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Assessing the Predictive Utility of the Positive Achievement Change Tool at a Texas Juvenile Justice Agency

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ASSESSING THE PREDICTIVE UTILITY OF THE POSITIVE
ACHIEVEMENT CHANGE TOOL AT A TEXAS
JUVENILE JUSTICE AGENCY

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Elizabeth Perez Hutchins

2019

DEDICATION

**To my parents, who taught my siblings and I the value of hard work, kindness, and
humility.**

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ACHIEVEMENT CHANGE TOOL AT A TEXAS
JUVENILE JUSTICE AGENCY

by

ELIZABETH PEREZ HUTCHINS, M.A.

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ABSTRACT

In the United States, millions of youth are processed in the juvenile justice system each year. Juvenile probation officers, case managers, and clinicians have the daunting task of making critical case-processing decisions for this vulnerable population including program placement, supervision, and treatment. Moreover, juvenile justice professionals must be mindful of numerous factors such as risk to public safety and the juvenile's risk to reoffend when making these decisions. In recent years, juvenile justice agencies have employed the Risk-Need-Responsivity model, the pre-eminent evidence-based model for offender assessment and management, to aide in the decision-making process. Although implementation of risk assessment tools has improved the accuracy with which juvenile offenders are assessed and treated, lack of tool validation and poor implementation may have a negative impact on their predictive utility. The present research examines the predictive utility of the Positive Achievement Change Tool currently in use at a local Texas juvenile justice agency. Results demonstrated the tool's failure to predict recidivism at the state and technical violations level. The tool did demonstrate predictive utility at the agency-level, however the magnitude of effect was small. Regression analyses demonstrated the PACT Overall Risk Scores predictive power across recidivism types, however, the variance explained did not exceed 2%. Additionally, Criminal History Scores were not a significant predictor of recidivism. The practical and theoretical implications of the findings are discussed.

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INTRODUCTION

Although the number of juvenile offenders in the United States has declined over the past decade (Campbell, Onifade, Barnes, Peterson, Anderson, Davidson, & Gordon, 2014), a substantial number of adolescents are involved in the juvenile justice system (Vincent, Guy, Gershenson, & McCabe, 2012a). According to the Office of Juvenile Justice and Delinquency Prevention, an estimated 850,000 adolescents under the age of 18 were arrested in the United States in 2016 (OJJDP Statistical Briefing Book). Furthermore, an estimated 54,100 adolescents were held in out-of-home placements including juvenile detention facilities, corrections facilities, or group homes (Hockenberry, 2016).

Juvenile justice agencies have the onerous task of delivering justice through the application and enforcement of sanctions while providing youth with the rehabilitative tools and services to succeed as law-abiding citizens. However, the large volume of adolescents processed in our juvenile justice system leaves many agencies in a quagmire: having to make critical case-processing decisions such as dispositions (i.e. convictions), program placements (e.g. residential, community supervision, diversion programs), and treatment (e.g. individual and family counseling) (Young, Moline, Farrell, & Bierie, 2006), often with limited time and resources and limited information (Shook & Sarri, 2007). Further compounding the problem are the numerous factors that must be taken into consideration when making these decisions, including risk to public safety, risk to reoffend, the degree of criminal culpability, youth's competency to participate effectively in a trial, willingness to participate in rehabilitation, and the availability of alternative dispositions (Shook & Sarri, 2007).

To aid juvenile justice professionals and clinicians in this decision-making process, researchers have spent the last few decades developing and streamlining risk assessment tools

(Hamilton, Kigerl, Campagna, Barnoski, Lee, Van Wormer, & Block, 2014; Hoge, 2002; Young et al., 2006). In lay terms, risk assessment tools are designed to identify factors (e.g. offender traits, past criminal behavior) that place individuals at a higher risk of engaging in future delinquent behavior (Miller & Maloney, 2013). Once risk level is established, justice professionals are better equipped to assign appropriate sanctions and rehabilitative services with the goal of preventing future offending (Schwalbe, 2007). Numerous juvenile risk assessment tools have been developed and implemented across a wide variety of contexts with varying degrees of success (Schwalbe, 2007).

This dissertation examines juvenile risk assessment in a field setting. Specifically, this project examines the predictive utility of the Positive Achievement Change Tool (Florida Department of Juvenile Justice, n.d.), a risk assessment instrument currently employed by the El Paso Juvenile Probation Department in El Paso, Texas to assess risk of re-offense among juvenile offenders. The following sections summarize key topics within the juvenile justice and risk assessment literature and highlight critical gaps that form the basis of the current study's research questions. A general overview of the juvenile justice system is provided as an introduction to this topic. Thereafter is a discussion of the history of risk assessment tools, outlining their theoretical and empirical origins as well as implementation practices. Finally, a discussion on the limitations inherent in the development and implementation of risk assessment tools will provide context for this study's research aims.

The Juvenile Justice System

The origins of the juvenile justice system in the United States can be traced to legal scholarship in 18th century Britain (DeMatteo, Wolbransky, & LaDuke, 2016). During that time, stakeholders in the British criminal justice system made the distinction between youth and adults,

the cutoff of which was considered to be age 14 (American Bar Association, 2007). The United States followed suit in 1899 with the establishment of the first juvenile courts in Chicago and Denver (DeMatteo et al., 2016). By the mid-1920s, 48 states had established separate courts for juvenile offenders (Coalition for Juvenile Justice, 1998).

In its infancy, the U.S. juvenile justice system took a rehabilitative approach, where youth were viewed as less culpable for their crimes and more amenable to rehabilitation than adults given inherent developmental differences (Mack, 1909; Redding, Sevin, Goldstein, & Heilbrun, 2005). Since then, the juvenile justice system has seen paradigm shifts fluctuating between punitive justice and rehabilitative justice (Andrews & Bonta, 2010; Andrews, Zinger, Hoge, Bonta, Gendreau, & Cullen, 1990b; Clarke, 2005; Feld, 1997). A prime illustration of this shift from a rehabilitative system to a punitive one occurred during the late 1960s. Supporters of a punitive juvenile justice system had two main criticisms of the rehabilitative paradigm (Fox, 1970; Hoge & Andrews, 2010a; Redding et al., 2005). First, they argued that the rehabilitative juvenile court system lacked protections offered in the adult justice system including due process (DeMatteo et al., 2016), a safeguard designed to ensure citizens are not unlawfully deprived of their legal rights (e.g. the right to be tried by a jury of one's peers, protection against self-incrimination). This lack of due process often resulted in adolescents being found guilty based on judge discretion, rather than the presence of evidence (DeMatteo et al., 2016). Second, the lack of a sound community rehabilitative infrastructure (or a complete absence of it) resulted "in the *de facto* incarceration of juveniles for indeterminate periods of time" (DeMatteo et al., 2016, p. 367).

A number of these concerns were addressed in subsequent U.S. Supreme Court decisions (see *Kent v. United States*, 1966; *In re Gault*, 1967; *In re Winship*, 1970), which granted youth

due process (with the exception of a trial by jury, see *McKeiver v. Pennsylvania*, 1971), the right to counsel (*In re Gault*, 1967), increased the number and length of rehabilitative dispositions, and ensured that youths' judicial outcomes were based on the nature of the offense rather than a judge's discretion (*In re Winship*, 1970). Proponents of a punitive approach were not satisfied, however. The increase in violent crimes committed by adolescents in the 1980s and 1990s (Hoge & Andrews, 2010a; Redding et al., 2005) coupled with a lack of effective rehabilitative interventions (Martinson, 1974) solidified the shift from a rehabilitative juvenile justice system to one geared towards retribution. As a result, a number of punitive programs designed for adolescent offenders rose in popularity. Examples include electronic monitoring (EM) and Scared Straight (Finckenauer, 1982), deterrence programs designed to discourage youth from future delinquent behavior through intensive supervision and brief exposure to the adult system.

Despite the surge of "get tough" policies and sanctions, empirical evidence across numerous fields (e.g., corrections, clinical psychology, and criminology) has failed to provide support for their economic and rehabilitative effectiveness (Andrews et al., 1990b; Andrews & Bonta, 2010; Lipsey, 2009). First, the rates for violent crimes increased substantially. For example, the rate of violent crime among juvenile offenders increased 33% between 1989 and 1998 (U.S. Department of Justice, 2001). Within the violent crime category, the rate of homicides committed by youth between ages 14-17 increased 172% between 1985 and 1994 (Bureau of Justice Statistics, 1996). Second, the number of youth classified as adults increased (Clarke, 2005) while youth who remained in the juvenile system were given longer and more punitive sentences. Third, rehabilitative efforts became less individualized (Redding, Goldstein, & Heilbrun, 2005) and more punitive in nature. The goal of matching treatment to youth needs fell by the wayside (Feld, 1997) in favor of more punitive programs that prioritize intensive

supervision and surveillance (e.g. boot camps, electronic monitoring, and Scared Straight; Lipsey, 2009). This increase in harsher and longer sentences, coupled with less rehabilitation-focused treatment programs resulted in increased rates of reoffending among youth (Lipsey, 2009).

Today, our juvenile justice system attempts to balance the tenets of rehabilitative and punitive approaches (DeMatteo et al., 2016) where accountability and retribution are intertwined with treatment and rehabilitation (Tate & Redding, 2005; Wilson & Howell, 1995). Currently, one of the most prominent areas of interest in this hybrid system concerns juvenile risk assessment. Juvenile justice professionals, clinicians, and researchers alike want to know: What is the likelihood that a youth will recidivate and how can rehabilitative efforts reduce this risk (Conroy & Murray, 2007; Schwalbe, 2007)? In order to answer this question, it is important to consider both the theory behind criminal behavior, as well as a structured framework for how to manage offenders. Andrews et al. (1990b) offer both a theoretical and practical model that addresses these concerns.

