use led to health problems vi) drug use led to criminal behaviour vii) juvenile needed drugs in increasing amounts viii) juvenile experienced withdrawal problems. Since the variable is categorical each response was treated as separate binary item and coded 'No' = 0 and 'Yes' = 1. Comparisons were made between RAJI Item 6 "Prior Drug Use" and all eight PrePACT items and between RAJI Item 7 "History of Drug/Alcohol Offenses" and PrePACT Item 2.8b "Drug Use Led to Criminal Behavior". Analysis showed only two significant differences in predictive validity between the RAJI drug use items and the eight PrePACT items. The correlation of the RAJI Item 6 "Prior Drug use" with Any Referral was .163, whereas the correlation of the PrePACT Item 2.8b (ii). "History of Drug Use – Disrupted Education" was .032. This difference was statistically significant (z = 2.125; p = .034). The correlation of the RAJI Item 6 "Prior Drug Use" with any kind of recidivism was r = .163, whereas the correlation of the PrePACT Item (iii). "History of Drug Use Led to Family Conflict" was .038. This difference was significant (z = 2.110; p = .035).

We also assessed whether the RAJI drug use items were significantly correlated with their PrePACT counterparts. The RAJI Item 6 “Prior Drug Use” was significantly correlated with all corresponding PrePact items (r = .43 to r = .82).

A fourth variable compared was peer relations. The RAJI measures peer relations with two items, RAJI Item 8 “Negative Peers” and RAJI Item 9 “Type of Gang Involvement”. PrePACT measures the same construct with PrePACT Item 2.3a “History of anti-social friends/ companions” which has four response categories: i) never had consistent friends, ii) had pro-social friends, iii) had anti-social friends and iv) has been a gang member or associate. Since the variable is categorical each response was treated as separate binary item and coded ‘No’ = 0 and ‘Yes’ = 1. The RAJI and PrePACT items did not differ significantly in their ability to predict any kind of recidivism.

We also assessed whether the peer relations items significantly correlated with their PrePACT counterparts. The RAJI Item 8 “Negative Peers” and RAJI Item 9 “Gang Involvement” correlated significantly with all corresponding PrePACT Item 2.3a (r = .62 to r = .102).

The differences in predictive validity of similar variables on the RAJI and PrePACT were compared in relation to the second dependent variable, Non-Technical Referral (Table 11). First, the predictive validity of the RAJI Item 13 “Number of Runaways” (r = .099) was lower than that of the corresponding PrePACT Item 2.5 “History of Running Away or Getting Kicked Out of Home” (r = .155) but the difference was not statistically significant (z = 1.1027, p = .270).

Second, there was no significant difference in the predictive validity of the RAJI Item 5 “Prior Alcohol Use” (r = .061) and RAJI Item 7 “History of drug/alcohol related offenses” and the predictive validity of the corresponding eight PrePACT items (r = .121 to r = .081).

Third, RAJI Item 6 “Prior Drug Use” (r = .163) had a higher predictive validity than PrePACT Item 2.8b (ii) “History of Drug – Disrupted Education” (r = .039), PrePACT Item 2.8b (iii) “History of Drug Use Led to Family Conflict (r = .046) and PrePACT Item 2.8b (vi) “History of Drugs Led to Criminal Behavior” (r = -.036). These differences were significant (z = 2.012, p =.044), (z =1.976, p =.048) and (z = 3.208, p = .001) respectively. However, RAJI Item 7 “Drug/Alcohol offences” did not differ significantly from PrePACT Item 2.8b (vi) “History of Drug Use Led to Criminal Behavior” (z = 1.14, p = .173).

Fourth, the predictive validity of the RAJI and PrePACT items regarding negative peers was compared. There was no significant difference in the predictive validity of the RAJI Item 8 “Negative Peers” and RAJI Item 9 “Gang Involvement” and the predictive validity of the corresponding four PrePACT items.

Finally, RAJI predictive validity was compared with the PrePACT predictive validity in relation to the third dependent variable, Serious Referrals (Table 12). RAJI Item 13 “Number of Runaways” (r = -.050) had a weaker correlation with the dependent variable than PrePACT Item 2.5 “History of Running Away or Getting Kicked Out of Home” (r = .056). This difference was not significant (z = -.12, p = .9015) and the PrePACT item performed better than the RAJI.

With respect to alcohol use items, there was no significant difference in how well the RAJI predicted Serious Referrals compared to the eight PrePACT items except on Drug/Alcohol offences where the difference was significant (z = 2.377, p = .023) and where the PrePACT Item “History of Alcohol Use Led to Criminal Behavior” (r = .150, .023) predicted better than the RAJI (r = .026, p = .299).

With respect to drug use, two RAJI items measuring drug use were compared with eight similar PrePACT items in how well they predicted Serious Referrals. There was no significant difference in predictive validity between the two sets of items.

Lastly, we compared RAJI Item 8 “Negative Peers” and RAJI Item 9 “Type of Gang Involvement” with PrePACT Item “History of Anti-social friends/companions” in how well they predicted Serious Referrals. There was no significant difference in the predictive validity of the RAJI and PrePACT items.

Exploration of Additional Potential Items

A third aim of the study was to explore additional items that were not assessed for their predictive validity in the Valenzuela study (Table 13). It was hypothesized that severity of offense and Attitudinal/ Unreported Anti-Social Behaviors would be significantly correlated with recidivism. The two variables examined for this purpose were severity of offense and attitudinal/ unreported anti-social behaviors. The first exploratory variable, Severity of offense, was extracted from the Caseworker database at El Paso JPD. The second exploratory variable, Attitudes and Unreported Anti-social Behaviors, was extracted from the PrePACT database maintained by Assessments.com.

As can be seen in Table 13, Caseworker Item "Severity of Offense" was not significantly correlated with any of the three types of recidivism (all rs < .08; $p > .13$).

The Pre-Pact assesses Antisocial Attitudes with four items coded continuously and Anti-social Behaviors with two items each coded categorically. The two Anti-Social Behavior items each had six response categories. They were therefore coded dichotomously (No = 0, Yes = 1) resulting in 12 items measuring Anti-Social Behaviors. Correlations of these 16 items with

recidivism in the present study are reported in Table 9. As can be seen in the table, only three of the 16 items were significantly correlated with some form of recidivism: (a) Belief in Physical Aggression correlated significantly with all three criterion variables - Any Referral (r = .114), Non-Technical Referrals (r = .119, p = .032), and (r = .135, p = .015), (b) History of unreported - violence deliberately inflicting physical pain significantly correlated with Any Referral (r = .114, p = .041) and with Non-Technical Referrals (r = .119; p = .032), and (c) Belief in Verbal Aggression significantly correlated with Any Referral (r = .112; p = .044).

Thus, Hypothesis 3 was supported for only three of the PrePACT items that were examined.

Incremental Validity of PrePACT Items

A fourth aim of the study was to evaluate whether PrePACT items add incremental validity to the RAJI. It was hypothesized that Caseworker Item "Severity of offense" and PrePACT Attitude/ Unreported Anti-social Behaviors would add incremental validity to the RAJI. This hypothesis was partially supported. A hierarchical logistic regression was carried out to determine whether PrePACT items add incremental validity to the RAJI.

We entered demographic variables in the first block followed by RAJI scores in the second block followed by the PrePact items in the third block. Demographic variables like age, ethnicity, gender etc. are often referred to as nuisance variables. They reflect not only the role played by age, ethnicity, sex etc. but also other variables like socio-economic status, education, Hence, these were controlled for in the regression equation.

First, we compared each version of RAJI with any kind of recidivism. After controlling for the effects of demographic variables – age, sex, ethnicity, language and citizenship, the RAJI Long was significantly predictive of any kind of recidivism in the regression equation (B =

0.147, *SE* = 0.041, $p < .01$, *Exp (B)* = 1.158). Severity of referring offense failed to add incremental validity to the RAJI Long (*B* = 0.233, *SE* = 0.146, *p* = 0.11, *Exp (B)* = 1.262). Only one item out of the 16 items measuring juvenile offenders' attitude towards the law added incremental validity to the RAJI Long (*B* = 0.114, *SE* = 0.047, *p* = 0.014, *Exp (B)* = 1.121). This was PrePACT Item 4.4 "Attitude - Belief in Physical Aggression" (*B* = 0.479, *SE* = 0.199, *p* = 0.016, *Exp (B)* = 1.615).

The RAJI Mini was significantly predictive of any kind of recidivism (*B* = 0.285, *SE* = 0.072, $p < .01$, *Exp (B)* = 1.33). Severity of referring offense failed to add significant incremental validity to the RAJI Mini (*B* = 0.231, *SE* = 0.15, *p* = 0.123, *Exp (B)* = 1.259). Only one item out of the 16 items measuring juvenile offenders' attitude towards the law added incremental validity to the RAJI Mini (*B* = .501, *SE*= .196, *p* = .01, *Exp (B)* = 1.65). This was the PrePACT Item 4.4 "Attitude - Belief in Physical Aggression" (*B* = 0.501, *SE* = 0.196, *p* = 0.01, *Exp (B)* = 1.65).

Second, we compared each of the versions of the RAJI to Non-Technical Referrals. After controlling for the effects of demographic variables – age, sex, ethnicity, language and citizenship, the RAJI Long was significantly predictive of Non-Technical Referrals recidivism in the regression equation (*B* = 0.13, *SE*= 0.041, *p* = 0.002, *Exp (B)* = 1.139). Severity of offense failed to add incremental validity to the RAJI Long. Only one item out of the 16 items measuring juvenile offenders' attitude towards the law added incremental validity to the RAJI Long (*B* = .095, *SE*= .047, *p* = .044, *Exp (B)* = 1.099). This item was PrePACT Item 4.4 "Attitude - Belief in Physical Aggression" (*B* = 0.515, *SE*= 0.203, *p* = 0.011, *Exp (B)* = 1.674).

The RAJI Mini was significantly predictive of Non-Technical Referrals (*B* = 0.26, *SE* = .072, $p < .01$, *Exp (B)* = 1.297). Severity of offense was not significantly predictive of recidivism (*B* = .17, *SE*= .155, *p* = .272, *Exp (B)* =1.297). Only one item out of the 16 items measuring

juvenile offenders' attitude towards the law added incremental validity to the RAJI Mini (*B* = .251, *SE*= .08, *p* = .002, *Exp (B)* = 1.285). This item was PrePACT Item 4.4 "Attitude - Belief in Physical Aggression" (*B* = 0.526, *SE* = 0.199, *p* = 0.008, *Exp (B)* = 1.693).

Lastly, the RAJI Long was not significantly predictive of Serious Referrals in the regression equation (*B* = .053, *SE* = .048, *p* = .272, *Exp (B)* = 1.054). Severity of offense was not significantly predictive of recidivism (*B* = 211, *SE* = .161, *p* = .19, *Exp (B)* = 1.235). Only one item out of the 16 attitude towards the law items added incremental validity to the RAJI Long (*B* = .021, *SE* = .055, *p* = .699, *Exp (B)* =1.022). This item was PrePACT Item 4.4 "Attitude - Belief in Physical Aggression" (*B* =.496, *SE* = .231, *p* = .032, *Exp (B)* = 1.642).

The RAJI Mini was not significantly predictive of Serious Referrals (*B* =.113, *SE* =.08, *p* = .158, *Exp (B)* = 1.12). Severity of offense failed to add incremental validity to the RAJI Mini (*B* = .211, *SE* = .163, *p* = .158, *Exp (B)* =1.12). Only one item out of the 16 attitude towards the law items added incremental validity to the RAJI Mini (*B* =.099, *SE* = .091, *p* = .275, *Exp (B)* = 1.104). This item was PrePact Item 4.4 "Attitude - Belief in Physical Aggression" (*B* = .481, *SE* = .225, *p* = .032, *Exp (B)* = 1.618).

Discussion

The present study yielded three central findings. First, in a sample of 367 first-time juvenile offenders, the RAJI Long and RAJI Mini were found to be valid predictors of (a) recidivism of any kind and (b) recidivism excluding technical violations. Second, seven of the twenty RAJI items were found to be significantly correlated with Any Referral in both the current study and in the Valenzuela (2011) study. One additional item was found to be significantly related to these two outcomes, in the current study but not in the Valenzuela study. Third, only one PrePACT Item, 4.4 "Belief in Physical Aggression," was found to be useful for improving the predictive validity of the RAJI. Each of these three findings will be discussed more fully in the sections that follow.

Validity of the RAJI for Predicting Recidivism in First-Time Juvenile Offenders

The primary goal of the present study was to assess the validity of the RAJI as a predictor of recidivism in a fresh cross-validation sample. Three measures of recidivism were used: (1) Any Referral, defined as any referral within 12 months of intake, (b) Non-Technical Referrals (i.e., so-called "re-arrests") defined as any referral within 12 months of intake, excluding technical violations (e.g. staying past curfew) and status offences (e.g. runaways), and (3) Serious Referrals, defined as any referral within 12 months of intake, excluding technical violations, status offenses, or marijuana use.

Validity of the full RAJI. It was found that the full 20-item RAJI, called the RAJI Long, significantly predicted Any Referral ($r = .235$, $p < .01$) and Non-Technical Referral ($r = .212$). These validity coefficients may be compared with prior studies that have attempted to predict recidivism among juvenile offenders. Table 10 lists findings from several studies that attempted

to predict recidivism in similar samples of juveniles, as well as the results of a meta-analysis by Schwalbe (2007) on prediction of juvenile recidivism.

As Table 10 shows, the predictive validity of the RAJI Long in the present study was somewhat lower than the average validity of similar juvenile risk instruments as reported in the scientific literature. Specifically, the Schwalbe (2007) meta-analysis found that the average effect size (*r*) for such instruments is .245, a figure somewhat higher than the effect sizes of .235 and .212 for the RAJI Long.

The RAJI's performance can also be compared with the specific risk instruments discussed in the Introduction of this thesis. The RAJI effect sizes were (a) substantially higher than the effect size of .164 for the PACT as reported by Baglivio (2009), (b) similar to the effect size of .220 for the OYAS-DIV, as reported by Latessa et al. (2009), (c) slightly lower than the average effect size of .247 for the YLS-CMI as reported in the Schwalbe (2007) meta-analysis, and (d) substantially lower than the effect size of .307 reported for the FORAI by Risler et al. (2000).