Psychology of Criminal Conduct

The Psychology of Criminal Conduct (PCC) perspective was originally developed more than thirty years ago (Andrews, 1980) to help explain the complexity and variability of criminal behavior at the individual level (Andrews et al., 1990b). This psychological perspective takes a multidisciplinary view of criminal behavior through its recognition that criminal behavior is developed and affected by a variety of personal, interpersonal, social, and biological factors (Andrews & Bonta, 2010). The key goal of the PCC perspective is to establish correlates and covariates of offending that help explain *individual* differences in criminal behavior (Andrews & Bonta, 2010). This makes it particularly useful for risk assessment and rehabilitative planning

efforts (Ogloff & Davis, 2004). Although the PCC acknowledges the contributions of biological, psychopathological, and social context factors in explaining criminal behavior (see Bonta & Andrews, 2017), it is predominantly focused on general personality and cognitive social learning perspectives (Ogloff & Davis, 2004).

General Personality and Cognitive Social Learning Approach

The General Personality and Cognitive Social Learning Approach to criminal conduct (GPCSL) forms the theoretical groundwork of the PCC and its practical application, the Risk Need Responsivity model for offender risk assessment and management (Andrews & Bonta, 2010). The GPCSL theory is heavily influenced by criminological theories including strain theory (Merton, 1938), subcultural theory (Cohen, 1955), labeling (Becker, 1963), Marxist/conflict theory (Marx, 1848), control theories (Reckless, 1957), and differential association theory (Sutherland, 1939). These criminological theories took on a class-based sociological perspective that described criminal behavior as a product of social location (i.e. poverty, social class, race, etc.), societal imbalance, and social injustice (Bonta & Andrews, 2017).

Early criminological theories attribute variability in criminal behavior at both the individual and aggregate level to one's social class of origin. For example, according to Robert Merton's (1938, 1957) Strain Theory, individuals with low socioeconomic status (SES) are unable to achieve success through legitimate means (e.g. a high paying job). Therefore, they resort to the use of illegitimate means to achieve success or they create a subculture in which behavioral expectations are more easily attained (Bonta & Andrews, 2017). Other times, as labeling and conflict theories postulate, individuals will end up accepting the label of "criminal"

given to them by the upper class that make the societal rules (Black, 1976; Dahrendorf, 1959; Petrocelli, Piquero, & Smith, 2003; Quinney, 1970; Turk, 1969; Vold, 1958).

Later criminological theories including control and differential association theories did not view social class as a major risk factor of criminal behavior (Hirschi, 1969). Instead, they attributed criminal behavior to an individual's inability to develop behavioral control (Reckless, 1967). Additionally, control and strain theories posit that poor interpersonal relationships and lack of adequate education and work success also play a role in criminal behavior (Bonta & Andrews, 2017). Other major risk factors, as outlined by differential association theory, included pro-criminal associates and pro-criminal thinking. According to Bonta and Andrews (2017), the advantage of control and differential association theories over those of strain, label, and control is their wider range in terms of assessment and intervention. The GPCSL theory is a confluence of psychological, social, and biological factors that influence behavior (both criminal and non-criminal) (Bonta & Andrews, 2017). Figure 1 illustrates how these factors work in tandem to influence and maintain criminal behavior. Bonta and Andrews (2017) note that although the model illustrates multiple routes to delinquent behavior, these may vary from person to person. For example, despite the model including family/marital problems as a correlate of criminal behavior, not all offenders have a dysfunctional family or marriage.

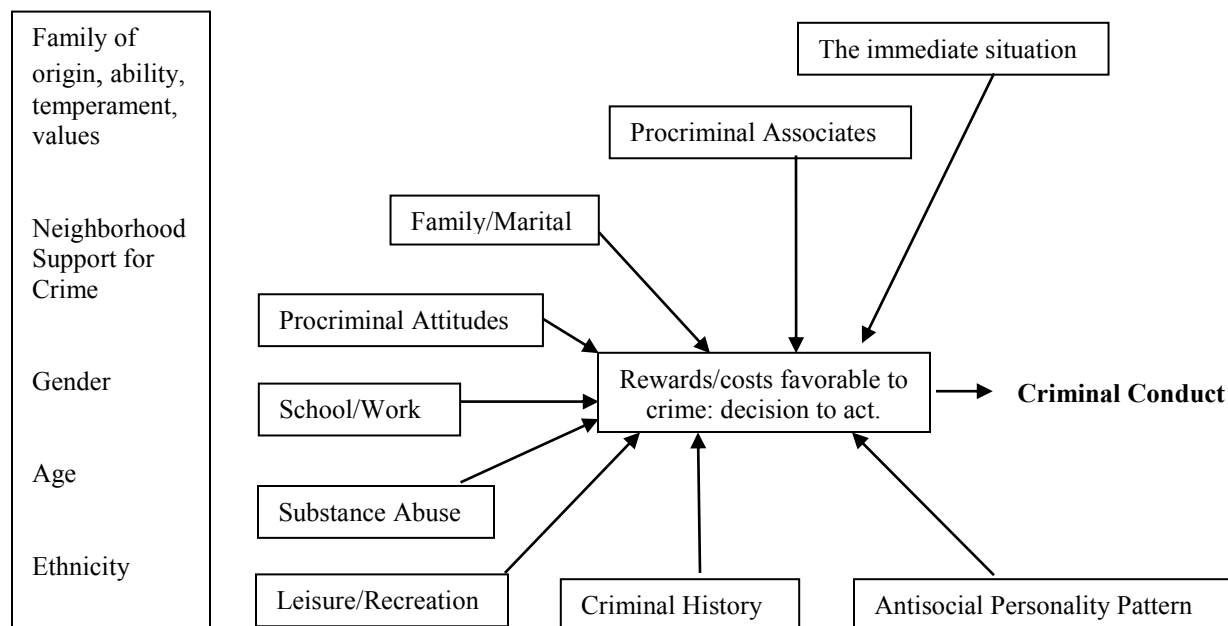


Figure 1. A General Personality and Cognitive Social Learning Perspective. Adapted from Bonta and Andrews (2017), p. 44.

In the GPCSL theory, the principles of rewards and costs are fundamental in the acquisition, maintenance, and modification of behavior (Bonta & Andrews, 2017). As outlined in Skinner's (1938) operant learning theory, rewards increase the likelihood of behavior, while costs decrease the likelihood of behavior. However, unlike in operant learning theory, where rewards and costs occur after a behavior, the GPCSL theory states that rewards and costs can occur before or after to influence behavior (Bonta & Andrews, 2017). These antecedents and consequences of behavior include additive and subtractive events (Bonta & Andrews, 2017). Additive rewards add something pleasant to the environment (e.g. receiving praise for completing an assignment) while additive costs add something unpleasant to the environment (e.g. being scolded for giving the wrong answer to a question in class). Similarly, subtractive rewards take away something unpleasant, while subtractive costs remove something that is pleasant.

As with the correlates of criminal behavior outlined in Figure 1, rewards and costs vary from person to person, as does their level of influence on behavior. What constitutes a reward or cost also depends on various factors such as genetic predisposition (e.g. the rewarding effects of a drug/alcohol may depend on the reward pathways in the brain), cognitive functioning (e.g. issues with impulsivity), and human development (Bonta & Andrews, 2017). Individual physical (e.g. traumatic brain injury) and cognitive characteristics (e.g. learning disability) also play a role in how one responds and learns from rewards/costs. As Bonta and Andrews (2017) note, these factors may be permanent, temporary, chronic, or acute. Additionally, rewards and costs may operate on different schedules (Skinner, 1938). Within the GPCSL theory, this is known as the *density* of rewards/costs (Bonta & Andrews, 2017). In terms of criminal behavior, the likelihood of its occurrence is a positive function of the signaled density of rewards for prosocial behavior and a negative function of the density of the costs for that same behavior (Bonta & Andrews, 2017). Put simply, criminal behavior is most likely to occur when the rewards of criminal behavior outweigh the costs (and when those costs are minimal).

In addition to providing a framework for explaining criminal behavior, the GPCSL theory brings salience to what Bonta and Andrews (2017) term the Central Eight risk factors of criminal behavior. These eight risk factors include: (a) procriminal associates; (b) antisocial personality (e.g. low self-control, disregard for others); (c) procriminal attitudes; (d) social achievement (in education and/or employment); (e) leisure/recreation (i.e. lack of involvement in prosocial activities); (f) family/marriage (e.g. dysfunctional family relationships); (g) substance abuse; and (h) criminal history (Andrews & Bonta, 2010). Seven of the eight risk factors are examples of *dynamic risk* factors. Dynamic risk factors, also referred to as *criminogenic needs*, are risk factors that have high causal relationships to criminal behavior but can be changed through

targeted intervention (Andrews & Bonta, 2010; Andrews, Bonta, Hoge, 1990a). These factors cover a wide breadth of domains including occupational, family, social, and substance use (Bonta & Andrews, 2007). On the other hand, *noncriminogenic needs* are those that have little to no direct relationship to offending. Examples include having a mental health disorder, history of victimization, and fear of official punishment. Unlike criminogenic needs, or dynamic risk factors, noncriminogenic needs should *not* be targeted for intervention as they can result in either no appreciable effect or even increased recidivism (Andrews & Dowden, 2007). Criminal history on the other hand, is an example of a *static risk factor*. These factors concern individuals' previous behavior (e.g. vandalizing school property when they were younger). As such, static risk factors cannot be changed (Andrews et al., 1990a).