Although these comparisons are informative, they do not necessarily indicate that the FORAI, YLS/CMI and OYAS-DIV are more or less valid than the RAJI for predicting recidivism among first-time juvenile offenders. There are two reasons why the validity coefficients for the FORAI, YLS-CMI, and OYAS-DIV in Table 14 may not generalize to a sample of first-time offenders. First is the effect of base-rates. The validity coefficients of the FORAI, YLS/CMI, and OYAS-DIV are based on samples that included repeat offenders and had relatively high base rates of recidivism (32.0% to 67.4%). In contrast, the recidivism rates for the first-time offenders in the present study were substantially lower (about 10% to 15%). The

validity coefficients of predictive measures are affected by base rates and in most circumstances decrease when base rates are low (Dawes, 1962; McGrath & Meyer, 2006). Thus, it is likely that the validity of the FORAI, YLS/CMI and OYAS-DIV would be different, and probably lower, in a sample of first-time offenders than the entries in Table 10 indicate.

The second reason why the coefficients in Table 14 may not generalize to samples of first-time offenders has to do with the specific items of these instruments. The YLS-CMI and OYAS-DIV each include at least one item that measures persistent offending (e.g., "number of prior referrals" or "age at first offense"). Such items contribute substantially to the predictive validity of these instruments in studies that include repeat offenders. As a well-known maxim states, "The best predictor of future behavior is past behavior." However, items that measure persistent offending are of no use for predicting recidivism in samples composed exclusively of first-time offenders, who by definition have no history of persistent offending. The validity of the YLS-CMI and OYAS-DIV as shown in Table 14 depends on such items, and thus a decrease in validity would be expected if these instruments were used to predict recidivism in a sample of first-time offenders.

For the reasons just described, it is doubtful that the validity coefficients for the YLS-CMI, FORAI, and OYAS-DIV in Table 14 would generalize to samples of first-time offenders or that these instruments are more valid than the RAJI in this population. Ultimately, however, the issue is an empirical one and cannot be resolved by psychometric arguments. Future studies are needed to examine the performance of the YLS-CMI, FORAI, and OYAS-DIV in samples of first-time offenders and compare the validity of these instruments with that of the RAJI. In the meantime, it is accurate to say that the RAJI is the only risk assessment tool with demonstrated

validity and cross-validated for predicting recidivism in this sub-set of juvenile offenders at intake.

Before concluding this section on the validity of the RAJI Long, it is important to note that although these scales predicted Any Referral and Non-Technical Referrals , they did not significantly predict this study's third outcome variable, Serious Referrals. This finding cannot easily be evaluated by comparing it to prior studies of other risk assessment instruments, because apparently only one other scale, Ohio Youth Assessment System (McCaffertty, 2013) has used this variable as an outcome. However, the present negative findings suggest that a substantial proportion of the RAJI's predictive power may stem from its ability to predict marijuana-related offenses. It can be clearly seen that the RAJI Long predicts Non-Technical referral better than Serious Referrals. The difference in predictive validity can be attributed to the fact that RAJI was developed to predict General/ Any Referral and not either Non-Technical or Serious Referral. Hence the items that were selected to be added to the RAJI were those that correlated significantly with Any Referral.

Validity of the RAJI Mini. For exploratory purposes, the present study also created a second version of the RAJI, called the RAJI Mini. This scale included only the seven items that were found to be significant in Valenzuela's (2011) study in which the RAJI was developed as well as in the current study. The RAJI Mini yielded validity coefficients somewhat higher than those of the RAJI Long. Specifically, the RAJI Mini significantly predicted Any Referral (r = .252, compared to r = .235 for the RAJI Long) and Non-Technical Referrals (r = .233, compared to r = .212 for the RAJI Long), and Serious Referrals (r = .109, compared to r = .10 for the RAJI Long)

These numbers for the RAJI Mini should not be treated as cross-validation validity coefficients, because the RAJI Mini was constructed by "peeking" at the findings of the present study and "cherry picking" items that cross-validated well. Only a future cross-validation study can provide an unbiased estimate of the predictive power of the RAJI Mini. If future studies show that its validity is as good as or better than that of the RAJI Long, then the RAJI Mini should probably become the preferred version of the RAJI, because it is much shorter and more efficient to score. There is reason to be optimistic about the future performance of the RAJI Mini, because its items measure constructs such as runaways, negative peers, and behavioral problems at school, that have proven predictive validity in earlier research on other risk assessment tools, and because these items have also been shown to have predictive power in both Valenzuela's (2011) sample as well as the present cross-validation sample. Put another way, the "pedigree" of these items is good, and there is good reason to expect that they will perform well in future samples. More information about these items is provided in the following section.

Validity of the RAJI Items for Predicting Recidivism

In addition to evaluating the validity of the total RAJI score, the present study also examined the validity of individual RAJI items.

With respect to the 20 individual items of the RAJI Long, seven were found to be significantly correlated with Any Referral in both the present study and Valenzuela (2011) study. These seven items were: RAJI Item 3 "Chronic Truancy" (r = .197 in current study, r = .245 in Valenzuela study), RAJI Item 13 "Number of Runaways" (r = .189 in the current study; r = .331 in Valenzuela study), RAJI Item 6 "Prior Drug Use" (r = .172 in the current study; r = .220 in Valenzuela study), RAJI Item 8 "Negative Peers" (r = .192 in the current study; r = .158 in Valenzuela study), RAJI Item 1 "Currently Failing One or More Classes" (r = .152, in the

current study; r = .157 in Valenzuela study), RAJI Item 4 “Behavioral Problems at School” (r = .127, in the current study; r = .209 in Valenzuela study) , RAJI Item 16 “MAYSI-2 Alcohol/Drug Use Score” (r = .127 in the current study; .154 in Valenzuela study).

Most items showed validity coefficients similar to Valenzuela’s study (2011). For example, RAJI Item 1 “Currently Failing One or More Classes” showed a correlation of .152 with Any Referral in the current cross-validation sample while it was .157 in Valenzuela’s derivation study (2011). Similarly RAJI Item 3 “Chronic Truancy” correlated .197 in the current cross validation sample while it was correlated .245 in the original derivation study.

However, there were two items that showed substantially lower correlations with recidivism in the present study than in Valenzuela's (2011) study. (1) Number of runaways in the current study correlated .189 with Any Referral while it correlated .331 in the Valenzuela study (2011). (2) Behavioral problems at school correlated .127 with recidivism in the current study while it correlated .209 in the Valenzuela study (2011).

The findings of the present study and the Valenzuela study regarding the validity of specific RAJI items are generally but not entirely consistent with empirical findings reported by earlier researchers. First, RAJI Item 6 “Prior Drug use” and RAJI Item 16 “MAYSI 2 Alcohol/Drug score” were found to be significant RAJI predictors of recidivism in the current study and the study by Valenzuela (2011). These findings are consistent with the prior literature, which has found support for a more general Substance abuse variable correlating with recidivism (Cottle et al, 2001; Flores 2004).

Second, RAJI Item 8 “Negative Peers” was found to be a significant RAJI predictor in the present study and the study by Valenzuela. This finding is consistent with findings reported

in the Cottle et al meta-analysis and a study by Flores (2004). Third, RAJI Item 13 “History of Runaways” was found to be a significant RAJI predictor in the current and Valenzuela study as well in a study by Ang & Huan (2008).

Lastly, three items pertaining to school functioning (RAJI Item 3 “Chronic Truancy”, RAJI Item 1 “Currently Failing One or More Classes”, and RAJI Item 4 “Behavioral Problems at School”) were found to be significant in the current study as well Valenzuela’s study.

There is only mixed support for these items in earlier studies. While school related issues were found to be predictors in previous studies by Risler (1998) and Hoge et al. (1996), a meta-analysis by Cottle, Lee & Heilbrun (2001) did not find a significant relationship of recidivism with school functioning or school attendance. This could be because the meta-analysis considered offenders with at least one previous offense. It may be that school functioning and attendance may be more predictive with first-time offenders, as in the present study, than those with more than one offense. The age range of the juveniles in the Cottle et al. samples was 12 to 21 years while in the current study the juveniles were all less than 17 years old. The average follow up period was almost two years while in the current study it was one year.

While RAJI Item 5 “Prior Alcohol Use” was a significant predictor in Valenzuela’s study, it was not a significant predictor in the current one. As already mentioned, prior researchers have also found a correlation between, a more general, Substance abuse variable and recidivism. It is possible that the variance in recidivism explained stems from drug abuse and not alcohol abuse.

It is important to note that four items that were significantly predictive in Valenzuela’s (2011) study failed to reach significance in the present study. In the current study past acts of

theft, criminal mischief assault, evading arrest and disorderly conduct unreported to the JPD were not found to be significantly correlated with recidivism. Some of these predictors were found to be significant in a study by Andrews, Bonta, and Wormith (2006). Thus, the present negative findings regarding these items should not be regarded as definitive. Future studies should probably examine their predictive validity again before any firm conclusions can be reached.

Evaluation of PrePACT Items and Other Variables for Inclusion in the RAJI

An important aim of the present study was to compare the performance of the RAJI with the performance of the PrePACT. This was done in three ways: (1) comparing the overall RAJI risk level scores with overall PrePACT risk level scores, (2) comparing individual items on both scales that measure similar constructs, and (3) assessing whether PrePACT items add incremental validity to the RAJI.

Comparison of Total RAJI and PrePACT Validity

To allow a fair comparison between the PrePACT and RAJI, the predictive performance of PrePACT levels of risk was compared with the predictive performance of RAJI risk levels (rather than RAJI continuous scores). It was found that Any Referral correlated significantly with both RAJI Long risk levels (r = .229) and PrePACT risk levels (r = .236), and that the two correlations did not significantly differ from each other. Findings were similar when Non-Technical Referrals was examined. The absolute rates of recidivism for each outcome variable are given in Tables 5b, 6b and 7b.

The AUC of RAJI (AUC = .678) is higher than that of the PrePACT (AUC = .593). According to Rice and Harris (2005) an AUC of .677 translates to an r of .309 while an AUC of

.591 translates to an r of .161. According to Cohen (1992) an r of .10 is low, .30 is medium and .5 is high. By this standard, comparison of the AUCs indicates that the validity of the RAJI as a predictor of "Any Referral" falls in the medium range, whereas the validity of the PrePACT falls in the low range.

That the RAJI risk levels have equal validity with PrePACT risk levels if the correlation coefficient is used as an index, and have greater validity if the AUC is used as an index, is an important finding because the RAJI Long has certain advantages over the PrePACT. It contains far fewer items than the PrePACT and is faster to administer. Another advantage of the RAJI is that its scoring rules and the algorithm to calculate the risk levels are available to El Paso JPD as well as the scholarly community. The RAJI data are stored on JPD servers giving JPD complete control over the data. In contrast, the scoring rules and algorithm for computing the risk levels for the PrePACT are considered proprietary information by Assessments.com and withheld from the EPJPD. The JPD is therefore unaware how each of the items and responses are weighted when calculating the risk score and how the decision regarding risk level is being made. Moreover, the PrePACT data for the juveniles is maintained by Assessment.com on Assessment.com servers off site and is only available to the JPD upon request. This gives JPD little control over the data.

Comparison of Common RAJI and PrePACT Items

The present study compared the predictive validity of similar RAJI and PrePACT items that measured the following four constructs: Runaways, Alcohol Use, Drug Use and Peer association. Six RAJI items (RAJI Item 13 "Runaways", RAJI Item 5 "Prior Alcohol Use", RAJI Item 6 "Prior Drug Use", RAJI Item 7 "History of Alcohol/ Drug Offenses", RAJI Item 8

"Negative Peers" and RAJI Item 9 "Gang Involvement") and four similar PrePACT items were then identified as measures of the four common constructs. Since three of the four PrePACT items were categorical and respondents could check multiple responses, each category was treated as a separate binary item. Thus, the six RAJI items were compared to 22 PrePACT items that measured common constructs. No PrePACT item predicted better than the RAJI item.

Other Potential Predictors of Recidivism

The present study also evaluated the predictive power of three constructs that are currently not included in the RAJI but are measured by the PrePACT or by the JPD: (1) Severity of referring offense, (2) Attitude towards law, and (3) Unreported Antisocial Behavior. Only three significant correlations were found in the present study between these three constructs and recidivism. First, the PrePACT Item 4.3 "Belief in Verbal Aggression," which is related to the construct of attitude toward the law was found to be significantly correlated with Any Referral (r = .112). Second, the PrePACT Item 4.5 (iii) "History of Unreported Violence - Deliberately Inflicting Physical Pain" was found to be significantly correlated with both Any Referral (r = .114) and Non-Technical Referrals (r = .119) Finally, the PrePACT Item 4.4 "Belief in Physical Aggression" correlated significantly with Any Referrals Recidivism (r = .189) , Non-Technical Referrals (r = .183), and Serious Referrals (r =.135). Contrary to the hypotheses of the study, Caseworker Item "Severity of Offense" was not found to be significantly related to recidivism of any kind.

Next, hierarchical logistic regressions were carried out to evaluate whether Caseworker Item "Severity of Offense" and the PrePACT items add incremental validity to the RAJI. We compared each version of RAJI with any kind of recidivism. After controlling for demographic

variables, both the RAJI Long and Mini were significantly predictive of Any Referral and Non-Technical Referrals in the regression equation. Only one variable, the PrePACT attitudinal item 4.4 "Belief in Physical Aggression" added incremental validity to the RAJI. Although severity of first offense was found to be significant in a previous study by Risler (1998; See also Risler, Stuphen & Shields, 2000), this variable did not significantly correlate with recidivism in the present study, nor did it add incremental validity in the logistic regressions.

Some prior studies have found attitudinal variables to be predictive of juvenile recidivism. Specifically, Hoge, Andrews & Leschied (1996) found antisocial attitudes predicted decisions regarding custody and disposition in juvenile cases. Additionally, one other scale - YLS/CMI - measures antisocial attitudes. Thus there is some support for adding the attitudinal variable 4.4 "Belief in Physical Aggression" to future versions of the RAJI in order to cross-validate this item.

Limitations of the Present Study

The present study has four main limitations. First and most importantly, the intake interviews of juveniles and parents that were used to score the RAJI were not recorded. It is therefore difficult to assess how closely probation officers followed the RAJI structured interview when conducting intakes. An earlier attempt to record these interviews in order to assess their quality was not successful because too few probation officers provided too few recordings (Ranadive & Wood, 2013). It is possible that recording the interviews would help to assess the quality of interviews. The Probation Officers could then be given feedback on how to improve which could improve the quality of interviews they conduct. This in turn might increase

the predictive validity of the RAJI. To examine this possibility, future studies should include recording of RAJI interviews as a key part of the research design.

A second limitation of the present study was that the sample was composed predominantly of one ethnic group, Hispanics. Thus, it is possible that the present findings may not generalize to populations with a different ethnic composition. At the same time, it is important to remember that most of the RAJI items found significant in the present study have a strong theoretical basis. Therefore, it is highly likely that they will be predictive even in predominantly non-Hispanic samples.

Third, although the present study found that the RAJI is a good predictor of Any Referral and of Non-Technical Referral, the RAJI was not found to be a good predictor of Serious Referral. One needs to keep in mind that the RAJI was not developed to predict Serious Referrals but Any Referrals. Future studies can seek to identify items that specifically predict Serious Referrals.

A fourth limitation of the study is that we carried out numerous bivariate correlations to assess the relationship between individual item predictors and criterion variables. A consequence of this is that the family-wise error rate increases with each bivariate correlation. This tends to increase the likelihood of Type 1 error i.e. finding significant relationship in the sample when it does not truly exist in the population.

Practical Implications

The problem of predicting risk for first time offenders is faced by many juvenile probation departments. Currently, the RAJI is the only tool with cross-validated usefulness for that purpose. Hence, it has the potential to help other probation departments around the country

evaluate risk in in this sub-group of juvenile offenders. Moreover, RAJI has shown to be a valid predictor of Any Referral in El Paso which has a predominantly Hispanic population. Hence it is likely that it will be quite useful in counties with large percentage of Hispanic population e.g. California, Florida.

The results of the present study show that the RAJI compares well to the PrePACT as a risk assessment tool in first-time juvenile offenders at El Paso JPD. First, there was no significant difference between RAJI risk levels and the PrePACT risk levels in their ability to predict recidivism. Secondly, the RAJI is a much shorter scale than the PrePACT which means it takes considerably less time to administer. Thirdly, the RAJI is freely available to anyone, including El Paso JPD, which is not the case with the PrePACT. Fourthly, the EPJPD has complete control over the data that is gathered using the EL Paso RAJI, whereas the data gathered using the PrePACT is controlled by Assessments.com, stored on their servers and made available to the JPD only upon request. Due to all these reasons it would be appropriate for El Paso JPD to consider using the El Paso RAJI, rather than the PrePACT, as a risk assessment tool with first time offenders. It is important to keep in mind, however, that the RAJI was developed to evaluate risk with first time offenders. It was not developed to evaluate risk with repeat offenders, and should not be used to replace the PrePACT in this group.

Future Directions

Traditionally studies trying to predict recidivism have focused on general recidivism i.e. referrals for all types of offenses e.g. assault, theft, drug use etc. A variable in the current study that reflects this outcome is Any Referral. An advantage of including this is that it allows us to compare our findings with those of previous studies. However, it is more important to predict

offenses that involve violence towards person or property since these types of offenses have implications for diversion and adjudication decisions. Only one of the current outcome variables reflects such serious offenses i.e. Serious Referral. Future studies could develop a version of the RAJI specifically to predict serious offenses. They could this by drawing upon research done in adults to identify predictors of violent recidivism. For example, the HCR-20, which measures past instances of violence, was found to add incremental validity to the PCL-SV (Douglas, 1994). Currently, severity of offense is measured as misdemeanors and felonies. However, this could be further discriminated as misdemeanors and felonies that involve physical violence (e. g., assault) and those that do not (e.g., theft). Future studies could code assaults separately and examine their relation to Serious Referrals.

A second outcome variable that might be important to predict is violation of probation orders. This might be important for probation officer and the court while making decision regarding curfew, house-arrest, or supervision orders. This outcome variable could not be analyzed for the current study because the base-rate was low. Future studies with larger sample sizes should examine this variable.

Currently the RAJI has predictive validity equal to or higher than the PrePACT. In the future, by recording the interviews that Probation officers carry out with juveniles and their parents, we can further improve the quality of interviews and potentially further increase the predictive validity of the RAJI. However, there might be concern about recording interviews especially if juveniles discuss past offenses that might be used against them during adjudication. On the other hand, unless we record interview we cannot improve the quality of interviews which in turn will enable us to serve the juveniles better. Hence it is important to guarantee confidentiality during the interview process.

This study was carried out as a follow-up to Valenzuela (2011) to cross-validate the RAJI. Future studies could cross-validate the RAJI Mini which was developed by "cherry picking" items common to the current and the Valenzuela study. If the items cross-validate it would allow for the development of a much shorter RAJI which could be used for rapid assessment not only by Probation Officers at JPD but also in the field by police officers.

Valenzuela (2011) identified risk levels using the loess slope. Another method to identify common groups is by carrying out a latent class analysis for identifying the cut-points of the risk levels. Future studies could analyze the data using latent class analysis and compare it to present findings.

It might also be interesting to evaluate how the RAJI performs when the follow-up period for recidivism is increased. Adding another 12 or 24 months to the follow-up period would allow us to assess how well the RAJI total score, risk level and individual items continue to predict recidivism over a longer period of time.

Furthermore, studies could also examine the predictive validity of RAJI in other geographical areas with large percentage of African-American or Asian population.

Another future direction might involve analyzing the time period between the first offense and subsequent offences using a time series analysis. This would help identify the average time taken to recidivate or how the pattern of recidivism differs for different individuals. Interventions could be designed around these vulnerable time periods.

It would also be interesting to evaluate whether those who were assessed as high risk received interventions more frequently compared to those who did not. Lastly, it would be informative to evaluate whether these interventions mediate the relationship between risk and

recidivism. A path analysis where interventions mediate the relationship between risk and recidivism could be examined.

In closing, the present findings indicate that the RAJI is a valid predictor of recidivism among first-time juvenile offenders, and that it should be considered for use as a risk assessment tool with first-time offenders at El Paso JPD. Future research is needed to refine the RAJI further and make it even more efficient than it is now, and to develop a similar risk assessment tool for repeat offenders.

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Tables

Table 2. Descriptive Statistics and Correlations of RAJI Items and Total Scores with Recidivism (N = 367)

Item No.	Item Name	Response Category	No. with this response	Any Referrals	Non-Technical Referrals	**Serious Referrals**
RAQ1	Currently Failing One or More Classes	No = 0 Yes = 1	0 = 191 (52.0%) 1 = 176 (48.0)	.152** (p = 0.003)	.132* (p = 0.012)	0.049 (p = 0.346)
RAQ2	Years Behind in school	One or less = 0 Two or more = 1	0 = 344 (93.7%) 1 = 23 (6.3%)	0.011 (p = 0.83)	0.017 (p = 0.739)	0.018 (p = 0.734)
RAQ3	Chronic Truancy	No = 0 Yes = 1	0 = 238 (64.9%) 1 = 129 (35.1%)	.197** (p <.01)	.187** (p < .01)	.145** (p = 0.005)
RAQ4	Behavioral Problems at School	No = 0 Yes = 1	0 = 174 (47.4%) 1 = 193 (52.6%)	.127* (p = 0.015)	.123* (p = 0.018)	0.087 (p = 0.096)
RAQ5	Prior Alcohol Use	- No alcohol use (0) -Rare, Mild, or Experimental Alcohol Use (0) -Moderate or Consistent Alcohol Use (3) -Severe Alcohol use Severe Alcohol use (3)	0 = 325 (88.6%) 1 = 42 (11.4%)	0.102 (p = 0.05)	0.089 (p = 0.089)	0.094 (p = 0.072)

RAQ6	Prior Drug Use	No drug use Mild or Experimental drug use Moderate or Consistent drug use Severe drug use	0 = 183 (49.9%) 2 = 67 (18.3%) 3 = 117 (31.9%)	.172** (p = 0.001)	.171** (p = 0.001)	0.071 (p = 0.175)
RAQ7	History of Drug or Alcohol Offenses	No = 0 Yes = 1	0 = 244 (66.5%) 1 = 123 (33.5%)	0.041 (p = 0.439)	0.042 (p = 0.428)	-0.026 (p = 0.619)
RAQ8	Negative Peers	No = 0 Yes = 1	0 = 176 (48.0%) 1 = 191 (52.0%)	.192** (p < .01)	.174** (p = 0.001)	0.091 (p = 0.083)
RAQ9	Type of Gang Involvement	None Suspected Associated Former Member	0 = 333 (90.7%) 1 = 28 (7.6%) 2 = 6 (1.6%)	0.035 (p = 0.506)	0.021 (p = 0.684)	0.016 (p = 0.767)
RAQ10	History of Theft	No = 0 Yes = 1	0 = 290 (79.0%) 1 = 77 (21.0%)	-0.04 (p = 0.447)	-0.048 (p = 0.363)	-0.03 (p = 0.568)
RAQ11	History of criminal Mischief	No = 0 Yes = 1	0 = 337 (91.8%) 1 = 30 (8.2%)	0.007 (p = 0.893)	0.014 (p = 0.789)	0.055 (p = 0.291)
RAQ12	History of Assault	No = 0 Yes = 1	0 = 272 (74.1%) 1 = 95 (25.9%)	0 (p = 0.996)	-0.022 (p = 0.681)	-0.047 (p = 0.369)

RAQ13	Number of Runaways	2 or less runaways 3 or 4 runaways 5 or more runaways	0 = 348 (94.8%) 1 = 9 (2.5%) 3 = 10 (2.7%)	.189** (p < .01)	.152** (p = 0.003)	0.047 (p = 0.366)
RAQ14	History of Witnessing Abuse	No = 0 Yes = 1	0 = 299 (81.5%) 1 = 68 (18.5%)	.120* (p = 0.021)	.114* (p = 0.029)	0.013 (p = 0.8)
RAQ15	Parental Control	Mostly effective Some difficulty No Control	0 = 328 (89.4%) 2 = 39 (10.6%)	0.069 (p = 0.189)	0.078 (p = 0.135)	0.021 (p = 0.685)
RAQ16	MAYSI-2 Alcohol/Drug Use Score	MAYSI-2 Alcohol/Drug use score 4 or less MAYSI-2 Alcohol/Drug use score 5 or more	0 = 343 (93.5%) 1 = 24 (6.5%)	.127* (p =0.015)	.105* (p = 0.044)	0.014 (p = 0.795)
RAQ17	Total Number of CPS Cases	2 or less cases opened 3 or more cases opened	0 = 353 (96.2%) 1 = 14 (3.8%)	-0.008 (p = 0.874)	-0.004 (p =0.941)	-0.024 (p =0.647)
RAQ18	History of Evading Arrest	No = 0 Yes = 1	0 = 349 (95.1%) 1 = 18 (4.9%)	0.075 (p = 0.154)	0.081 (p =0.12)	0.083 (p = 0.115)
RAQ19	History of Disorderly Conduct	No = 0 Yes = 1	0 = 330 (89.9%) 1 = 37 (10.1%)	0.053 (p =0.308)	0.012 (p =0.826)	-0.059 (p = 0.259)

RAQ20	Either Parent Involved with CJS	No = 0	0 = 293 (79.8%)	0.043 (p =0.412)	0.017 (p = 0.741)	-0.023 (p = 0.658)
		Yes = 1	1 = 74 (20.2%)			
	RAJI Long Risk Score			.235** (p < .01)	.212** (p < .01)	0.1 (p = 0.055)
	Raji Long Risk Level			.232** (p < .01)	.216** (p < .01)	0.102 (p = 0.05)
	RAJI Mini			.252** (p < .01)	.233** (p < .01)	.109* (p = 0.038)

Table 3. Correlations of RAJI Items With Recidivism: Comparison of Valenzuela (2011) and present study.