The Central Eight risk factors have demonstrated the strongest correlation to delinquent behavior across meta-analytic studies examining correlates of criminal behavior (Bonta & Andrews, 2017). Risk assessment tools that incorporate the Central Eight have demonstrated sound predictive validity across populations including juvenile offenders (Grieger & Hosser, 2014), members of ethnic minority groups (Gutierrez, Wilson, Rugge, & Bonta, 2013), and drug offenders (Wooditch, Tang, & Taxman, 2014). Furthermore, the utilization of the Central Eight as direct targets of intervention have led to significant decreases in risk to reoffend (Bonta & Andrews, 2017). Andrews and Bonta (2010) emphasize the notion that the more criminogenic needs an offender has, the higher their level of risk to reoffend. As such, high-risk offenders require not only more services, but also a wider breadth of services (Andrews & Bonta, 2010). In sum, the GPCSL theory and the Central Eight risk factors of criminal behavior serve as the theoretical and empirical basis for the Risk-Need-Responsivity model of offender assessment and management.

Application of the Risk-Need-Responsivity Model in Juvenile Justice

The Risk-Need-Responsivity (RNR) model is the practical application of the theories discussed previously and is considered the most pre-eminent evidence-based model utilized by adult and juvenile justice agencies to address offender risk assessment and rehabilitative programming (Andrews, Bonta, & Wormith, 2011; Andrews & Dowden, 2007; Howell, Lipsey, & Wilson, 2014; McGrath & Thompson, 2012; Peterson-Badali, Skilling, & Haqanee, 2015; Vose, Lowencamp, Smith, & Cullen, 2009). Since Andrews et al.'s (1990b) landmark study, subsequent meta-analyses have demonstrated the RNR model's robustness across settings, criminal behaviors, and subtypes of offenders (Andrews & Bonta, 2010). For example, adherence to the RNR model has demonstrated reduced recidivism across community and corrections settings (Andrews & Bonta, 2010), and its principles are generalizable to a broad range of populations including violent offenders (Dowden & Andrews, 2000), women (Dowden & Andrews, 1999b), members of ethnic minority groups (Andrews & Bonta, 2006; Andrews, Dowden, & Rettinger, 2001), and youth (Andrews et al., 1990b; Dowden & Andrews, 1999a).

Risk principle

The first "R" of the RNR model consists of two central tenets: prediction and matching (Ogloff & Davis, 2004). Prior to classifying a juvenile offender and developing a treatment plan or intervention, their level of risk to reoffend is assessed. Risk levels are derived when the static and dynamic risk factors discussed previously are successfully identified. Once a risk level has been generated, (e.g., generally, "low", "medium", medium-high", and "high"), both the type and intensity of intervention should be commensurate with an offender's level of risk to reoffend (Andrews & Bonta, 2003, 2010). This is one of the most critical steps in risk assessment for numerous reasons. First, providing intensive services to adolescents deemed to be low-risk could

result in iatrogenic effects (Andrews & Dowden, 2006; Gatti, Tremblay, & Vitaro, 2009; Lipsey, 2009), which may increase their likelihood to reoffend (Andrews & Dowden, 2006; Bonta, Wallace-Capretta, & Rooney, 2000; Lipsey, 2009). Instead, low-risk offenders (in both adult and juvenile populations) have better outcomes after receiving less intensive services and interventions (Andrews & Bonta, 2003; Lipsey, 2009). Meanwhile, an increase in these types of services have produced the highest reduction in reoffending amongst high-risk level groups (Andrews & Dowden, 2006). Thus, it is best to reserve such resources for adolescents who are at higher risk to reoffend, as empirical evidence has demonstrated they stand to make the most significant change (Brogan, Haney-Caron, NeMoyer, & DeMatteo, 2015; Lipsey, 2009).

Need principle

The need principle of the RNR model focuses on criminogenic needs derived from the General Personality and Cognitive Social Learning framework (Andrews & Bonta, 2006) discussed above. Cottle, Lee, and Heilbrun (2001) conducted a meta-analysis to identify specific domains indicative of criminogenic needs (dynamic risk factors) specific to the youth population. They found that family factors, social factors such as negative peers, unstructured leisure time, and conduct problems (e.g. impulsivity, antisocial attitudes) were key criminogenic needs. Other criminogenic needs identified in the literature concern problems within the realm of education, substance use, and anger management (Vieira, Skilling, & Peterson-Badali, 2009).

Brogan et al. (2015) discuss barriers that impede the adherence to the need principle including (a) the over-identification of needs; (b) the treatment of irrelevant dynamic risk factors; and (c) the instability of criminogenic needs due to changes in youths' age and natural development. Often, juvenile offenders receive unnecessary interventions as a result of the over-identification of a need (Luong & Wormith, 2011). For example, a youth may be sentenced to

substance abuse treatment based on a single instance of underage drinking. This can in turn expose the youth to deviant peers with strong antisocial attitudes that may negatively influence the youth and increase their likelihood to reoffend (Vincent, 2011). Similarly, treating dynamic risk factors that are not relevant to youth offending can produce the same effect. Additionally, this diverts valuable resources away from adolescents who are in need of such services (Vincent, 2011). As youth grow and develop, it is imperative that criminogenic needs are continually assessed and reassessed in order to account for their dynamic nature and to identify the most effective interventions (van der Put, Stams, Hoeve, Dekovic, Spanjaard, Van der Laan, & Barnoski, 2012). Failing to address these barriers to the needs principle can jeopardize the economic and rehabilitative effectiveness of treatment programs and services for juvenile offenders.

Responsivity principle

The last “R” of the RNR model is the responsivity principle. The responsivity principle has two components: general responsivity and specific responsivity (Andrews & Bonta, 2010). General responsivity emphasizes the use of cognitive social learning methods in the rehabilitation of offenders (Bonta & Andrews, 2007) and recognizes that successful treatment is contingent upon the adherence to these principles (Andrews & Bonta, 2010). Specific responsivity takes into account offenders’ individual characteristics such as cognitive ability, learning style, motivation, anxiety, and verbal skills (Andrews & Bonta, 2010; Ogloff & Davis, 2004; Ward et al., 2007; Wong, 2000). These are of particular importance among youth populations given the variance in their developmental stages. As with criminogenic needs, responsivity factors should be used to match offenders with the appropriate treatment services.

Within the juvenile justice setting, the responsivity principle is the least researched principle of RNR (Brogan et al., 2015). Vieira et al. (2009) suggests that this gap in the literature concerning RNR and juvenile justice exists due to the inherent difficulty of separating needs factors and responsivity factors. In addition, professional discretion during the placement decision process may also impede the proper implementation of the responsivity principle within a juvenile justice setting (Jones & Wyant, 2007). Other research suggests that responsivity factors may play little or no role in treatment decisions (Luong & Wormith, 2011).

Professional discretion

Professional discretion, or professional override, is sometimes described as the fourth component of the RNR model (Andrews et al., 1990a). This principle emphasizes the importance of allowing professional overrides provided certain circumstances. For example, a youth who is categorized as high risk may not necessarily benefit from residential placement due to a history of severe trauma (e.g. physical and sexual abuse). In fact, it may produce iatrogenic effects including the worsening of mental health symptoms and increased criminality given their increased exposure to delinquent peers (Gatti et al., 2009). Thus, a certain level of flexibility given the appropriate circumstances is a vital component of the RNR model for risk assessment.

Importance of Risk Assessment Measures

As previously stated, a key principle of RNR is the categorization of offenders according to risk to reoffend with the goal of allocating sanctions and rehabilitative services commensurate to their level of risk (Andrews et al., 1990b). During the last two decades, the use of risk assessment tools within the juvenile justice system has increased from 33% in 1990 to 86% in 2003 (Griffin & Bozynski, 2003; Schwalbe, Fraser, & Day, 2007). This increase has been generated, in part, as a result of recommendations made by the Juvenile Justice Delinquency

Prevention Act (JJDP A) of 2002. According to the JJDP A, juvenile justice agencies have the responsibility to assist states “...in the design and utilization of risk assessment mechanisms to aid Juvenile Justice Personnel in determining appropriate sanctions for delinquent behavior” (42 U.S.C. § 5601, p. 18). Moreover, criminal behavior should be addressed by quality prevention programs (Vincent et al., 2012a) that are “designed to reduce risks and develop competencies in at-risk juveniles that will prevent and reduce the rate of violent delinquent behavior” (42 U.S.C. § 5601, p. 1).

In addition to predicting adverse outcomes, results of risk assessment tools can be applied in a variety of contexts. First, they aid criminal justice professionals (e.g. judges, probation officers, case managers, court referees) in numerous decision-making processes related to risk and level of need (Hoge, 2002). For instance, juvenile probation officers have the daunting task of making important decisions and recommendations related to out-of-home placements, referrals to services within the agency and the community, assigning supervision levels for juvenile offenders sentenced to probation, and determining intervention and treatment eligibility/priority (Hamilton et al., 2014; Vincent et al., 2012a), among others. Considering that the number of juvenile cases processed by courts has continued to increase despite the decline in juvenile delinquency (Puzzanchera, Adams, & Sickmund, 2011), facilitating the decision-making process is vital.