		Valenzuela (2011)	Present Study		
Item No.	**Item Name**	**Any Referrals**	**Any Referrals**	**Non-Technical Referrals**	**Serious Referrals**
RAQ1	Currently Failing One or More Classes	.157** (p = .006)	r = .152** (p = 0.003)	.132* (p = 0.012)	0.049 (p = 0.346)
RAQ2	Years behind in school	.096 (p < .088)	0.011 (p = 0.83)	0.017 (p = 0.739)	0.018 (p = 0.734)
RAQ3	Chronic Truancy	.245* (p <.013)	.197** (p <.01)	.187** (p < .01)	.145** (p = 0.005)
RAQ4	Behavioral Problems at School	.209** (p <.001)	.127* (p = 0.015)	.123* (p = 0.018)	0.087 (p = 0.096)
RAQ5	Prior Alcohol Use	.281** (p <.001)	0.102 (p = 0.05)	0.089 (p = 0.089)	0.094 (p = 0.072)
RAQ6	Prior Drug Use	.220** (p < .001)	.172** (p = 0.001)	.171** (p = 0.001)	0.071 (p = 0.175)
RAQ7	History of Drug or Alcohol Offenses	.144** (p < .01)	0.041 (p = 0.439)	0.042 (p = 0.428)	-0.026 (p = 0.619)
RAQ8	Negative Peers	158** (p <.005)	.192** (p < .01)	.174** (p = 0.001)	0.091 (p = 0.083)
RAQ9	Type of Gang Involvement	.154** (p < .006)	0.035 (p = 0.506)	0.021 (p = 0.684)	0.016 (p = 0.767)

RAQ10	History of Theft	.147** (p < .088)	-0.04 (p = 0.447)	-0.048 (p = 0.363)	-0.03 (p = 0.568)
RAQ11	History of criminal Mischief	.119* (p < .034)	0.007 (p = 0.893)	0.014 (p = 0.789)	0.055 (p = 0.291)
RAQ12	History of Assault	.134* (p <.016)	0 (p = 0.996)	-0.022 (p = 0.681)	-0.047 (p = 0.369)
RAQ13	Number of Runaways	.331** (p <.001)	.189** (p < .01)	.152** (p = 0.003)	0.047 (p = 0.366)
RAQ14	History of Witnessing Abuse	.108 (p < .052)	.120* (p = 0.021)	.114* (p = 0.029)	0.013 (p = 0.8)
RAQ15	Parental Control	.208** (p <.001)	0.069 (p = 0.189)	0.078 (p = 0.135)	0.021 (p = 0.685)
RAQ16	MAYSI-2 Alcohol/Drug Use Score	.154** (p <.006)	.127* (p =0.015)	.105* (p = 0.044)	0.014 (p = 0.795)
RAQ17	Total number of CPS cases	.179** (p < .001)	-0.008 (p = 0.874)	-0.004 (p = 0.941)	-0.024 (p = 0.647)
RAQ18	History of Evading Arrest	.048 (p < .396)	0.075 (p = 0.154)	0.081 (p = 0.12)	0.083 (p = 0.115)
RAQ19	History of Disorderly Conduct	(p <.001)	0.053 (p = 0.308)	0.012 (p = 0.826)	-0.059 (p = 0.259)
RAQ20	Either Parent Involved with CJS	.131** (p <.019)	0.043 (p = 0.412)	0.017 (p = 0.741)	-0.023 (p = 0.658)

Table 3a. Correlations of RAJI items Partitioned v/s Continuously coded with Any Referral

Item	Partitioned	Continuous	Correlation between Partitioned & Continuous	Predictive Validity significantly different?
RAQ5. Prior Alcohol Use	r = 0.102 (p = .05)	r = 0.165 (p = .001)	r = .797 (p < .01)	z = 1.90 (p = .057)
RAQ6. Prior Drug Use	r = .172 (p = .001)	r = .178 (p = .001)	r = .962 (p < .01)	z = .42 (p = .673)
RAQ9. Type of Gang Involvement	r = .035 (p = .506)	r = .045 (p = .395)	r = .965 (p < .01)	z = .72 (p = .470)
RAQ13. Number of Runaways	r = .189 (p < .01)	r = .176 (p = .001)	r = .99 (p < .01)	z = 1.78 (p = .074)
RAQ15. Parental Control	r = .069 (p = .189)	r = .173 (p = .001)	r = .692 (p < .01)	z = 2.55 (p = .011)

Table 3b. Correlations of RAJI items Partitioned v/s Continuously coded with Non-Technical Referral

Item	Partitioned	Continuous	Correlation between Partitioned & Continuous	Predictive Validity significantly different?
RAQ5. Prior Alcohol Use	r = .089 (p = .089)	r = .146 (p = .005)	r = .797 (p < .01)	z = 1.72 (p = .085)
RAQ6. Prior Drug Use	r = .171 (p = .001)	r = .173 (p = .001)	r = .962 (p < .01)	z = .14 (p = .88)
RAQ9. Type of Gang Involvement	r = .021 (p = .684)	r = .041 (p = .431)	r = .965 (p < .01)	z = 1.44 (p = .149)
RAQ13. Number of Runaways	r = .152 (p = .003)	r = .142 (p = .006)	r = .99 (p < .01)	z = 1.36 (p = .173)
RAQ15. Parental Control	r = .078 (p = .135)	r = .166 (p = .001)	r = .692 (p < .01)	z = 2.16 (p = .031)

Table 3c. Correlations of RAJI items Partitioned versus Continuously coded with Serious Referral

Item	Partitioned	Continuous	Correlation between Categorical & Continuous	Predictive Validity significantly different?
RAQ5. Prior Alcohol Use	r = .094 (p = .072)	r = .102 (p = .052)	r = .797 (p < .01)	z = .24 (p = .810)
RAQ6. Prior Drug Use	r = .071 (p = .175)	r = .069 (p = .187)	r = .962 (p < .01)	z = .14 (p = .890)
RAQ9. Type of Gang Involvement	r = .016 (p = .767)	r = .023 (p = .661)	r = .965 (p < .01)	z = .50 (p = .614)
RAQ13. Number of Runaways	r = .047 (p = .366)	r = .045 (p = .389)	r = .99 (p < .01)	z = .27 (p = .787)
RAQ15. Parental Control	r = .021 (p = .685)	r = .087 (p = .095)	r = .692 (p < .01)	z = 1.61 (p = .108)

Table 4. AUC for the Risk Assessment Instruments

Scale	N	Any Referrals			Non-Technical Referrals			Serious Referrals		
		AUC	SE	95% CI	AUC	SE	95% CI	AUC	SE	95% CI
RAJI Long	367	.680	.038	.606 - .754	.668	.039	.592 - .745	.592	.057	.500 - .684
RAJI Risk Level	367	.677	.037	.603 - .750	.688	.039	.592 - .743	.595	.046	.504 - .685
RAJI Long	323	.678	.039	.602 - .753	.669	.039	.591 - .746	.586	.046	.495 - .677
RAJI Risk Level	323	.674	.039	.598 - .751	.668	.040	.590 - .746	.588	.047	.496 - .680
PrePACT Risk level	323	.572	.047	.480 - .663	.575	.048	.482 - .668	.533	.053	.429 - .637

Table 5a. Frequencies of RAJI Long Risk Level with Any Referral

RAJI Risk Level	RAJI Score	N	No. Recidivated	Percentage
Very Low	0-2	113	8	7.08
Low	3-4	82	7	8.54
Medium	5-6	57	12	21.05
High	7-8	52	14	26.92
Very High	9 and higher	63	17	26.98

Table 5b. Frequencies of PrePACT Levels of Risk to Reoffend with Any Referral

PrePact Risk Level	PrePact Score	N	No. Recidivated	Percentage
Low	Not available	306	43	14.05
Moderate	Not available	17	9	52.94
Moderate-High	Not available	-	-	-
High	Not available	-	-	-

Table 6a. Frequencies of RAJI Long Risk Level with Non-Technical Referrals

RAJI Risk Level	RAJI Score	N	No. Recidivated	Percentage
Very Low	0-2	113	8	7.08
Low	3-4	82	7	8.54
Medium	5-6	57	11	19.30
High	7-8	52	13	25.00
Very High	9 and higher	63	16	25.40

Table 6b. Frequencies of PrePACT Levels of Risk to Reoffend with Non-Technical Referrals

PrePact Risk Level	PrePact Score	N	No. Recidivated	Percentage
Low	Not available	306	41	13.39
Moderate	Not available	17	9	52.94
Moderate-High	Not available	-	-	-
High	Not available	-	-	-

Table 7a. Frequencies of RAJI Long Risk Level with Serious Referrals

RAJI Risk Level	RAJI Score	N	No. Recidivated	Percentage
Very Low	0-2	113	8	7.08
Low	3-4	82	6	7.32
Medium	5-6	57	10	17.54
High	7-8	52	7	13.46
Very High	9 and higher	63	9	14.29

Table 7b. Frequencies of PrePACT Levels of Risk to Reoffend with Serious Referrals

PrePact Risk Level	PrePact Score	N	No. Recidivated	Percentage
Low	Not available	306	32	10.46
Moderate	Not available	17	4	23.53
Moderate-High	Not available	-	-	-
High	Not available	-	-	-

Table 8. Correlation of PrePACT Items with Recidivism (N = 323)

Item No.	Item Name	No. with this response	Any Referrals	Non-Technical Referrals	Serious Referrals
2.3a (i)	History of Antisocial Friends Companions – No consistent friends or companions	0 = 314 (97.2%) 1 = 9 (2.8%)	0.028 (p = 0.614)	0.032 (p = 0.572)	0.06 (p = 0.286)
2.3a (ii)	History of Antisocial Friends Companions- Prosocial friends	0 = 39 (12.1%) 1 = 284 (87.9%)	-.174** (p = 0.002)	-.183** (p = 0.001)	-.110* (p = 0.048)
2.3a (iii)	History of Antisocial Friends Companions - Antisocial Friends	0 = 137 (42.4%) 1 = 186 (57.6%)	.171** (p = 0.002)	.177** (p = 0.001)	.125* (p = 0.025)
	History of Antisocial Friends Companions - Gang Involvement	0 = 304 (94.1%) 1 =19 (5.9%)	0.069 (p = 0.213)	0.075 (p = 0.179)	0.037 (p = 0.509)
2.5	History of Running Away or Getting Kicked Out of Home	0 = 263 (81.4%) 1 = 34 (10.5%) 2 = 19 (5.9%) 3 = 3 (.9%) 4 = 4 (1.2%)	.166** (p = 0.003)	.152** (p = 0.006)	0.056 (p = 0.311)
2.8a (i)	History of Alcohol – Past	0 = 210 (65.0%) 1 = 113 (35.0%)	0.085 (p = 0.128)	0.081 (p = 0.147)	0.008 (p = 0.881)
2.8a (ii)	History of Alcohol - Disrupted Education	0 = 312 (96.6%) 1 = 11 (3.4%)	0.104 (p = 0.063)	0.108 (p = 0.052)	0.096 (p = 0.084)

2.8a (iii)	History of Alcohol – Family Conflict	0 = 303 (93.8%) 1 = 20 (6.2%)	0.097 (p = 0.081)	0.103 (p = 0.064)	0.031 (p = 0.573)
2.8a (iv)	History of Alcohol – Interfered with ProSocial Friends	0 = 313 (96.9%) 1 = 10 (3.1%)	.116* (p = 0.037)	.121* (p = 0.029)	0.107 (p = 0.055)
2.8a (v)	History of Alcohol - Health Problems	0 = 323 (100.0%) 1 = 0 (0%)	No variability	No variability	No variability
2.8a (vi)	History of Alcohol - Criminal Behavior	0 = 316 (97.8%) 1 = 7 (2.2%)	r = .108 (p = .052)	.113* (p = 0.043)	.150** (p = 0.007)
2.8a (vii)	History of Alcohol – Needed in Increasing Amounts	0 = 323 (100.0%)	No variability	No variability	No variability
2.8a (viii)	History of Alcohol - Withdrawal Problems	0 = 323 (100.0%)	No variability	No variability	No variability
2.8b (i)	History of Drug Use – Past	0 = 168 (52.0%) 1 = 155 (48.0%)	.203** (p < .01)	.206** (p < .01)	.152** (p = 0.006)
2.8b (ii)	History of Drug Use – Disrupted Education	0 = 287 (88.9%) 1 = 36 (11.1%)	0.032 (p = 0.564)	0.039 (p = 0.487)	0.062 (p = 0.265)
2.8b (iii)	History of Drug Use – Family Conflict	0 = 277 (85.8%) 1 = 46 (14.2%)	0.038 (p = 0.491)	0.046 (p = 0.41)	-0.004 (p = 0.949)
2.8b (iv)	History of Drug Use – Interfered w Prosocial Friends	0 = 318 (98.5%) 1 = 5 (1.5%)	0.087 (p = 0.118)	0.094 (p = 0.093)	.112* (p = 0.044)
2.8b (v)	History of Drug Use – Health Problems	0 = 297 (92.0%) 1 = 26 (8.0%)	.150** (p = 0.007)	.154** (p = 0.005)	.115* (p = 0.039)

2.8b (vi)	History of Drug Use – Criminal Behavior	0 = 296 (91.6%) 1 = 27 (8.4%)	-0.041 (p = 0.463)	-0.036 (p = 0.514)	0 (p = 0.995)
2.8b (vii)	History of Drug Use – Need in Increasing amounts	0 = 323 (100.0%)	No variability	No variability	No variability
2.8b (viii)	History of Drug Use – Withdrawal Problems	0 = 323 (100.0%)	No variability	No variability	No variability
4.1	Attitude towards Law	0 = 284(87.9%) 1 = 35(10.8%) 2 = 1(.3%) 3 = 3(.9%)	0.051 (p = 0.361)	0.037 (p = 0.502)	-0.026 (p = 0.644)
4.2	Accepts Responsibility	1 = 290 (89.8%) 2 = 30 (9.3) 3 = 3 (.9)	0.03 (p = 0.596)	0.036 (p = 0.524)	0.028 (p = 0.612)
4.3	Belief in Verbal Aggression	0 = 233 (72.1) 1 = 88 (27.2) 2 = 2 (.6)	.112* (p = 0.044)	0.088 (p = 0.116)	0.058 (p = 0.298)
4.4	Belief in Physical Aggression	0 = 221 (68.4%) 1 = 37 (11.5%) 2 = 59 (18.3%) 3 = 6 (1.9%)	.189** (p = 0.001)	.183** (p = 0.001)	.135* (p = 0.015)
4.5 (i)	Reports/ evidence of violence not included in criminal history - violent outburts, displays of temper, uncontrolled anger indicating potential for harm	0 = 295 (91.3%) 1 = 28 (8.7%)	0.075 (p =0.181)	0.081 (p = 0.146)	0.031 (p = 0.582)

4.5 (ii)	Reports/ evidence of violence not included in criminal history - Deliberately inflicting physical pain	0 = 309 (95.7%) 1 = 14 (4.3%)	.114* (p = 0.041)	.119* (p = 0.032)	0.07 (p = .213)
4.5 (iii)	Reports/ evidence of violence not included in criminal history - using/threatening with a Weapon	0 = 316(97.8%) 1 = 7 (2.2%)	-0.007 (p = 0.895)	-0.005 (p = 0.93)	-0.053 (p = 0.345)
4.5 (iv)	Reports/ evidence of violence not included in criminal history - fire starting	0 = 316 (97.8) 1 = 7 (2.2%)	0.051 (p = 0.366)	0.054 (p =0.335)	-0.053 (p = 0.345)
4.5 (v)	Reports/ evidence of violence not included in criminal history - violent destruction of property	0 = 321 (99.4%) 1 = 2 (.6%)	-0.007 (p = 0.895)	-0.005 (p = 0.93)	0.015 (p = 0.79)
4.5 (vi)	Reports/ evidence of violence not included in criminal history - Animal Cruelty	0 = 321 (99.4) 1 = 2 (.6%)	-0.035 (p = 0.536)	-0.034 (p = 0.545)	-0.028 (p = 0.617)
4.6 (i)	History of Unreported Sexual violence - Aggression sexual	0 = 323 (100%)			
4.6 (ii)	History of Unreported Sexual violence - Sex power	0 = 323 (100%)	Cannot be computed because at least one of the variables does not vary		
4.6 (iii)	History of Unreported Sexual violence - Young	0 = 323 (100%)			

	sex partner				
4.6 (iv)	History of Unreported Sexual violence - Child sex	0 = 323 (100%)			
4.6 (v)	History of Unreported Sexual violence – Voyeurism	0 = 323 (100%)			
4.6 (vi)	History of Unreported Sexual violence – Exposure	0 = 323 (100%)			
	PrePact Levels of Risk to Reoffend		r = .236** (p < .01)	r = .244** (p = 0)	r = 0.093 (p = 0.096)

Table 9. Correlation between RAJI Risk Level Long and PrePact Level of Risk to Reoffend with Three Dependent Variables [N = 323]

	RAJI Long Risk Level	PrePact Level of Risk to Reoffend	Correlation between RAJI & PrePact	Significance of RAJI vs. PrePact Differences
Any Referrals	r = .229 (p < .01)	r = .236 (p < .01)	r = .230 (p < .01)	z = .10 (p = .916)
Non-Technical Referrals Recidivism	r = .217 (p < .01)	r = .244 (p < .01)	r = .230 (p < .01)	z = .40 (p = .6859)
Serious Referrals	r = .093 (p = .096)	r = .093 (p = .096)	r = .230 (p < .01)	z = 0.0 (p = 1.00)

Table 10: Prediction of Any Referral: Comparison of Similar RAJI and PrePACT Items (N = 323).

Underlying Construct	RAJI item and correlation with recidivism	PrePACT item and correlation with recidivism	Correlation between RAJI and PrePACT items	Significance of RAJI vs. PrePACT Differences.
Runaways	RAQ13. Number of Runaways r = .149 (p = .007)	2.5. Runaway or Kicked out r = .166** (p = .003)	r = .623** p < .01	z = .36 (p = .722)
Alcohol Use	RAQ5. Prior Alcohol Use r = .080 (p = .149)	2.8a(i). History of Alcohol use – Past r = .085 (p = .128)	r =.409 (p < .01)	z = .08 (p = .934)
	RAQ5. Prior Alcohol Use r = .080 (p = .149)	2.8a(ii). History of Alcohol – Disrupted Education r = .104 (p = .063)	r =.254 (p < .01)	z = .35 (p = .724)
	RAQ5. Prior Alcohol Use r = .080 (p = .149)	2.8a(iii). History of Alcohol – Led to Family Conflict r = .097 (p = .081)	r = .311 (p < .01)	z = .54 (p = .591)
	RAQ5. Prior Alcohol Use	2.8a(iv). History of Alcohol – Interfered		

	with Prosocial Friends		
r = .080 (p = .149)	r = .116* (p = .037)	r =.272 (p < .01)	z = .537 (p = .591)
RAQ5. Prior Alcohol Use	2.8a(v). History of Alcohol – Led to Health Problems		
r = .080 (p = .149)	Cannot be computed because at least one of the variables does not vary	Cannot be computed because at least one of the variables does not vary	Cannot be computed because at least one of the variables does not vary
RAQ5. Prior Alcohol Use	2.8a(vi). History of Alcohol – Criminal behavior		
r = .080 (p = .149)	r =.108 (p = .052)	r = .347 (p < .01)	z = .906 (P = .365)
History of drug/alcohol offenses	2.8a(vi). History of Alcohol – Criminal behavior		
r = .041 (p = .466)	r = .108 (p = .052)	r = .347 (p < .01)	z = .906 (P = .365)
RAQ5. Prior Alcohol Use	2.8a(vii). History of Alcohol – Need in Increasing Amounts		
r = .080 (p = .149)	Cannot be computed because at least one of the variables does	Cannot be computed because at least one of the variables does not vary	

		not vary			
	RAQ5. Prior Alcohol Use	2.8a(viii). History of Alcohol – Withdrawal Problems			
	r = .080 (p = .149)	Cannot be computed because at least one of the variables does not vary			
Drug Use	RAQ6. Prior Drug Use	History of Drug Use			
	RAQ6. Prior Drug Use	2.8b(i). History of Drugs - Past			
	r = .163** (p = .003)	r = .203** (p < .01)	r =.826 (p < .01)	z = 1.236 (p = .217)	
	RAQ6. Prior Drug Use	2.8b(ii). History of Drugs – Disrupted Education			
	r = .163** (p = .003)	r = .032 (p = .564)	r =.384 (p < .01)	z = 2.125 (p =.034)	
	RAQ6. Prior Drug Use	2.8b(iii).History of Drugs - Led to Family Conflict			
	r =.163** (p = .003)	r = .038 (p = .491)	r =.431** (p < .01)	z = 2.110 (p = .035)	

RAQ6. Prior Drug Use	2.8b(iv). History of Drugs - Interfered with Prosocial Friends		
r = .163** (p = .003)	r = .087 (p = .118)	r =.309 (p < .01)	z = 1.169 (p = .242)
RAQ6. Prior Drug Use	2.8b(v). History of Drugs – Health		
r =.163** (p = .003)	r = .150 (p = .007)	r = .135 (p = .015)	Z = .180 (P = .857)
RAQ6. Prior Drug Use	2.8b(vi). History of Drugs – Led Criminal Behavior		
r =.163** (p = .003)	r = - .041 (p = .463)	r = .381 (p < .01)	Z = .0349 (p = .001)
Drug/alcohol offences	2.8b(vi). History of Drugs – Led Criminal Behavior		
r = .041 (p = .466)	r = .108 (p = .052)	r = .381 (p < .01)	z = 1.242 (P = .214)
RAQ6. Prior Drug Use	2.8b(vii). History of Drugs – Need in Increasing Amounts		
r =.163** (p = .003)	Cannot be computed because at least one of the variables does not vary		
		Cannot be computed because at least	

	RAQ6. Prior Drug Use	2.8b(viii). History of Drugs – Withdrawal Problems	one of the variables does not vary	
	r =.163** (p = .003)	Cannot be computed because at least one of the variables does not vary		
Peer relations/associations	RAQ8. Negative Peers	2.3a(i). History of Anti-social friends/ Companions Never had consistent friends/companions		
	r = .194 (p < .01)	r = .028 (p = .614)	r = -.180 (p = .001)	z = 1.954 (p = .051)
	RAQ8. Negative Peers	2.3a(ii). History of Anti-social friends/ Companions Had pro-social friends		
	r = .194 (p < .01)	r = -.174 (p = .002)	r = -.102 (p = .067)	z = 4.452 (p < .01)
	RAQ8. Negative Peers	2.3a(iii). History of Anti-social friends/ Companions Had anti-social friends .002		
	r = .194 (p < .01)	r = .171** (p = .002)	r =.546** (p <.01)	z = .441 (p = .659)

RAQ9. Type of Gang Involvement	2.3a(iv). History of Anti-social friends/ Companions Been a gang member/ associate		
r =.099 (p = .076)	r = .152** (p = .006)	r = .623* (p < .01)	z = 1.23 (p = .218)

Table 11. Correlation of RAJI and PrePACT with NON-TECHNICAL Referrals

Underlying Construct	RAJI item and correlation with recidivism	PrePACT item and correlation with recidivism	Correlation between RAJI and PrePACT items	Significance of RAJI vs PrePACT Difference.
Runaways	RAQ13. Number of Runaways	2.5. History of Running Away or Getting Kicked Out of Home		
	r = .099 (p = .076)	r = .152 (p = .006)	r = .623 (p < .01)	z = 1.102 (p = .270)
Alcohol use	RAQ5. Prior Alcohol Use	2.8a(i). History of Alcohol use – Past		
	r = .061 (p = .274)	r = .081 (p = .147)	r = .498 (p < .01)	z = .358 (p = .720)
	RAQ5. Prior Alcohol Use	2.8a(ii). History of Alcohol – Disrupted Education		
	r = .061 (p = .274)	r = .108 (p = .052)	r = .254 (p < .01)	z = .692 (p = .489)
	RAQ5. Prior Alcohol Use	2.8a(iii). History of Alcohol – Led to Family Conflict		
	r = .061 (p = .274)	r = .103 (p = .064)	r = .311 (p < .01)	z = .643 (p = .520)

RAQ5. Prior Alcohol Use	2.8a(iv). History of Alcohol – Interfered with Prosocial Friends			
r = .061 (p = .274)	r = .121 (p = .029)	r = .272 (p < .01)	z = .895 (p = .371)	
RAQ5. Prior Alcohol Use	2.8a(v). History of Alcohol – Led to Health Problems			
r = .061 (p = .274)	Cannot be computed because at least one of the variables does not vary		Cannot be computed because at least one of the variables does not vary	
RAQ5. Prior Alcohol Use	2.8a(vi). History of Alcohol – Criminal behavior			
r = .061 (p = .274)	r =.113 (p = .043)	r =.347 (p < .01)	z = .820 (p = .412)	
History of drug/alcohol offenses	2.8a(vi). History of Alcohol – Criminal behavior			
r = .054 (p = .336)	r = .113 (p = .043)	r = .117 (p = .035)	z = .792 (p = .428)	
Same as above	2.8a(vii). History of Alcohol – Need in Increasing Amounts			
	Cannot be computed because at least one of	Cannot be computed because	Cannot be computed because	

		the variables does not vary	at least one of the variables does not vary	at least one of the variables does not vary
	RAQ5. Prior Alcohol Use	2.8a(viii). History of Alcohol – Withdrawal Problems		
		Cannot be computed because at least one of the variables does not vary	Cannot be computed because at least one of the variables does not vary	Cannot be computed because at least one of the variables does not vary
Drug Use	RAQ 6. Prior Drug Use	History of Drug Use		
	RAQ 6. Prior Drug Use	2.8b(i). History of Drugs - Past		
	r = .163 (p = .003)	r = .206 (p < .01)	r = .826 (p < .01)	z = 1.329 (p = .184)
	RAQ 6. Prior Drug Use	2.8b(ii). History of Drugs – Disrupted Education		
	r = .163 (p = .003)	r = .039 P = .487	r =.384 (p < .01)	z = 2.012 (p = .044)
	RAQ 6. Prior Drug Use	2.8b(iii).History of Drugs - Led to Family Conflict		
	r = .163 (p = .003)	r = .046 (p = .410)	r = .431 (p < .01)	z = 1.976 (p = .048)

RAQ6. Prior Drug Use	2.8b(iv). History of Drugs - Interfered with Prosocial Friends			
		r = .094 (p = .093)	r = .309 (p < .01)	z = 1.062 (p = .288)
RAQ6. Prior Drug Use	2.8b(v). History of Drugs - Health			
		r = .154 (p = .005)	r = .135 (p = .015)	z = .125 (p = .901)
	2.8b(vi). History of Drugs – Criminal Behavior			
		r = -.036 (p = .514)	r = .381 (p < .01)	z = 3.208 (P = .001)
RAQ. 7 Drug/Alcohol Offences	2.8b(vi). History of Drugs – Criminal Behavior			
r = .054 (p = .336)		r = -.036 (p = .514)	r = .302 (p < .01)	z = 1.1363 (P = .173)
RAQ6. Prior Drug Use	2.8b(vii). History of Drugs – Need in Increasing Amounts			
		Cannot be computed because at least one of the variables does not vary	Cannot be computed because at least one of the variables does not vary	Cannot be computed because at least one of the variables does not vary

	RAQ6. Prior Drug Use	2.8b(viii). History of Drugs – Withdrawal Problems		
		Cannot be computed because one of the variables does not vary	Cannot be computed because one of the variables does not vary	Cannot be computed because one of the variables does not vary
Peer relations/associations	RAQ8. Negative Peers	2.3a (i). History of Anti-social friends/ Companions Never had consistent friends/companions		
	r = .181 (p = .001)	r = .032 (p = .572)	r = -.180 (p = .001)	z = 1.752 (p = .080)
	RAQ8.Negative Peers	2.3a (ii). Had pro-social friends		
	r = .181 (p = .001)	r = -.183 (p = .001)	r = -.102 (p = .067)	z = 4.403 (p < .01)
	RAQ8.Negative Peers	2.3a (iii). Had anti-social friends		
	r = .181 (p = .001)	r = .177 (p = .001)	r = .546 (p < .01)	z = .077 (p = .939)
	RAQ9. Type of Gang Involvement	2.3a (iv). Been a gang member/ associate		
	r = .010 (p = .859)	r = .075 (p = .179)	r =.566 (p < .01)	z = 1.249 p = .212

Table 12. Correlation of RAJI and PrePACT with Serious Referrals

Construct	RAJI	PrePACT	Correlation between RAJI and PrePACT items	RAJI v/s PrePACT
Runaways	RAQ13 No. of Runaways	2.5 History of Running Away or Getting Kicked Out of Home		
	r = -.050 (p = .372)	r = .056 (p = .311)	r = .623 (p < .01)	Z = 2.183 (P = .029)
Alcohol use	**RAQ5. Prior Alcohol Use**	**History of Alcohol Use**		
	RAQ5. Prior Alcohol Use	2.8a. History of Alcohol use – Past		
	r = .058 (p = .299)	r = .008 (p = .881)	r = .409 (p < .01)	z = .823 (p = .410)
	RAQ5. Prior Alcohol Use	2.8. History of Alcohol – Disrupted Education		
		r = .096 (p = .084)	r = .254 (p < .01)	z = .823 (p = .410)
	RAQ5. Prior Alcohol Use	2.8. History of Alcohol – Leading to Family Conflict		
		r = .031 (p = .573)	r = .311 (p < .01)	z = .412 (p = .680)