Second, risk assessment tools serve as a protective mechanism that can reduce bias throughout this decision-making process. Although there are statutes, administrative guidelines, and operating procedures in place to help guide criminal justice professionals in their decision-making, there can be considerable variability in decision-making processes (Hoge, 2002). Part of this variability in discretion results from a lack of clear decision criteria (Hoge, 2002). Other

times, officers override the results of risk assessment measures or even manipulate the risk assessment scores in order to produce results that are consistent with their subjective judgments (Miller & Maloney, 2013). Furthermore, this discretion filters into subsequent decision-making points (e.g. initial case processing, sentencing, placement) that impact youth outcomes long after they leave the juvenile system (Hoge, 2002). Although some level of discretion is necessary, the lack of uniformity in the decision-making process can (and has) introduced bias (Gottfredson & Gottfredson, 1988; Grisso, Tomkins, & Casey, 1988; Hoge, 2002; Minor, Hartmann, & Terry, 1997; Sanborn, 1996; Schissel, 1993). For example, it is estimated that ethnic minorities comprise 68% of the residential placement juvenile population (Hockenberry, 2016). Moreover, the commitment rates of African American youth are four times the rate of White youth, while their detention rates are six times that of Whites (Hockenberry, 2016). Researchers have suggested that utilizing risk assessment tools results in more objective decision-making as well as increased justice personnel accountability (Hoge, 2002; Jones, Harris, Fader, & Grubstein, 2001; Wiebush, Baird, Krisberg, & Onok, 1995).

Lastly, risk assessment tools can serve to reduce recidivism and improve youth treatment outcomes (Funk, 1999; Hoge, 1999; Howell, 1995, 2003). Risk assessment tools provide probation officers and other stakeholders with useful information about specific risk factors (e.g. negative peers, low levels of education, age at first offense) that place youth at a higher risk to reoffend (Funk, 1999). Having information regarding a youth's specific risk factors allow probation officers and treatment providers to focus their efforts on addressing the risk factors that will make a meaningful impact. Additionally, the use of risk assessment tools can improve the cost effectiveness of juvenile justice programs and services. As noted by Campbell and colleagues (2014), "The long-term costs of juvenile offending have placed a premium on

efficiently assessing and treating juvenile offenders” (p. 20). Currently, annual costs incurred by juvenile justice agencies nationwide are in the billions of dollars (Onifade, Davidson, Livsey, Turke, Horton, Malinowski,... & Wimberly, 2008). However, only a small portion of repeat juvenile offenders (roughly 8%; Schumacher & Kurz-Gwen, 2000) are responsible for the bulk of criminal offenses (Loeber & Dishion, 1983; Moffit, 1993; Schumacher & Kurz-Gwen, 2000; Snyder & Sickmund, 2006). Thus, the ability to identify youth that are at higher risk to reoffend is a critical step in reducing costs by reserving scarce resources for high-risk juvenile offenders.

To summarize, risk assessment tools serve various critical functions. First and foremost, they aid criminal justice professionals with assessing an individual’s potential for violence and/or likelihood to reoffend. Second, they help to reduce potential racial, ethnic, and gender biases in the decision-making process by providing more structure and guidance during the numerous stages of the criminal justice system. Finally, risk assessment tools help to improve criminal justice and treatment outcomes through more cost-effective programs and services that target specific risk (and protective) factors. The following section will provide concrete examples of various youth risk assessment measures that have been utilized over time.

History of Risk Assessment Tools

The field of juvenile risk assessment broadly and juvenile risk assessment tools specifically, borrow heavily from adult risk assessment research and practice (DeMatteo et al., 2016; Schmidt, Campbell, & Houlding, 2011). The focus of this section is the basic principles and key features of each generation of instruments as outlined in the adult system literature, followed by examples of how these measures have been modified and implemented with adolescent populations.

Risk assessment tools have been a part of our criminal justice system since Burgess (1928) demonstrated their efficacy in predicting recidivism among adult parolees in Illinois. Instead of utilizing what we now know as clinical judgment, or a decision based on professional experience, Burgess (1928) was the first to utilize a statistical approach to risk assessment. This was accomplished through the creation of prediction tables using adult parolees' criminal histories. Burgess's (1928) 21-item risk assessment tool outperformed prison psychiatrists in predicting recidivism for 3,000 offenders. In the 1950s, Glueck and Glueck (1950) applied a similar prediction table method to juvenile delinquency. Approximately 500 male adolescent offenders and 500 male adolescent non-offenders were matched on multiple factors (e.g. age, ethnicity, and residence in low-income areas) based on previous research that demonstrated their association with offending among adolescents (Glueck & Glueck, 1930). Through the control of these variables, the Gluecks' (1950) were able to examine the relationships between delinquency and other factors such as school and mental health. They found that factors including procriminal attitudes, poor parental supervision, and a history of multiple rule violations, were indicative of an increased likelihood to engage in delinquent behavior. Notably, these results demonstrate the longevity of these risk factors (many of which comprise the Central Eight) in predicting juvenile offending.

Since this seminal work from Burgess (1928) and Glueck and Glueck (1950), risk assessment tools for adults and youth have evolved significantly and are traditionally described in generation terms throughout the risk assessment literature (Bonta, 1996; Ferguson, 2002). With each successive generation, nuanced improvements have been developed (Baird, 2009). In their infancy, risk assessment tools were void of structure and lacked empirical support (Schwalbe, 2007). For instance, first-generation tools involved nothing more than a clinician's

professional judgment or the “intuition of the individual conducting the assessment” (Young et al., 2006, p. 137). Similarly, treatment and case management decisions such as when to see a client or which violations to enforce/ignore were often left at the discretion of the probation officer (Maupin, 1993). Professional discretion was particularly important during the early stages of the juvenile justice system given the absence of key judicial protections offered exclusively in the adult system (e.g. due process, punitive limits, trial by jury; DeMatteo et al., 2016).

Second-generation tools are more objective than their predecessors in that they utilize statistical information concerning repeat offending to predict recidivism. Although this was an improvement from first-generation tools, second-generation tools have their limitations. First, they rely heavily on *static* factors (i.e. factors that cannot be changed) such as history of substance abuse, age at first offense, and criminal history (Ogloff & Davis, 2004; Young et al., 2006). By relying on static factors, second-generation tools do not allow the possibility of diminished risk (Bonta & Andrews, 2007). For example, if an individual has a history of substance abuse, their level of risk will either remain the same or increase even if they come to a point where they can successfully abstain from substances (Bonta & Andrews, 2007). Another limitation of second-generation tools stemming from their reliance on static factors is that they have poor utility when it comes to service delivery decisions and the development of treatment plans (Schwalbe, 2007).

The North Carolina Assessment of Risk (NCAR; Schwalbe, Fraser, Day, & Arnold, 2004) is an example of a second-generation risk assessment tool. The NCAR is a brief, 9-item tool that combines static risk factors such as age at first offense and prior assaults with dynamic risk factors including peer relations and substance use (Schwalbe et al., 2004). Scores on all 9 factors are pooled together to form one cumulative risk score that is then used to place youth into

various risk categories (e.g. low, medium, high). A recent meta-analysis on the predictive capabilities of various instruments revealed that the NCAR performed poorly compared to alternative risk assessment instruments in the literature (Schwalbe, 2005). Researchers argued that the NCAR's brevity comes at the expense of the increased accuracy found in longer instruments that incorporate a more comprehensive range of risk factors (Schwalbe et al., 2007).

Unlike second-generation tools, third-generation tools are sensitive to change with their incorporation of *dynamic* risk factors (Bonta & Andrews, 2007). Unlike previous generations, which focused exclusively on classification and prediction, third-generation tools also inform intervention planning (Schwalbe, 2007). Given that criminogenic needs or dynamic risk factors are predictive of future offending and are amenable to change, targeting these factors with interventions should help reduce recidivism (Andrews et al., 1990a). Additionally, third-generation tools assist criminal justice professionals in the decision-making process throughout the various stages of the justice system (e.g. disposition, sentencing, placements based on security levels, and the like; Young et al., 2006) as well as providing a means to track the effectiveness of programs and services (Bonta & Andrews, 2007).

One of the most widely used third-generation juvenile risk assessment tools is the Youth Level of Service/Case Management Inventory (YLS/CMI; Hoge & Andrews, 2001). The measure is based on the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995), an adult risk assessment tool commonly used in Canada and the United States (Schmidt, Hoge, & Gomes, 2005). The YLS/CMI is a 42-item measure covering eight distinct risk domains that incorporate variables identified as correlates and causes of youth delinquency in the juvenile justice literature (see reviews by Cottle et al., 2001; Farrington, 1997; Hawkins, Herrenkohl, Farrington, Brewer, Catalano, & Harachi, 1998; Lipsey & Derzon, 1998; Loeber & Dishion,

1983). These eight domains include (a) prior and current offenses; (b) family circumstances/parenting; (c) education/employment; (d) peer relations; (e) substance use; (f) use of leisure time; (g) personality/behavior; and (h) attitudes/orientation (Hoge & Andrews, 2001). Like other risk assessment tools, scores on the eight domains are summed to form a cumulative risk score which is then used to categorize youth into one of four ordinal levels of risk (i.e. low, medium, high, and very high) (Hoge, 2001). The YLS/CMI can be used by various types of juvenile justice professionals (e.g. probation officers, clinicians) across multiple decision areas (Hoge, 2001). Moreover, it has demonstrated to be a robust risk assessment tool across various studies (Hoge & Andrews, 1996; Jung, 1996; Jung & Rawana, 1999; Schmidt et al., 2005). In addition to incorporating dynamic and static risk factors that facilitate judicial decision-making, fourth-generation tools provide the key link between assessment and case management (Andrews & Bonta, 2003). This is done through the inclusion of *protective* factors. Protective factors can be thought of as individual strengths or circumstances that help a person overcome barriers to success (Baird, Healy, Johnson, Bogie, Dankert, & Scharenbroch, 2013). These factors are important to the efficacy of interventions as well as case management and treatment decisions. Furthermore, fourth-generation tools result in a more accurate match between criminogenic needs and treatment options than its predecessors (Brogan et al., 2015). Risk assessment tools have improved the way in which criminal justice professionals assess an individual's potential for violence and/or likelihood to reoffend (Brogan et al., 2015; DeMatteo et al., 2006; Hoge, 2002). The systemization of risk assessment with these tools has also helped reduce potential racial, ethnic, and gender biases in the decision-making process by providing additional structure and guidance across the numerous stages of the criminal justice system (Brogan et al., 2015; DeMatteo et al., 2006; Krysik & LeCroy, 2002; Young et al., 2006). Lastly,

risk assessment tools have helped to improve criminal justice and treatment outcomes through the delivery of more cost-effective programs and services that target specific risk factors and are aligned with evidence-based practice (Andrews & Dowden, 2006; Andrews et al., 1990b; Dowden & Andrews, 2004; Krysik & LeCroy, 2002).