RAQ5. Prior Alcohol Use	History of Alcohol – Interfered with Prosocial Friends –			
	r = .107 (p = .055)		r = .272 (p < .01)	z = .730 (p = .465)
RAQ5. Prior Alcohol Use	2.8a. History of Alcohol – Led to Health Problems			
	Cannot be computed because at least one of the variables does not vary			Cannot be computed because at least one of the variables does not vary
RAQ5. Prior Alcohol Use	History of Alcohol – Criminal behavior			
	r = .150 (p = .007)		r = .347 (p < .01)	z = 1.451 (p = .147)
RA7. Drug/Alcohol offences	History of Alcohol – Criminal behavior			
r = .026 (p = .299)	r = .150 (p = .007)		r = .117 (p = .04)	z = 2.377 (p = .017)
RAQ5. Prior Alcohol Use	2.8a. History of Alcohol – Need in Increasing Amounts			
	Cannot be computed because one of the	Cannot be computed because one of the		Cannot be computed because of the

		variables does not vary	variables does not vary	variables does not vary
	RAQ5. Prior Alcohol Use	2.8a. History of Alcohol – Withdrawal Problems		
		Cannot be computed because of the variables does not vary	Cannot be computed because one of the variables does not vary	Cannot be computed because one of the variables does not vary
Drug Use	RAQ6. Prior Drug Use	2.8b. History of Drugs – Past		
	r = .063 (p = .259)	r = .152 (p = .006)	r = .826 (p < .01)	z = 2.72 (p = .0066)
	RAQ6. Prior Drug Use	2.8b. History of Drugs – Disrupted Education		
		r = .062 (p = .265)	r = .384 (p < .01)	z = .016 (p = .987)
	RAQ6. Prior Drug Use	2.8b.History of Drugs - Led to Family Conflict		
		r = -.004 (p = .949)	r = .431 (p < .01)	z = 1.124 (p = .261)

RAQ6. Prior Drug Use	2.8b. History of Drugs - Interfered with Prosocial Friends		
	r = .112 (p = .044)	r = 309 (p < .01)	z = .749 (p = .454)
RAQ6. Prior Drug Use	History of Drugs – Health		
	r = .115 (p = .039)	r_{12} = .135 (p = .02)	z = .711 (p = .477)
RAQ6. Prior Drug Use	History of Drugs – Criminal Behavior		
	r = 0.0 (p < .995)	r = .381 (p < .01)	z = 1.014 (p = .311)
RA7. Drug/Alcohol Offences	History of Drugs – Criminal Behavior		
r = -.026 (p = .640)	r = 0 (p = .995)	r = 302 (p < .01)	z = .394 (p = 694)
RAQ6. Prior Drug Use	History of Drugs – Need in Increasing Amounts		
	Cannot be computed because one of the variables does not vary	Cannot be computed because one of the variables does not vary	Cannot be computed because one of the variables does not vary

	RAQ6. Prior Drug Use	History of Drugs – Withdrawal Problems		
		Cannot be computed because one of the variables does not vary	Cannot be computed because one of the variables does not vary	Cannot be computed because one of the variables does not vary
Peer association	**RAQ8. Negative Peers**	**History of Anti-social friends/ Companions**		
	RAQ8. Negative Peers	Never had consistent friends/companions		
	r = .097 (p = .081)	r = .060 (p = .286)	r = -.180 (p < .01)	z = .433 (p = .665)
	RAQ8. Negative Peers	Had pro-social friends		
	r = .097 (p = .081)	r = -.110 (p = .048)	r = -.102 (p = .07)	z = 2.497 (p = .013)
	RAQ8. Negative Peers	Had anti-social friends		
	r = .097 (p = .081)	r = .125 (p = .025)	r = .546 (p < .01)	z = .530 (p = .596)

RAQ9. Type of Gang Involvement	Been a gang member/ associate		
r = 0 (p = .995)	r = .037 (p = .509)	r = .566 (p < .01)	z = .711 (p = .477)

Table 13. Potential Predictors of Recidivism and Their Correlation with Recidivism (N = 323)

No.	Name of Item	Any Referrals	Non-Technical Referrals	Serious Referrals
Case-worker	Severity of Offense	r = .083 (p =.139)	r = .059 (p = .293)	r = .077 (p = .166)
4.1	Attitude Towards Responsible Law Abiding Behavior	r = .051 (p = .361)	r = .037 (p = .502)	r = -.026 (p = .644)
4.2	Accepts Responsibility	r = .03 (p = .596)	r = .036 (p =.524)	r = .028 (p =.612)
4.3	Belief in Verbal Aggression	r = .112* (p = .044)	r = .088 (p = .116)	r = .058 (p = .298)
4.4	Belief in Physical Aggression	r = .189** (p = .001)	r = .183** (p = .001)	r = .135* (p = .015)
4.5	History of unreported violence – None	r = -.087 (p = .12)	r = -.095 (p = .088)	r = -.025 (p = .66)
4.5 (i)	Reports/ evidence of violence not included in criminal history - violent outburts, displays of temper, uncontrolled anger indicating potential for harm	r = .075 (p = .181)	r = .081 (p = .146)	r = .031 (p = .582)
4.5 (iii)	Reports/ evidence of violence not included	r = .114* (p = .041)	r = .119* (p = .032)	r = .07 (p = .231)

	in criminal history - Deliberately inflicting physical pain			
4.5 (iv)	Reports/ evidence of violence not included in criminal history - using/threatening with a Weapon	r = -.007 (p = .895)	r = -.005 (p = .93)	r = -.053 (p = .345)
4.5 (v)	Reports/ evidence of violence not included in criminal history - fire starting	r = .051 (p = .366)	r = .054 (p = .335)	r = -.053 (p = .345)
4.5 (vi)	Reports/ evidence of violence not included in criminal history - violent destruction of property	r = -.007 (p = .895)	r = -.005 (p = .93)	r = .015 (p =.79)
4.5 (vii)	Reports/ evidence of violence not included in criminal history - Animal Cruelty	r = -.035 (p = .536)	r = -.034 (p = .545)	r = -.028 (p = .617)
4.6 (i)	History of Unreported Sexual violence – Aggression sexual			
4.6 (ii)	History of Unreported Sexual violence – Sex power	Cannot be computed because one of the variables does not vary		
4.6 (iii)	History of Unreported Sexual violence – Young sex partners			
4.6	History of Unreported			

(iv)	Sexual violence - Child sex
4.6	History of Unreported
(v)	Sexual violence – Voyeurism
4.6	History of Unreported
(vi)	Sexual violence – Exposure

Table 14. Selected studies on risk assessment tools for juvenile recidivism: Effect sizes and other characteristics

Study	N	Recidivism		Predictor	Included juveniles with prior offenses	Included no. of prior referrals or age at first offense as a predictor	Effect size
		Type	Base-Rate (in percentage)				
Ang & Huan (2008)	772	Any Referral	NR	17 ad hoc variables	Yes	Yes	R = .49
Baglivio (2009)	8,132	Any Referral	32.9	PACT	Yes	Yes	AUC = .593 (R = .164)
Risler et al (2000)	181	Any Referrals	67.4	FORAI	Yes	Yes	r = .307
Current Study (2014)	367	Any Referrals	15.8	RAJI Long	No	No	r = .235
Latessa et al. (2009) (diversion)	522	Non-Technical Referrals	32.0	OYAS-DIV	Yes	Yes	r = .220
Current Study (2014)	367	Non-Technical Referrals	15.0	RAJI Long	No	No	r = .212
Schwalbe Meta-analysis	K = 42			All Instruments	Yes	Yes	AUC = .640 (r = .245)
	K = 11			YLS-CMI			AUC = .641 (r = .247)

Appendix A

El Paso Risk Assessment for Juveniles at Intake (El Paso RAJI)

1. Currently failing one or more classes _____

    No……. 0

    Yes…… 1

2. Years behind in school _____

    Not behind in school OR only one year behind……. 0

    Two or more years behind in school…….. 1

3. Chronic truancy _____

    No…….……. 0

    Yes……..… 2

4. Behavioral problems at school (expulsions/suspensions) _____

    No…….…… 0

    Yes……..... 2

5. Prior alcohol use _____

    No alcohol use……. 0

    Rare, Mild, or Experimental Alcohol Use…….. 0

    Moderate or Consistent Alcohol Use……...….. 3

    Severe Alcohol use…… 3

6. Prior drug use _____

    No drug use……..…….. 0

    Mild or Experimental drug use……... 1

    Moderate or Consistent drug use…… 2

    Severe drug use……. 2

7. History of drug or alcohol offenses _____

No……. 0

Yes……..…… 1

8. Negative peers _____

No…….. 0

Yes…… 1

9. Type of gang involvement _____

None……. 0

Suspected……. 1

Associated……..…….. 1

Former……..... 1

Member…….. 2

10. History of theft _____

No…….…. 0

Yes…….. 1

11. History of criminal mischief _____

No……..…….. 0

Yes……. 1

12. History of assault _____

No……..……. 0

Yes……..…….. 1

13. Number of runaways _____

2 or less runaways……..……..…… 0

3 or 4 runaways…….…….. 1

5 or more runaways…….……..…. 3

14. History of witnessing abuse _____

No……..……. 0

Yes……..…… 1

15. Parental Control _____

Mostly effective……..... 0

Some difficulty……..… 0

No Control……... 2

16. MAYSI-2 Alcohol/Drug use score _____

MAYSI-2 Alcohol/Drug use score 4 or less……..…. 0

MAYSI-2 Alcohol/Drug use score 5 or more…….. 1

17. Total number of CPS cases _____

2 or less cases opened…….…….. 0

3 or more cases opened…….…… 1

18. History of evading arrest _____

No …….. 0

Yes..……..…….……..... 1

19. History of disorderly conduct _____

No.……...……...…….. 0

Yes…….….. 1

20. Are either parent involved with CJS _____

No……. 0

Yes…….…… 1

Total Risk Score: _____

Risk Level: _____

Total Score	**Risk Level**
0 - 2	Very Low
3 - 4	Low
5 - 6	Medium
7 - 8	High
9 or higher	Very High

Appendix B

Juvenile Interview for Risk Assessment of Juveniles at Intake

(Juvenile RAJI)

I'd like to ask you some questions about what's been happening in your life. Your answers will let me make plans for how to help you.

1. <u>Currently failing one or more classes</u>

Q1A. When was the last time you attended school?

Q1B. [Ask this question if juvenile is currently attending school]
Are you failing any classes at school?

Q1C. [Ask this question if juvenile is on vacation or not currently attending school]
During the last term you were in school, did you fail any classes?

2. <u>Two or more years behind in school</u>

Q2A. Have you ever been held back and made to repeat a year at school?

Q2B. [If yes] How many times?

3. <u>Chronic truancy</u>

Q3A. Have you ever cut any classes or ditched a whole day of school?

[If answer to Q 3A is "yes," ask Q3B through Q3D]

Q3B. During the past six weeks, about how many classes have you cut? 5 or more?

Q3C. During the past semester, about how many classes have you cut? 10 classes or more?

Q3D. During the past year, about how many classes have you cut? 20 classes or more?

4. <u>Behavioral problems at school</u>

Q4A. Have you ever been expelled or suspended from school? When?

Q4B. Have you ever been in ISS, that is, in-school suspension? When?

Q4C. Have you ever been in alternative? When?

Q4D. Have you had discipline problems at school, like when you were sent to see the principal or dean of students? When?

Q4E. How about fights at school? When?

5. <u>Prior alcohol use</u>

Q5A. Do you ever drink alcohol?

Q5B. [If yes] About how often do you drink? [Ask enough follow-up questions so you can mark the option on the worksheet that best describes juvenile's drinking]

6. <u>Prior drug use</u>

Q6A. Do you use drugs or marijuana?

Q6B. [If yes], how often have you used them?

Q6C. What kinds of drugs have you used?

Q6D. [If yes], about how often have you used each of these drugs?

7. <u>History of drug or alcohol offenses</u>

Q7A. Have you ever gotten into trouble with the law because of drinking or drugs?

Q7B. [If yes] What did you do that got you into trouble?

8. <u>Negative peers</u>

Q8A. Do your close friends ever get in trouble with the law or at school?

Q8B. Are any of your close friends into drugs a lot?

9. <u>Type of gang involvement</u>

Q9A. Are you involved in any gang?

Q9B. How about your friends? Are any of them gang members?

Q9C. How about in the past? Were you ever involved in a gang?

10. <u>History of theft</u>

Q10A. Have you ever stolen things? From neighbors? From a store?

Q10B. How often?

Q10C.Have you ever stolen anything worth more than $50?

11. <u>History of criminal mischief</u>

Q11A. Have you ever deliberately damaged or destroyed public property?

Q11B. [If yes] What did you do? When did that happen?

Q11C. Have you ever deliberately damaged someone else's property, like a neighbor's or a shop?

Q11D. [If yes] What did you do? When did that happen?

Q11E. Have you been involved in tagging/ graffiti?

12. History of Assault

Q12A. Do you sometimes get into physical fights with anyone inside or outside your family?

Q12B. [If yes]How often?

Q12C. Have you ever started some of the fights?

Q12D. What is the worst you have ever hurt someone in these fights?

Q12E. Have you ever used a weapon in a fight or threatened to use a weapon?

13. Number of Runaways

Q13A. Have you ever run away from home?
[If juvenile asks what it means to run away, PO should say: Running away is when you stay away from home for at least one night without getting your parents' permission.]

Q13B. [if yes] When you ran away, how long did you stay away? Did you have your parents' permission to stay away?

Q13C: During the past two years, about how many nights have you stayed away from home without getting your parents' permission?

14. History of witnessing abuse

Q14A. Have you ever seen abuse or violence within your family?

Q14B. [If yes] What did you see? Did the abuse or violence leave any marks on someone's face or body?

Q14C. Have you ever been a victim of abuse within your family?

Q14D. [If yes] What happened? Did the abuse or violence leave any marks on your face or body?

15. Parental control

Next, I'm going to ask several questions about how much you follow the rules at your home.

Q15A. Do you have chores you're supposed to do at home? Do you do them all of the time or most of the time?

Q15B. In general, do you follow the rules that your parents or other adults at home set for you?

Q15C. Do you come home at the time you're supposed to?

Q15D. Do your parents or other adults at home ever try to punish you? If so, how do they try to punish you?

Q15E. What do you do when they try to punish you?

Q15F. Do you get in arguments with your parents or other adults at home?

Q15G. Do you get in physical fights with your parents or other adults at home? [If yes] Tell me about the fights. Who do you fight with? What happens?

Appendix C

Juvenile Worksheet for RAJI-1

Name of Juvenile: _____ PID_____

Date _____

1. Currently failing one or more classes

Scoring instructions: Score 'yes' if the juvenile reports that he/she (a) is currently failing a class or (b) failed class during the last semester he/she was in school.

1. No
2. Yes

2. Two or more years behind in school

1. No
2. Yes

3. Chronic truancy

3a. Any ditching/cutting of classes?

1. No 2. Yes

3b. 5 or more missed classes in past six weeks?

1. No 2. Yes

3c. 10 or more missed classes in past semester?

1. No 2. Yes

3d. 20 or more missed classes in past year

1. No 2. Yes

4. Behavioral problems at school

Scoring instructions: Score 'yes' if the juvenile reports a behavior problem at school (expulsion, suspension, discipline problems, fights at school) anytime during the past 2 years.

1. No
2. Yes

5. Prior alcohol use

Scoring instructions: Ask enough questions to mark the option below that best describes juvenile's drinking pattern. If the juvenile's answers are vague, mark the option that seems closest to correct.

1. No alcohol use
2. Occasional or rare use (less than 3 times per year)
3. Several times per year, but less than once a month
4. Once a month
5. Twice a month
6. Every week

6. Prior drug use

Scoring instruction: Ask enough questions to mark the option below that best describes juvenile's drug use. If the juvenile's answers are vague, mark the option that seems closest to correct.

Mark option that best describes juvenile's use of drugs. Combine all drug use together when marking option. That is, any use of any drug, including marijuana, should be considered as a "drug use."

1. No drug use
2. Occasional or rare use (less than 3 times per year)
3. Several times per year, but less than once a month
4. Once a month
5. Twice a month
6. Every week

7. History of drug or alcohol offenses

Scoring instruction: Score "Yes" if juvenile indicates that he/she has had any trouble with the law because of drugs or alcohol.

1. No
2. Yes

8. Negative peers

Scoring instructions: Score "yes" if Juvenile indicates that his/her close friends use a lot of drugs or get into trouble with the law or at school.

1. No
2. Yes

9. Gang involvement

Scoring instructions: Select the highest number that applies. Select "Current Member: if juvenile indicates he/she is currently member of gang. Select "Former Member" if juvenile indicates juvenile was gang member in past but not presently. Select "Associated" if the juvenile indicates he friends with or is often in the company of people known to be members of a gang. Select "Suspected" if information provided by juvenile leads PO to suspect that juvenile is a gang member (but without being certain).

1. None
2. Suspected
3. Associated
4. Former Member
5. Current Member

10. History of theft

History of theft is defined as (a) one or more thefts of any high value item ($50 or more) OR three or more thefts of any kind of items, even low value items.

Mark "Yes" if juvenile reports that juvenile has a history of theft.

1. No
2. Yes

11. History of criminal mischief

Scoring Instructions: "Criminal mischief" is defined as deliberately destroying public or private property, or tagging/graffiti. Do not count incidents in which juvenile destroyed property belonging to his/her own family.

Select 'Yes' if juvenile reports any Criminal Mischief during past 2 years.

1. No
2. Yes

12. History of assault

Scoring Instructions: History of assault is defined as (a) frequently getting into fights (more than twice a year), OR (b) ever using a weapon in a fight OR (c) ever seriously hurting someone on purpose OR (d) ever being referred for an offense involving assault or other physical aggression. Do not count incidents that are clearly self-defense by juvenile against aggression or minor scuffles with siblings or other relatives his/her age.

Select "Yes" if juvenile indicates has a history of assault.

1. No
2. Yes

13. Runaways

Scoring Instructions: A runaway occurs when a juvenile (a) stays away from home (or place of legal residence) by his/her own choice (b) for one night or longer(c) without the permission of parents (or legal guardians).

Record the number of nights away from home without parental permission as reported by juvenile

No. of nights _____

14. History of witnessing abuse

Scoring Instructions: Select "Yes" if juvenile reports that he/she has ever witnessed or been victim of physical abuse or domestic violence within the family. Physical violence is considered abuse if (a) it left a mark or (b) a belt, cord, stick, paddle, or other object was used to inflict pain. Do not count ordinary sibling quarrels or fights as abuse or domestic violence unless they left a mark or an object was used to inflict pain.

1. No
2. Yes

15. Parental control

Select the answer below that best describes the level of parental control based on juvenile's answers to questions. POs should use their own judgment when scoring this item during juvenile interview.

1. No problem with control
2. Small problem with control [control problems at a level typical of the average teenager]
3. Moderate problem with control [above-average problems with disregarding or defying parental control]
4. Large problem with control [substantial and serious problems with disregarding or defying parental control]

Appendix D

Parent/Caretaker Interview for Risk Assessment of Juvenile at Intake

(Parent RAJI)

I'd like to ask you some questions about what's been happening in the life of [juvenile's name]. Your answers will help me to make plans for how to help him/her.

How are you related to [juvenile's name]?

1. <u>Currently failing one or more classes</u>

Q1A. When was the last time [juvenile's name] attended school?

Q1B. [Ask this question only if juvenile is currently attending school]
Is he/she failing any classes at school?

Q1C. [Ask this question if juvenile is on vacation or not currently attending school]
During the last term he/she was in school, did he/she fail any classes?

2. <u>Two or more years behind in school</u>

Q2A. Has he/ she ever been held back and made to repeat a year at school?

Q2B. [If yes] How many times has he/she been held back?

3. <u>Chronic truancy</u>

Q3A. Has [juvenile's name] ever cut classes or stayed away from school?

[If answer to Q 3A is "yes," ask Q3B through Q3D]

Q3B. During the past six weeks, how many classes has he/she cut? 5 classes or more?

Q3C. During the past semester, how many classes has he/she cut? 10 classes or more?

Q3D. During the past year, how many classes has he/she cut? 20 classes or more?

4. <u>Behavioral problems at school</u>

Q4A. Has [juvenile's name] ever been expelled or suspended from school? When?

Q4B. Has he/she ever been in ISS, that is, in-school suspension? When?

Q4C. Has he/she ever been in alternative? When?

Q4B. Has he/she had discipline problems at school, like when he/she was sent to see the principal or the dean of students? When?

Q4C. How about fights at school? When?

5. <u>Prior alcohol use</u>

Q5A. Does [juvenile's name] ever drink alcohol?

Q5B. [If yes] About how often does he/she drink? [Ask enough follow-up questions so you can mark the option on the worksheet that best describes juvenile's drinking]

6. <u>Prior drug use</u>

Q6A. Does he/she use drugs or marijuana?

Q6B. [If yes]Do you know the kinds of drugs he/she has used?

Q6C. [If yes], about how often has he/ she used each of these drugs?

7. <u>History of drug or alcohol offenses</u>

Q7A. Has he/she ever gotten into trouble with the law because of drinking or drugs?

Q7B. [If yes] What did he/she do that got him/ her into trouble?

8. <u>Negative peers</u>

Q8A. Does [juvenile's name] have any friends?

Q8B. Have you met any of them?

Q8C. Do you feel he/she is hanging out with the wrong friends?

9. Type of gang involvement

Q9A. Is he/she involved in any gang?

Q9B. Do you think he/she might be involved in a gang?

Q9C. How about his/her friends? Are any of them gang members?

Q9D. How about in the past? Was he/she ever involved in a gang?

10. History of theft

Q10A. Has he/she ever stolen things from you? From neighbors? From a store?

Q10B. How often?

Q10C.Has he/she ever stolen anything worth more than $50?

11. History of criminal mischief

Q11A. Has he/she ever deliberately damaged or destroyed public property?

Q11B. [If yes] What did [juvenile's name] do? When did that happen?

Q11C. Has he/she ever deliberately damaged someone else's property, like a neighbor's or a shop?

Q11D. [If yes] What did he/she do? When did that happen?

Q11E. Has he/she been involved in tagging/ graffiti?

12. History of Assault

Q12A. Does [juvenile's name] sometimes get into physical fights with anyone inside or outside the family?

Q12B. How often?

Q12C. Does he/she start some of the fights?

Q12D. What is the worst he/she has ever hurt someone in these fights?

Q12E. Has he/she ever used a weapon in a fight or threatened to use a weapon?

13. Number of Runaways

Q13A. Has [juvenile's name] ever run away from home?
[If parent asks what it means to run away, PO should say: Running away is when he/she stays away from home for at least one night without getting permission.]

Q13B. [if yes] When he/she ran away, how long did he/she stay away? Did he/she have permission to stay away?

Q13C: During the past two years, about how many nights has he/she stayed away from home without getting permission?

14. History of witnessing abuse

Q14A. Has [juvenile's name] ever seen abuse or violence within your family?

Q14B. [If yes] What did he/she see? Did the abuse or violence leave any marks on someone's face or body?

Q14C. Has [juvenile's name] ever been a victim of abuse within your family?

Q14D. [If yes] What happened? Did the abuse or violence leave any marks on his/her face or body?

15. Parental control

Next, I'm going to ask several questions about whether [juvenile's name] follows the rules at your home.

Q15A. Does he/she have chores at home? Does he/she do his/her chores?

Q15B. Overall, does he/she follow rules that are set for him/ her?

Q15C. Does he/she come home at the time he/she has been told to come home?

Q15D. Do you or anyone else ever punish him/her or try to?

Q15E. What does he/she do when someone tries to punish him/her?

Q15F. Does he/she get in arguments with you or any other adults at home?

Q15G. Does he/she get in physical fights with you or any other adults at home? [If yes] Tell me about the fights. Who does he/she fight with? What happens?

Q15H. Would you say that you or other adults at home have problems controlling him/her?

Q15I. [If yes] Would you say that the problems controlling him/ her are small, moderate, or large?

Appendix E

Parent/Caretaker Worksheet for RAJI

Name of Juvenile _____ PID_____

Informant Name _____

Relation to Juvenile_____ Date _____

1. Currently failing one or more classes

Scoring instructions: Score 'yes' if the parent reports juvenile (a) is currently failing a class or (b) failed class during the last semester he/she was in school.

. 1. No

2. Yes

2. Two or more years behind in school

1. No

2. Yes

3. Chronic truancy

3a. Any ditching/cutting of classes?

1. No 2. Yes

3b. 5 or more missed classes in past six weeks?

1. No 2. Yes

3c. 10 or more missed classes in past semester?

1. No 2. Yes

3d. 20 or more missed classes in past year?

1. No 2. Yes

4. Behavioral problems at school

Scoring instructions: Score 'yes' if the parent reports a behavior problem at school (expulsion, suspension, discipline problems, fights at school) anytime during the past 2 years.

1. No
2. Yes

5. Prior alcohol use

Scoring instructions: Ask enough questions to mark the option below that best describes juvenile's drinking pattern. If the caretaker's answers are vague, mark the option that seems closest to correct.

1. No alcohol use
2. Occasional or rare use (less than 3 times per year)
3. Several times per year, but less than once a month
4. Once a month
5. Twice a month
6. Every week

6. Prior drug use

Scoring instruction: Ask enough questions to mark the option below that best describes juvenile's drug use. If the caretaker's answers are vague, mark the option that seems closest to correct.

Mark option that best describes juvenile's use of drugs. Combine all drug use together when marking option. That is, any use of any drug, including marijuana, should be considered as a "drug use."

1. No drug use
2. Occasional or rare use (less than 3 times per year)
3. Several times per year, but less than once a month
4. Once a month
5. Twice a month
6. Every week

7. History of drug or alcohol offenses

Scoring instruction: Score "Yes" if parent indicates that juvenile has had any trouble with the law because of drugs or alcohol.

1. No
2. Yes

8. Negative peers

Scoring instructions: Score "yes" if Parent answers "yes" to Q8c "Do you feel he/she is hanging out with the wrong friends?"

1. No
2. Yes

9. Gang involvement

Scoring instructions: Select the highest number that applies. Select "Current Member" if parent indicates juvenile is currently member of gang, Select "Former Member" if parent indicates juvenile was gang member in past but not presently. Select "Associated" if the parent believes that the juvenile is friends with or is often found in the company of people known to be members of a gang. Select "Suspected' if the parent believes that the juvenile might be a member of a gang but isn't sure.

1. None
2. Suspected
3. Associated
4. Former Member
5. Current Member

10. History of theft

Scoring instructions: History of theft is defined as (a) one or more thefts of any high value item ($50 or more) OR three or more thefts of any kind of items, even low value items.

Mark "Yes" if parent reports that juvenile has a history of theft.

1. No
2. Yes

11. History of criminal mischief

Scoring Instructions: "Criminal mischief" is defined as deliberately destroying public or private property, or tagging/graffiti. Do not count incidents in which juvenile destroyed property belonging to his/her own family.

Select 'Yes' if parent reports any Criminal Mischief during past 2 years.

1. No
2. Yes

12. History of assault

Scoring Instructions: History of assault is defined as (a) frequently getting into fights (more than twice a year), OR (b) ever using a weapon in a fight OR (c) ever seriously hurting someone on purpose OR (d) ever being referred for an offense involving assault or other physical aggression. Do not count incidents that are clearly self-defense by juvenile against aggression or minor scuffles with siblings or other relatives his/her age.

Select "Yes" if parent indicates that juvenile has a history of assault.

1. No
2. Yes

13. Runaways

Scoring Instructions: A runaway occurs when a juvenile (a) stays away from home (or place of legal residence) by his/her own choice (b) for one night or longer (c) without the permission of parents (or legal guardians). Record the number of nights away from home without parental permission as reported by parent/caretaker

No. of nights _____

14. History of witnessing abuse

Scoring Instructions: Select "Yes" if parent reports that juvenile has ever witnessed or been victim of physical abuse or domestic violence within the family. Physical violence is considered abuse if (a) it left a mark or (b) a belt, cord, stick, paddle, or other object was used to inflict pain. Do not count ordinary sibling quarrels or fights as abuse or domestic violence unless they left a mark or an object was used to inflict pain.