Limitations of Risk Assessment Tools

Despite advances in risk assessment and the tools that measure risk, there are important limitations that criminal justice and clinical professionals should be mindful of. The most impactful limitations pertain to the areas of predictive utility and instrument implementation (i.e. fidelity).

Threats to predictive utility

There are numerous factors that threaten the predictive utility of risk assessment tools. Some limitations concern the two classes of risk assessment tools that are currently available to juvenile justice professionals and clinicians: generic or “off-the-shelf” tools and “jurisdiction-specific” tools (Hamilton et al., 2014). Another limitation concerns the predictive power of risk assessment instruments over time (Barnes, Campbell, Anderson, Campbell, Onifade, & Davidson, 2016).

Generic/“Off-the-shelf” tools. As the name implies, “off-the-shelf” tools are those that are created in one jurisdiction and then implemented by an agency elsewhere. The adoption of generic, off-the-shelf tools is a popular option given the lack of resources endemic in criminal justice agencies (Wright, Clear, & Dickson, 1984). Moreover, requirements imposed by state legislatures, where the state decides which tool agencies will use, further contributes to the reliance on generic measures of risk.

Research by Miller and Lin (2007) illustrates the issues that arise when a generic risk assessment tool is implemented in a context different from the one in which it was originally developed. They examined the use of the Model Risk Assessment Instrument (MRAI; Juvenile Sanctions Center, 2002) with youth data from the city of New York. The goal of the study was to examine the predictive utility of a generic juvenile risk assessment tool, both before and after its validation within the local population (Miller & Lin, 2007). The MRAI, developed through research conducted by the National Council on Crime and Delinquency, incorporates risk factors that have been found to be highly predictive of juvenile offending across the juvenile risk assessment literature (e.g., peer associations, poor academic performance, poor family relations; Miller & Lin, 2007). A number of limitations arose when applying the MRAI to a sample of juvenile offenders in New York City (Miller & Lin, 2007). First, the data required to complete the tool was either not available in the precise form required by the MRAI or it was unavailable altogether. Further compounding the problem, the instrument's manual did not provide guidelines as to how missing data should be handled. Another limitation was the poor predictive utility exhibited by the MRAI, despite the authors' efforts to validate and adapt the tool to the local context (Miller & Lin, 2007). Additionally, the MRAI's performance in both its pre- and post-validated forms exhibited *worse* predictive utility than probation officers' clinical judgment. The MRAI's poor performance as a risk assessment tool within the jurisdiction of study highlights the fact that although some predictor variables will overlap across jurisdictions, others will not. In the case of the Miller and Lin (2007) study for example, a younger age at first referral was predictive of *lower* recidivism rather than higher recidivism, as is the case with the MRAI specifically and the juvenile risk assessment literature more broadly.

Jurisdiction-specific tools. To avoid the issues encountered when utilizing generic measures of risk, some juvenile justice agencies opt to create their own risk assessment tool (i.e. jurisdiction-specific tools). Ideally, creating a risk assessment tool that is specifically tailored to a jurisdiction should address the pitfalls of implementing “off-the-shelf” tools discussed above. However, jurisdiction-specific tools have their share of limitations. First and foremost, creating, implementing, and measuring the predictive utility of a jurisdiction-specific tool properly is a massive undertaking that requires a large amount of financial and human resources (Wright et al., 1984). Second, creating and validating a jurisdiction-specific instrument requires the expertise of highly trained researchers versed in advanced psychometric methodology and corrections research (Hamilton et al., 2014). Unfortunately, there are only a small group of researchers who dedicate their efforts to creating evidence-based risk assessment instruments (e.g. Andrews & Bonta, 1995; Baird, 1981; Barnoski & Drake, 2007; Hare, 1991; Latessa, Smith, Lemke, Makarios, & Lowenkamp, 2009). Moreover, their services (e.g. tool creation, tool validation, staff training, materials, data management, and the like) cost agencies tens of thousands of dollars in licensure, data management, and training fees (e.g. Assessments.com). Most agencies do not have the financial and expert resources to take on a task of this magnitude.

Regardless of the type of tool used, criminal justice stakeholders should not rely on instruments whose predictive utility have not been assessed (Wright et al., 1984). As previously discussed, not all risk factors of juvenile delinquency can be generalized across populations and settings (Cottle et al., 2001; Miller & Lin, 2007). Furthermore, researchers emphasize the importance of validating the predictive utility of risk assessment tools, both those that are pre-packaged or created elsewhere and those created in-house, within the first few months of their implementation (National Institute of Corrections, 1981; Jung & Rawana, 1999). Validating a

risk assessment instrument within the first few months of implementation allows agencies to address the potential for a tool's failing to classify cases as agencies expect them to (Jung & Rawana, 1999). In addition to wasting valuable time and monetary resources (Krysik & LeCroy, 2002; Vincent et al., 2012a), the use of poorly performing risk assessment tools could negatively impact the legal and treatment outcomes of adolescents (Jung & Rawana, 1999; Krysik & LeCroy, 2002; Onifade et al., 2008; Vincent et al., 2012a). As Jung and Rawana (1999) point out, "the risk level defined by these instruments influences the decisions made by courts, the probation officer, and the mental health professionals who come in contact with the youth" (p. 70).

Predicting risk over time. Currently, there is a paucity of research examining the predictive utility of dynamic risk factors across time (Barnes, et al., 2016). A cursory search of the juvenile justice literature yields only a handful of studies in which dynamic risk is assessed during and after court supervision (see Barnes et al., 2016 and Baglivio & Jackowski, 2015).

Failure to measure dynamic risk could pose a threat to the predictive utility of risk assessment instruments. First, research has demonstrated that risk to reoffend continually changes over time (Barnes et al., 2016). For example, as the preceding sections detailed, there is no shortage of dynamic risk factors (e.g. negative peers, substance use, and mental health issues) that contribute to continued delinquent behavior. As such, focusing exclusively on distal assessments of risk could have a negative impact on the predictive utility of risk assessment measures. Risk assessment research from the adult literature supports this (Brown, St. Amand, & Zamble, 2009; Dowden, Serin, & Blanchette, 2001; Jones, Brown, & Zamble, 2010; Schlager & Pacheco, 2011; Vose et al., 2009). Greiner, Law, and Brown (2014) measured various dynamic risk factors (e.g. employment, criminal associates, and criminal attitudes) among women

offenders across four, 6-month intervals. They found that proximal assessments of risk were more predictive of reoffending than initial measurements of risk. Howard and Dixon (2013) examined the predictive validity of initial risk scores, reassessment scores, and the change in scores. The latter scores were the most predictive of reoffending among violent offenders.

The sole reliance on initial risk scores is further problematic as it can confound the relationship between targeted intervention during supervision and recidivism with initial risk assessment and recidivism (Barnes et al., 2016). Few studies have examined the predictive validity of change risk scores with juvenile offenders (Baglivio & Jackowski, 2015; Barnes et al., 2016). In their study of dynamic risk among juvenile offenders, Baglivio and Jackowski (2015) compared the exit risk scores of 320 youth offenders in residential placement to determine whether a victim impact intervention successfully reduced reoffending. Among their findings was a reduction in recidivism among juveniles whose dynamic risk sub-scores on the Residential Positive Achievement Change Tool (R-PACT; Baglivio, 2009; Baglivio & Jackowski, 2013) decreased over time. Similarly, Barnes and colleagues (2016) compared the validity of initial, exit, and change risk scores on the YLS/CMI (Hoge & Andrews, 2001). Interestingly, they found that exit and change risk scores were predictive of reoffending one year post-supervision while initial risk scores did not.

In sum, there are various factors that serve as barriers to the predictive utility of juvenile risk assessment tools. Among them are the utilization of generic risk assessment tools that have not been validated to one's jurisdiction, reliance on risk assessment tools that have not been validated, period (i.e. jurisdiction-specific tools), and the failure to examine risk over time.

Threats to fidelity

In addition to using risk assessment measures with low predictive utility, employing poor implementation methods can be equally problematic, irrespective of an instrument's predictive capabilities. Many juvenile justice agencies fail to implement risk assessment tools with fidelity (Haqanee, Peterson-Badali, & Skilling, 2015; Vincent et al., 2012a), meaning that they are not implementing a tool the way it was intended. Various studies and meta-analyses in adult (see Harris, Gingerich, & Whittaker, 2004; Luong & Wormith, 2011) and juvenile justice literatures (Cottle et al., 2001) emphasize the importance of fidelity in the predictive utility of risk assessment instruments and their ability to reduce recidivism. Researchers have outlined numerous ways in which adult and juvenile justice agencies fail to adequately implement risk assessment tools including tool non-completion, tool manipulation, non-adherence to tool recommendations, failure to ensure staff buy-in, and lack of training, among others (Miller & Maloney, 2013; Vincent, Paiva-Salisbury, Cook, Guy, & Perrault, 2012b).

Often, decision-makers (e.g. clinicians, probation officers, attorneys, judges) fail to complete risk assessment tools altogether, despite it being standard policy of their agency (Miller & Maloney, 2013). For example, a field study by Haas and DeTardo-Bora (2009) found that out of the 128 corrections staff involved in a reentry initiative in West Virginia, more than one fourth reported they had never completed the required risk assessment instrument. Another study found risk assessment instruments were not used in almost 50 percent of juvenile risk assessments conducted at New Hampshire juvenile justice agencies (Gebo, 2002).

Some decision-makers fail to implement a risk assessment tool with fidelity by manipulating or altering the results of an assessment to fit their perception of a youth's risk (Miller & Maloney, 2013). Tool manipulation typically occurs when the decision-maker does not

believe that a risk assessment tool produces reliable results (Gebo, 2002; Miller & Maloney, 2013; Shook & Sarri, 2007). For example, Gebo, Stracuzzi, & Hurst (2006) discussed how some decision-makers at a juvenile court manipulated the local detention tool by adding extra points to youth risk scores because they felt the tool was not taking into account variables they felt were important. Other decision-makers alter risk assessment tools when there is a lack of available programs that correspond with a tool's recommendations (Miller & Maloney, 2013). Lyle and Graham (2000) for instance, found that workers at a child-welfare agency inflated risk scores to ensure that clients would qualify for continued services.

Another way that decision-makers in the juvenile justice system fail to implement risk assessment instruments with fidelity is by failing to adhere to tool recommendations (Miller & Maloney, 2013; Viglione, Rudes, & Taxman, 2014). Shook and Sarri (2007) conducted a field study at 12 juvenile courts across four states in which they surveyed decision-makers on issues related to their use of risk assessment tools and their perceived usefulness at various decision-points in the juvenile justice system (e.g. pretrial detention, post-adjudication placement, post commitment placement, release). They found that although the use of risk assessment tools was present, decision-makers often reported not utilizing the information generated by these tools. They cited the lack of program availability and disagreements with tool recommendations as reasons for overriding risk assessment tools (Shook & Sarri, 2007). Similarly, close to two-thirds of probation officers in an Arizona juvenile court reported not following through with the recommendations of their risk assessment measure because they felt they were better able to predict and assess risk given their knowledge and personal experience in the field (Krysiak & LeCroy, 2002). Additionally, these probation officers reported that the risk assessment tools were inaccurate and/or difficult to use (Krysiak & LeCroy, 2002).

These issues highlight the importance of sound implementation and fidelity in ensuring the effectiveness of risk assessment tools in predicting risk and reducing recidivism. In sum, risk assessment tools also come with limitations. Not all risk assessment tools function effectively across settings and populations. However, juvenile justice agencies continue to utilize tools without validating them to their respective jurisdictions. Furthermore, agencies often fail to implement risk assessment tools with sound fidelity. As a result, these issues threaten the predictive utility of risk assessment tools and their ability to reduce risk.

CURRENT STUDY: JUVENILE RISK ASSESSMENT TOOLS

The research presented above sheds light on numerous threats to the predictive validity of juvenile risk assessment tools. These limitations have important implications for the juvenile justice system both in terms of monetary and time investments, as well as juvenile justice outcomes. As previously discussed, youth outcomes (e.g. disposition, placement) and the allocation of services are contingent upon the level of risk generated by risk assessment instruments. Failure to accurately categorize youth into the appropriate risk level and/or failure to provide treatment services commensurate with risk have produced iatrogenic effects resulting in adverse legal and treatment outcomes (Jung & Rawana, 1999; Krysik & LeCroy, 2002; Onifade et al., 2008; Vincent et al., 2012a). This makes the validation and successful implementation of juvenile risk assessment tools tantamount.

Through their partnership with the community, the El Paso Juvenile Probation Department (EPJPD) focuses on holding “youth accountable in a manner conducive to personal growth, development, and dignity” while promoting public safety. The agency was first established in the 1950s, and currently serves youth between the ages of 10 to 17 years. An average of 2,000 youth are referred to the EPJPD each year (El Paso County Juvenile Probation Department Statistical Comparison, 2017).

The purpose of the current study is to address these gaps and to offer possible solutions moving forward. The aims of the present study are outlined below.

Aims

Aim #1

The first aim of the present study was to examine the predictive utility of the Positive Achievement Change Tool (PACT) (Florida Department of Juvenile Justice, n.d.) risk

assessment instrument being utilized at the El Paso Juvenile Probation Department in El Paso, Texas. Although the tool has been validated in other jurisdictions (Baglivio, 2009, 2015; Baglivio & Jackowski, 2013; Martin, 2012; Winokur-Early, Hand, & Blankenship, 2012), the PACT has not been validated with adolescents within the jurisdiction of El Paso since its introduction in 2010. Once the validation of the PACT is complete, its predictive utility will be compared to other jurisdictions that utilize the same measure.

It was hypothesized the instrument would demonstrate poor predictive utility (i.e. low AUC scores) for two reasons. First, several years have elapsed since the PACT's implementation at the EPJPD in 2010. During that time, factors including officer turnover, policy changes, organization restructuring, and more importantly, inconsistent training practices threaten the predictive utility of the PACT. Second, the agency did not adhere to risk assessment tool recommendations that call for tool validation within the first few months of implementation (National Institute of Corrections, 1981; Jung & Rawana, 1999). Failure to adhere to this recommendation compromises the predictive utility of risk assessment tools due to the potential that a tool may not discriminate between cases as an agency would expect it to (Wright et al., 1984). These factors are also thought to contribute to lower predictive power at the current agency compared to other jurisdictions in the state.

Aim #2

Given the inherent instability of dynamic risk factors (Austin et al., 2009) and their ability to change via targeted intervention (Bonta & Andrews, 2017), the second aim of the present study was to determine if dynamic risk factors captured by the PACT (e.g. procriminal attitudes, substance use) demonstrate less predictive utility than static factors (e.g. age at first offense).

It was hypothesized that dynamic risk factors such as substance use and negative peers will be more predictive of reoffending than static risk factors such as criminal history. This is in accordance to previous literature that has demonstrated the strong predictive power of dynamic risk variables compared to static factors (Andrews & Bonta, 2010; Bonta & Andrews, 2017).

Aim #3

As discussed previously, there is a dearth of empirical research examining dynamic risk, or risk across time, among youth offenders (Baglivio & Jackowski, 2015; Barnes et al., 2016). Therefore, the final aim of the present study seeks to add to this literature by comparing the predictive validity of the PACT at different time points. Specifically, initial and reassessment risk scores as well as changes in risk will be examined to measure the differences in their predictive power.

Unlike previous research, where reassessment and change risk scores were more predictive of recidivism than initial risk scores (Baglivio & Jackowski, 2015; Barnes et al., 2016), it is hypothesized that initial risk scores will display the strongest predictive power. This is because staff at the EPJPD rarely conducted reassessments at the recommended 150 days.

METHOD

Overview

Permission to collect data was granted to the El Paso Juvenile Justice Data Analyst and author of the present study by the El Paso Juvenile Justice Center. To examine the predictive utility of the pre-PACT and PACT in categorizing youth into risk levels, archival data provided by the El Paso Juvenile Probation Department (EPJPD) was utilized. Using archival data has several advantages. First, it allows for the immediate analysis of juvenile justice outcomes for various follow-up periods (e.g. 6 months, 12 months, and 24 months). Second, it provides an objective evaluation of how risk assessment tools are being used in the field, as it controls for possible social desirability effects. Third, in the case of the current project, the results will have direct program and policy implications for the juvenile corrections agency participating in this study. Although the EPJPD has made the decision to continue its use of the PACT risk assessment instrument and pre-screen for the immediate future, one of their long-term goals is to create and implement a validated in-house risk assessment instrument that will serve both as a means to save valuable monetary resources and improve the assessment and case management of juvenile offenders.

Power Analysis

An *a priori* power analysis was performed to determine a precise sample size estimate for multiple regression analyses. Multiple correlation coefficients for the relationship between study variables (e.g. demographic characteristics, overall risk level, social history and criminal history scores) and vary widely across studies (e.g. Baglivio, 2009; Baglivio & Jackowski, 2013; Winokur-Early et al., 2012). Therefore, a modest value for the multiple correlation coefficient was utilized for the present power analysis, $R^2 = .13$ (Cohen, 1988). An $R^2 = .13$ yields an effect

size of $f^2 = .149$, reflecting a moderate magnitude of effect (Cohen, 1988). With an $\alpha = .05$, power = .95, predictors = 2 (e.g. overall risk, criminal history scores), and an effect size of $f^2 = .149$, the suggested sample size for the present study is $N = 107$ (Cohen, 1988). However, archival records for all juveniles served by the El Paso Juvenile Probation Department between 2010 and 2016 were used to allow for more nuanced conclusions.

Participants

Table 1 summarizes the total number of juvenile referrals processed by the EPJPD between January 1, 2010 and December 31, 2016.

Table 1

Juveniles Referred to the EPJPD per Calendar Year

	Total Referrals	Unique Referrals ^a
Calendar Year		
2010	2,436	2,278
2011	2,593	2,096
2012	2,431	1,892
2013	2,424	1,866
2014	2,207	1,661
2015	2,403	1,736
2016	2,353	1,722

Note. ^aUnique Referrals refers to the unique number of juveniles referred to the department during the calendar year.