1. No
2. Yes

15. Parental control

Select the answer below that best describes the level of parental control based on parents' answers to questions. POs should use their own judgment when scoring this item. For instance, if parent describes many serious discipline problems but then says there is "no problem with control," the PO should use his/her own judgment and score the item as "Large problem with control."

1. No problem with control
2. Small problem with control [control problems at a level typical of the average teenager]
3. Moderate problem with control [above-average problems with disregarding or defying parental control]
4. Large problem with control [substantial and serious problems with disregarding or defying parental control]

Appendix F

Worksheet for RAJI Records Information

Name of Juvenile _____ PID_____

Date _____

SOURCE: MAYSI-2

1. Score on MAYSI-2 Alcohol/ Drug Use _____

SOURCE: CPS

2. No. of CPS cases opened on this juvenile: _____

SOURCE: RAPSHEET

3. History of Drug Abuse or Alcohol offenses
Scoring instructions: Score "Yes" if rapsheet indicates any referral for drug or alcohol use or possession

1. No
2. Yes

4. History of criminal mischief
Scoring instructions: "Criminal mischief" is defined as deliberately destroying public or private property, or tagging/graffiti. Do not count incidents in which juvenile destroyed property belonging to his/her own family.
Select 'Yes' if the rapsheet indicates any referral for Criminal Mischief in the past 2 years

1. No
2. Yes

5. History of evading arrest
Scoring instructions: Select "Yes" if rapsheet indicates that juvenile has ever resisted or evaded arrest.

1. No
2. Yes

6. History of disorderly conduct
Scoring instructions: Select "Yes" if rapsheet indicates that juvenile has ever been referred for or engaged in disorderly conduct.

1. No
2. Yes

7. Runaways
Record the number of runaways mentioned on the rapsheet. A runaway occurs when a juvenile (a) stays away from home (or place of legal residence) by his/her own choice (b) for one night or longer (c) without the permission of parents (or legal guardians).

No. of runaways _____

SOURCE: JIMS

8. Mother has one or more felony arrests or convictions within past 5 years

1. No
2. Yes

9. Father has one or more felony arrests or convictions within past 5 years

1. No
2. Yes

SOURCE: RATINGS BASED ON P.O. KNOWLEDGE/JUDGEMENT
[The ratings in this section are to be made by the P.O. based on (a) the PO's best judgement and (b) *any* information source the P.O. is aware of. So in this section, the PO should feel free to rely on whatever information he/she feels is most dependable.]

10. P.Os best estimate of juvenile's alcohol use
    1. No alcohol use
    2. Occasional or rare use (less than 3 times per year)
    3. Several times per year, but less than once a month
    4. Once a month
    5. Twice a month
    6. Every week

If the PO has any information about juvenile's alcohol use (besides the information already supplied by the juvenile and parent) please summarize it here:

_____

_____

_____

11. P.Os best estimate of juvenile's drug use
Scoring instructions: Mark option that best describes juvenile's use of drugs. Combine all drug use together when marking option. That is, any use of any drug, including marijuana, should be considered as a "drug use."

    1. No drug use
    2. Occasional or rare use (less than 3 times per year)
    3. Several times per year, but less than once a month
    4. Once a month
    5. Twice a month
    6. Every week

If the PO has any information about juvenile's drug use (besides the information already supplied by the juvenile and parent) please summarize it here:

_____

_____

_____

12. Type of gang involvement

Scoring instructions: Select "Current Member" if PO has information indicating that juvenile is currently member of gang. Select "Former Member" if PO has information that juvenile was gang member in past but not presently. Select "Associated" if the PO has information that the juvenile is friends with or is often found in the company of people known to be members of a gang. Select "Suspected' if the PO believes that the juvenile might be a member of a gang but isn't sure.

1. None
2. Suspected
3. Associated
4. Former Member
5. Current Member

If the PO has any information about juvenile's involvement with gangs (besides the information already supplied by the juvenile and parent) please summarize it here:

_____

_____

_____

13. Parental control

Scoring instructions: Select the answer below that reflects the POs best judgment about the level of control the parent(s)/ caretaker are able to exercise over the juvenile.

1. No problem with control
2. Small problem with control
3. Moderate problem with control
4. Large problem with control

If the PO has any information about parental control (besides the information already supplied by the juvenile and parent) please summarize it here:

_____

_____

_____

Appendix G

Scoring Rules for RAJI

RAJI Item 1: Currently failing one or more class

- Based on Juvenile Worksheet Item 1 and Parent Worksheets Item 1.
  → RAJI score should be “Yes” (= 1 point) if either Parent Worksheet or Juvenile Worksheet indicates that the juvenile has failed one or more classes.
  → Otherwise RAJI score should be "No" (= 0 points).

RAJI Item 2: Two or more years behind in school

- Based on Juvenile Worksheet Item 2 and Parent Worksheet Item 2.
  → RAJI score should be “Yes” (= 1 point) if either parent or juvenile worksheet item 2 indicates that juvenile is two or more years behind in school.
  → Otherwise RAJI score should be "No" (= 0 points)

RAJI Item 3: Chronic truancy

- Based on Juvenile Worksheet Item 3 and Parent Worksheet Item 3.
  → RAJI score should be based on the *most serious level of truancy* as indicated on either the Juvenile Worksheet or Parent Worksheet.
  → RAJI score should be "Yes" (= 2 points) if either Juvenile Worksheet or Parent Worksheet indicates any of the following:
    (3b) 5 or more unexcused absences (classes) in past six weeks
    (3c) 10 or more unexcused absences (classes) in past semester
    (3d) 20 or more unexcused absences (classes) in past year
  → Otherwise RAJI score should be "No" (= 0 points)

RAJI Item 4: Behavioral problems at School

- Based on Juvenile Worksheet Item 4 and Parent Worksheet Item 4.
  → RAJI score should be “Yes” (= 2 points) if either Juvenile Worksheet or Parent Worksheet indicates that the juvenile has had behavioral problems at school.
  → Otherwise score "No" (= 0 points)

RAJI Item 5: Prior alcohol use

- Based on Juvenile Worksheet Item 5, Parent Worksheet Item 5, and Records Worksheet Item 12.

  → RAJI score should be based on the highest level of alcohol use as indicated by either Juvenile Worksheet, Parent Worksheet, or Records Worksheet. For example, if Juvenile Worksheet and Parental Worksheet report "2. Occasional or rare use" but Records Worksheet reports "4. Once a month," then RAJI score should be based on Records Worksheet report of "4".

Highest score on juvenile parent or records worksheet	**Score on RAJI Item 5**
1. No use	No Alcohol Use (= 0 points)
2. Occasional or rare use	Rare, Mild or Experimental Alcohol Use (= 0 points)
3. Several times per year but less than once a month	Rare, Mild or Experimental Alcohol Use (= 0 points)
4. Once a month	Moderate or Consistent Alcohol Use (= 3 points)
5. Twice a month	Moderate or Consistent Alcohol Use (= 3 points)
6. Every week	Severe Alcohol Use (= 3 points)

RAJI Item 6: Prior drug Use

Based on Juvenile Worksheet Item 6, Parent Worksheet Item 6, and Records Worksheet Item 13.

RAJI score should be based on the ***highest level of drug use*** indicated by Juvenile Worksheet, Parent Worksheet, and PO Worksheet.

Highest score on juvenile parent or records worksheet	**Score on RAJI Item 6**
1. No use	No Drug Use (= 0 points)
2. Occasional or rare use	Rare, Mild or Experimental Drug Use (= 1 point)
3. Several times per year but less than once a month	Rare, Mild or Experimental Drug Use (= 1 point)
4. Once a month	Moderate or Consistent Drug Use (= 2 points)
5. Twice a month	Moderate or Consistent Drug Use (= 2 points)
6. Every week	Severe Drug Use (= 2 points)

RAJI Item 7: History of drug or alcohol offenses

- Based on Juvenile Worksheet Item 7, Parent Worksheet Item 7, and Records Worksheet Item 3.
  → RAJI score should be "Yes" (= 1 point) if Juvenile Worksheet, Parent Worksheet, or Records Worksheet indicates juvenile has history of drug or alcohol offenses.

  → Otherwise score "No" (= 0 points).

RAJI Item 8: Negative peers

- Based on Juvenile Worksheet Item 8 and Parent Worksheet Item 8.
  → RAJI score should "Yes" (= 1 point) if either Juvenile Worksheet or Parent Worksheet indicates that juvenile has negative peers.
  → Otherwise, select "No" (= 0 points)

RAJI Item 9: Gang involvement

- Based on Juvenile Worksheet Item 9, Parent Worksheet Item 9, and Records Worksheet Item 14.
  → RAJI score should be highest number indicated by Juvenile Worksheet, Parent Worksheet, or Records Worksheet. For example, if Juvenile Worksheet and Records Worksheet indicate that juvenile is a "4. Former Member" of a gang, but Parent Worksheet indicates that juvenile is a "5. Current Member", then the RAJI score should be "5. Current Member."

Highest Gang Involvement on parent, juvenile or records Worksheet	**Score on RAJI Item 9**
1. None	1. None (= 0 points)
2. Suspected	2. Suspected (= 1 point)
3. Associated	3. Associated (= 1 point)
4. Former Member	4. Former Member (= 1 point)
5. Current Member	5. Current Member (= 2 points)

RAJI Item 10: History of theft

- Based on Juvenile Worksheet Item 10, Parent Worksheet Item 10, and Records Worksheet Item 7.
  → RAJI score should be "Yes" (= 1 point) if Parent Worksheet, Juvenile Worksheet, or Records Worksheet indicates that the juvenile has history of theft.
  → Otherwise score "No" (= 0 point)

RAJI Item 11: History of criminal mischief

- Based on Juvenile Worksheet Item 11, and Parent Worksheet Item 11, and Records Worksheet Item 4.
  → RAJI score should be "Yes" (= 1 point) if Parent Worksheet, Juvenile Worksheet, or Records Worksheet indicates that juvenile has a history of criminal mischief in the past 2 years.
  → Otherwise select "No" (= 0 points).

RAJI Item 12: History of assault

- Based on Juvenile Worksheet Item 12, Parent Worksheet Item 12, and Records Worksheet Item 8.
  → RAJI score should be "Yes" (= 1 point) if Juvenile Worksheet, Parent Worksheet, or Records Worksheet indicates that juvenile has a history of assault.
  → Otherwise score "No" (= 0 point)

RAJI Item 13: Number of runaways

- Based on Juvenile Worksheet Item 13, Parent Worksheet Item 13, and Records Worksheet Item 9.
  → RAJI score for "Estimated No. of Runaways" should be based on the highest number of runaways indicated by the Juvenile Worksheet, the Parent Worksheet, or the Records Worksheet

Highest number of runaways on parent, juvenile, or records worksheet	**Score on RAJI Item 13**
0-2	0-2 (= 0 points)
3-4	3-4 (= 1 point)
5 or more	5 or more (= 2 points)

RAJI Item 14: History of witnessing abuse

- Based on Juvenile Worksheet Item 14 and Parent Worksheet Item 14.
  → RAJI score should be "Yes" (= 1 point) if Juvenile Worksheet or Parent Worksheet indicates that the juvenile has a history of witnessing abuse.
  → Otherwise select "No" (= 0 point).

RAJI Item 15: Parental control

- Based on Juvenile Worksheet Item 15, Parent Worksheet Item 15, and Records Worksheet Item 15.
  → RAJI score should be based on the *most serious problem with control* as indicated by the Parent Worksheet, Juvenile Worksheet, or Records Worksheet.

Most Serious Problem with Control as Indicated by Parent, Juvenile or Records Worksheet	**Score on RAJI item 15**
1. No problem with control	Mostly Effective Control (= 0 points)
2. Small problem with control	Some Difficulty With Control (= 0 points)
3. Moderate problem with control	Some Difficulty With Control (= 0 points)
4. Large problem with control	No control (= 2 points)

RAJI Item 16: MAYSI 2 Alcohol/Drug Use score is 5 or higher

- Based on Records Worksheet Item .1
  → RAJI score should be "Yes" (= 1 point) if MAYSI – 2 Alcohol /Drug Use score is 5 or more
  → Otherwise score "No" (0 point)

RAJI Item 17: Total number of CPS Cases is 3 or More

- Based on Records Worksheet Item 2.
  → RAJI score should be "Yes" (= 1 point) if Records Worksheet indicates that 3 or more CPS cases have been opened on this juvenile.
  → Otherwise select "No" (= 0 points)

RAJI Item 18: History of evading arrest

- Based on Records Worksheet Item 5.
  → RAJI Score should be "Yes" (= 1 point) if Records Worksheet indicates that juvenile has ever resisted or evaded arrest.
  → Otherwise score "No" (= 0 point)

RAJI Item 19: History of disorderly conduct

- Based on Records Worksheet Item 6.
  → RAJI score should be "Yes" (= 1 point) if Records Worksheet indicates that juvenile has ever been referred for or engaged in disorderly conduct.
  → Otherwise score "No" (= 0 points).

RAJI Item 20: Either parent involved in CJS

- Based on Records Worksheet Items 10 and 11.
  → RAJI score should be "Yes" (=1 point) if Records Worksheet indicates that father or mother has one or more felony arrests or convictions within past 5 years.
  → Otherwise select 'No' (= 0 point)

Vita

Dilata Ranadive was born in Mumbai, India. She completed her Secondary School Certificate from Namdar Gopal Krishna Gokhale High School. She graduated with a Bachelor of Arts in Psychology from St. Xavier's College, Mumbai in 2003 and then completed her Masters in Social Psychology from the University of Mumbai in 2005. She worked with Committed Communities Development Trust, Mumbai, India conducting life-skill sessions with vulnerable children and collecting, analyzing and reporting data regarding vulnerable girls. Later, she worked with Aangan Trust, India providing psychosocial support to children and their families. She entered the Legal Psychology doctoral program in 2011. She also continues to work closely with the El Paso Juvenile Probation department.

Permanent address: 4111 Westcity Ct, #310
El Paso, Texas 79902
or
dranadive@miners.utep.edu