The risk assessment tool vendor, Assessments.com provided assessment data for youth who received a PACT full assessment between October 2010 (when the tool was first implemented) and May 2016 (when their contract with the EPJPD terminated). The database consisted of 3,524 assessments including initial, re-assessment, amended, and final assessment types (see Table 2).

Table 2

Assessment Types for Overall Sample

	Frequency (<i>n</i>)	Percent (%)
Initial	2,443	69.3

Re-assessment	263	7.5
Final	127	3.6
Amended	24	< 1.0

Note. No assessment type was indicated for approximately 19% of cases ($N = 667$).

A number of exclusion criteria were established for the present study. First, juveniles who did not have an Initial PACT assessment and corresponding referral were excluded from analyses ($N = 1,469$). Second, cases from 2010 ($N = 121$) were excluded, as this was the first time the PACT had been implemented. Finally, cases from 2016 ($N = 31$) were also excluded given the lack of assessments for the latter half of the calendar year. In sum, only youth who had an Initial PACT assessment and corresponding referral ($N = 1,903$) were included in the current study sample (see Figure 2).

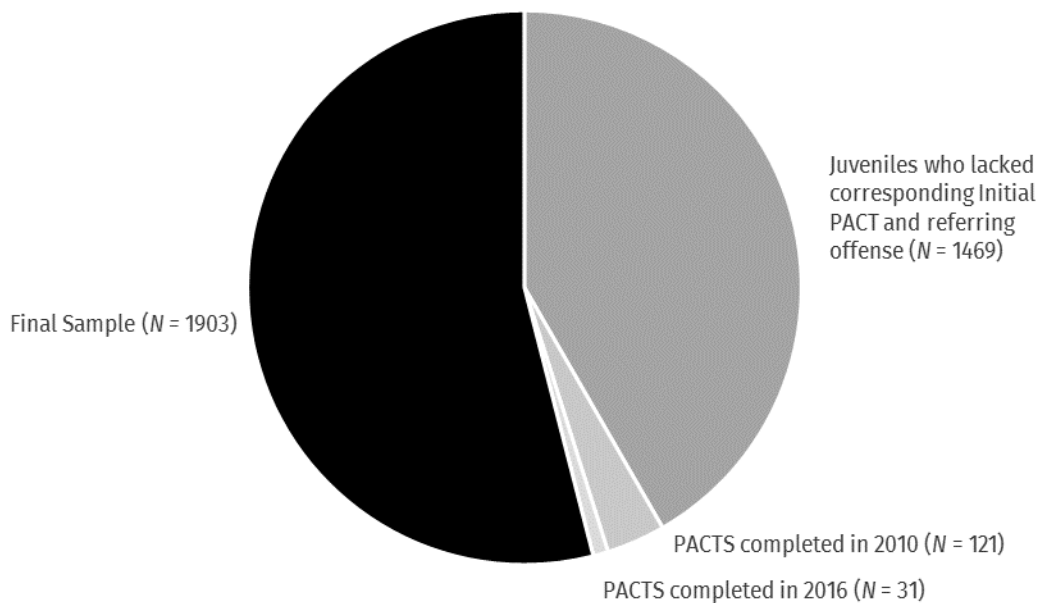


Figure 2. Study sampling frame. Out of 3,524 PACT assessments provided by Assessments.com, a total of 1,621 cases were excluded from analyses.

Table 3 provides a summary of demographic characteristics for the overall sample. The final sample ($N = 1,903$) included juveniles between 10 and 17 years of age ($M = 13.95$, $SD =$

1.55). Youth were predominantly Hispanic (71.3%), with only 3.5% and 6.1% classified as African American and White, respectively. Moreover, boys (72.8%) represented the majority of the sample, a ratio of almost 3:1 compared to girls (26.7%).

Table 3

Overall Sample Demographics

	Frequency (n)	Percent (%)
Gender		
Boy	1,385	72.8
Girl	508	26.7
Race		
Hispanic	1,357	71.3
Uncategorized	345	18.1
White	116	6.1
African American	66	3.5
Other	18	1.1
Age at First Referral		
Under 13	83	14.9
13 to 14	774	40.7
15	467	24.5
16 and over	379	19.9

Measures

The Positive Achievement Change Tool (PACT)

Juvenile offenders who score in the medium to high range on the pre-PACT are reassessed using the full PACT instrument (see Appendix A). This risk assessment measure is a 4th generation tool that examines static and dynamic risk factors, in addition to protective factors (Baglivio, 2015). The PACT is comprised of 125 items divided into twelve domains covering a wide breadth of areas related to the Central Eight risk factors (Bonta & Andrews, 2017) (see Table 5). The instrument employs a semi-structured interview protocol in which officers utilize Motivational Interviewing techniques (Miller & Rollnick, 2002) to elicit information from both

youth and their parents. Interview guides aid staff in the assessment process to ensure that all pertinent interview topics are addressed.

Like the pre-screen instrument, the full PACT combines domain scores to generate social history and criminal history scores that are subsequently used to generate the final classification of risk (i.e. low, moderate, high). As with the pre-screen instrument, higher scores indicate a higher likelihood to recidivate. The PACT full assessment also yields a rank-ordered list of individualized needs. These are utilized for case management purposes.

The PACT instrument has demonstrated moderate predictive utility across gender, racial groups, referral type (e.g. misdemeanor, felony), crime type (e.g. violent, property, drug, or general crimes), and jurisdictions (see Baglivio, 2009, 2015; Baglivio & Jackowski, 2015; Winokur-Early et al., 2012; Hamilton, van Wormer, & Barnoski, 2015) with AUC scores ranging between .59 to .67.

Table 5. *PACT Domains^a*

Pre-screen		Full assessment	
Domain #	Domain name	Domain #	Domain name
1	Record of referrals	1	Record of referrals
2	Social history	2	Social history
3	Mental health	3A	School history
4	Attitude/behavior indicators	3B	Current school status
		4A	Historic use of free time
		4B	Current use of free time
		5A	Employment history
		5B	Current employment
		6A	History of relationships
		6B	Current relationships
		7A	Family history
		7B	Current living arrangements
		8A	Alcohol and drug history
		8B	Current alcohol and drugs
		9A	Mental health history
		9B	Current mental health
		10	Attitudes/behaviors

Note. ^aTaken from Baglivio (2009), p. 601.

In addition to parent/youth interviews, officers utilize collateral information obtained from various sources (e.g. parent interviews, school records, police reports, and the like; Baglivio, 2009) to corroborate information obtained through interviews. Moreover, information related to Domain #1: record of referrals (e.g. age at first offense, index offense, number of prior felonies, and the like) is auto-populated from the Juvenile Management Information System (JMIS). JMIS is an in-house data collection system that combines previous county and state data repositories. Juvenile probation officers, clinicians, case workers, and local law enforcement agencies utilize this system to both input and extract juvenile case information and records including but not limited to demographic information (e.g. age, race, gender, risk level), court documents (e.g. court orders, violations of probation, probation modifications), clinical information (e.g. diagnoses, treatment plans, treatment outcomes), and case management information (e.g. services provided to juveniles and their families). This system is also used to generate and disseminate reports to both state and national entities including the Texas Juvenile Justice Department (TJJD) and the Department of Public Safety (DPS).

Recidivism data

Recidivism data were obtained from the JMIS system as well as the Texas Department of Public Safety (DPS) secure database. It is important to note that recidivism data for a juvenile offender will only appear in DPS if the Juvenile Probation Department provided them with that information in the first place. Moreover, information pertaining to adult recidivism and recidivism occurring outside the state of Texas is not tracked through these data systems and therefore not included in the present study.

In this study, recidivism is a dichotomous variable defined in three ways. The first two operationalizations of recidivism will allow future comparisons to state-level data and internal data. First, the state of Texas defines recidivism as *any* re-arrest, re-referral, re-adjudication, re-commitment or incarceration for a misdemeanor or felony (Heskett, 2015). Second, the EPJPD defines recidivism as any referral for a misdemeanor or felony that results in an adjudication (i.e. conviction) or adult arrest. Finally, status offenses (e.g. curfew, underage drinking) and violations of probation were examined separately, as the PACT was specifically designed to predict criminal conduct (Martin, 2012).

Procedure

Youth under the age of 17 are referred to the EPJPD in one of two ways: 1) physical/formal referrals or 2) paper/electronic referrals. Physical referrals occur when youth are physically brought in to the Detention facility by city and/or federal law enforcement personnel. Paper or electronic referrals on the other hand, occur when law enforcement officials submit their police reports via the Juvenile Management Information System (JMIS). The juvenile is brought in to the facility only if the Intake Department is able to establish probable cause based on the information law enforcement officials submitted through JMIS. At the Intake level, probation officers administer a battery of tests including the Massachusetts Youth Screening Instrument-2 (MAYSI-II; Grisso & Barnum, 2000) and the prescreen-Positive Achievement Change Tool (pre-PACT) instruments. Youth who score in the medium to high-risk range on the PACT prescreen instrument are subsequently assessed with the full PACT risk assessment tool for further evaluation.

Risk assessment data were obtained from multiple sources to ensure completeness and reliability. These sources included the PACT vendor during the study period, Assessments.com;

hard-copy case files (i.e. parent/youth interview records, school records, Juvenile Probation Officer notes and reports, and the like), as well as JMIS.

Data preparation

Data for the current study consisted of multiple datasets from multiple sources containing dozens of variables spanning a period of 7 years. Given the complexity and volume of information, thorough and meticulous data cleaning processes were performed to ensure the highest level of data integrity for statistical analyses.

First, PACT risk assessment data provided by Assessments.com ($N = 15,237$) was reconciled, as there were issues with duplicate entries and incomplete assessments. Furthermore, roughly one third of the dataset contained missing juvenile identification numbers (JID's), a key piece of information needed to address duplicate entries and more importantly, to extract additional data variables for the present study from the agency's Juvenile Management Information System (JMIS) and the Texas Department of Public Safety. Thankfully, the agency's IT department was able to recover the majority of missing JID's ($N = 955$), allowing for the retention of this data.

While reconciling the data provided by Assessments.com, frequency analyses indicated a significant disparity between the number of initial and subsequent assessments (i.e. re-assessments, final assessments). Out of the 3,524 youth for which assessment data was made available, only 263 youth (7.5%) had a re-assessment on file (see Table 2 above). An even lower number of youth ($N = 127$) had a final assessment-type on file. It is unknown if the lack of re-assessment and final assessment-types is a result of data entry error (e.g. subsequent PACT scores replacing original scores) on the part of Juvenile Probation Officers or the complete failure to re-assess youth at the recommended 150-day mark. The lack of re-assessment

information prevented the examination of dynamic risk, or risk across time, and thus Aim 3 was eliminated from the present study.

Once the PACT data was finalized, the next step of completing the final dataset involved the extraction of key variables from the JMIS system and the Texas Department of Public Safety (see Appendix X for the complete list of variables extracted). These variables included start/end dates of supervision, supervision type (e.g. Deferred Prosecution, Court Ordered supervision), supervision outcome, referral and offense history, CPS involvement, and age at first referral. The data extraction provided by the IT team included eight excel spreadsheets, each of which contained data concerning a specific class of variables (i.e. basic demographics, MAYSI's, substance use, supervision, referrals/offenses, detentions, drug tests, and placements). Each excel spreadsheet was converted into an individual dataset using the Statistical Package for the Social Sciences (SPSS) software program in preparation for dataset merging.

Prior to merging datasets, duplicate cases had to be addressed. Most juveniles have been referred to the agency more than once (sometimes upwards of 30 times), have had multiple detentions and placements, and dozens of drug tests. Further compounding the problem, when youth are referred to the agency, there are often multiple separate offenses attached to each referral. In sum, the number of individual cases grew exponentially during the data extraction process. In order to condense all eight datasets into one, streamlined file, individual datasets had to be created for each occurring event (e.g. referral, detention, placement, drug test) in a given dataset. For example, the Referral dataset was broken up into 39 separate files, as one youth was referred to the department on 39 separate occasions. The Detention dataset was broken up into 22 files before being merged, given that some youth had been detained 22 times. All eight datasets

went through this iterative process before being merged into one master dataset using the youth's JID number.

The final step in preparing the dataset for formal analyses involved merging the PACT dataset with the master file containing the variables extracted by the EPJPD.

ANALYSES

The current study followed a similar analytic process as previous studies examining the predictive utility of the PACT (Baglivio, 2015; Martin, 2012; McKenzie, 2018) across other jurisdictions in Texas. This process allowed direct comparisons to juvenile justice agencies within the state.

Predicting Recidivism

Stage one of analysis involved the calculation of bivariate correlations, logistic regressions, and multivariate regressions. Bivariate correlations were calculated to examine which PACT scores and domain items demonstrate a relationship with recidivism. For example, did a youth's likelihood to reoffend increase/decrease as their number of runaways increased? Did a youth's number of school suspensions lead to an increase in reoffending?

Logistic regression was used to assess whether the overall risk to reoffend score was predictive of recidivism. Regressing overall risk on recidivism demonstrates how moving from one risk level to another (e.g. going from low-risk to moderate-risk) increases/decreases the likelihood to reoffend and by what percentage. In theory, youth with moderate risk scores should recidivate at higher rates than youth scoring low while youth with high risk scores should recidivate at the highest rates. Thus, this analysis demonstrated whether the PACT is serving its primary function: classifying youth according to their likelihood to reoffend (Baglivio, 2015). Due to the absence of social history scores in the dataset, only Criminal history sub-scores were input into logistic regression equations to examine the extent to which they were predictive of recidivism. The same process was used to determine whether static factors are more predictive of recidivism than the more subjective dynamic risk factors.

Finally, to assess whether these relationships hold across demographic variables such as age, race, and gender, multivariate logistic regressions were calculated. As in Baglivio's (2015) study, multivariate regressions will be calculated for overall risk scores, criminal history scores, individual criminal history indicators, and individual social history indicators. Examining individual items on the criminal history and social history sub-scales indicated which of those items were most predictive of recidivism (Baglivio, 2015).

Predictive Utility of the PACT

The second stage of analysis involved calculating Receiver Operator Characteristics/Area Under the Curve (ROC/AUC) statistics (Rice & Harris, 1995) to assess the predictive utility of the PACT. In lay terms, the AUC provides the probability that a score (on an ordinal or continuous measure) randomly drawn from one population is higher than the score randomly drawn from a second population (Rice & Harris, 1995). In theory, youth who reoffend will score higher on a risk assessment instrument than a youth who does not reoffend. AUC scores range between .5 and 1.0, with higher scores indicating better prediction.

This statistical method has several advantages. First, AUC's are the most commonly used measure of predictive validity effect size in the risk assessment literature (Baglivio, 2015) and is easy to interpret. Second, this measure of effect size is "robust to base rates, selection ratios, and truncated distributions" (Schwalbe, 2007, p. 452). This allowed the comparison of the pre-PACT and PACT in predicting risk compared to other agencies utilizing the tool (e.g. Florida Department of Juvenile Justice) as well as agencies using alternative risk assessment instruments. Moreover, AUC's were calculated to measure the PACT's predictive utility across risk and demographic subgroups.

In order to facilitate the interpretation of the magnitude of AUC's, Rice and Harris (2005) provided the following guidelines.

Table 6. *Interpreting the Magnitude of AUC Scores^a*

AUC score	Magnitude
.556	Small
.693	Medium
.714	Large

Note. ^aAdapted from Rice & Harris (2005)

Time to Recidivism

When predicting an outcome such as recidivism, the key is to take into account the amount of time an offender had the opportunity to reoffend. In order to address this issue, the final stage of analysis concerns the use of Cox proportional hazard models, or Cox regression (Cox, 1972). This statistical tool utilizes status variables (e.g. re-referral or re-arrest for a non-status offense) and time variables (e.g. time between termination of probation and date of re-referral) to examine time-to-failure and is useful for analyzing time-dependent outcomes (e.g. days to re-arrest). In theory, juvenile offenders classified as high-risk will reoffend sooner than those classified as moderate or low-risk.

RESULTS

Descriptive Statistics

Risk classification

Between calendar years 2011 to 2015, most youth referred to the EPJPD were classified as Low Risk to reoffend (70.4%) with those classified as High Risk (7.1%) comprising the smallest proportion of youth for this 4-year period. Moderate Risk youth and Moderate-High Risk youth made up 15.3% and 7.3% of the study sample, respectively.

Descriptive statistics for risk to reoffend were calculated for demographic characteristics of the overall study sample (see Table 7). Boys had a higher percentage of High Risk classifications (8.4%) compared to girls (3.5%), while the proportion of Low Risk girls (75.2%) outnumbered the proportion of Low Risk boys (68.4%). In terms of race, African Americans were more likely to be categorized as High Risk to reoffend (9.1%) than Hispanics (7.4%) and Whites (7.8%). Hispanics had the highest percentage of Low Risk classifications (69.9%) compared to African Americans (66.7%) and Whites (60.3%). When it came to Age at First Referral, youth who had their first referral at a younger age had the highest proportion of High Risk categorizations (13.1%) and lowest proportion of Low Risk classifications (64.3%). It is important to note that as the Age at First Referral increased, the percentage of High Risk juveniles decreased. Furthermore, as the Age of First Referral increased, so did the percentage of Low Risk classification.

Table 7

Descriptive Statistics for Overall Risk Level

Demographic	Low (%)	Moderate (%)	Moderate-High (%)	High (%)
Gender				

Boys	948 (68.4)	209 (15.1)	111 (8.0)	117 (8.4)
Girls	382 (75.2)	82 (16.1)	26 (5.1)	18 (3.5)
Race				
Hispanic	949 (69.9)	208 (15.3)	100 (7.4)	100 (7.4)
Uncategorized	266 (77.1)	39 (11.3)	21 (6.1)	19 (5.5)
White	70 (60.3)	27 (23.3)	10 (8.6)	9 (7.8)
African American	44 (66.7)	14 (21.2)	2 (3.0)	6 (9.1)
Age at First Referral				
Under 13	182 (64.3)	44 (15.5)	20 (7.1)	37 (13.1)
13 to 14	505 (65.2)	126 (16.3)	70 (9.0)	73 (9.4)
15	332 (71.1)	76 (16.3)	37 (7.9)	22 (4.7)
16 and over	320 (84.4)	45 (11.9)	11 (2.9)	3 (0.8)

Recidivism analysis

Prior to examining recidivism, youth in the 16 years of age and over category were excluded from further analyses ($N = 379$) given that the age of jurisdiction in Texas is 17 years of age and a 12 month follow-up period was not feasible. Cross tabulations and chi-square analyses examined the relationships between demographic characteristics, risk level, and recidivism.

Chi-square analyses did not indicate a significant relationship between gender and recidivism, irrespective of recidivism type. For state-level recidivism, 42.1% of girls reoffending compared to 41.9% of boys, $\chi^2(1, N = 892) = .004, p = .948$. Meanwhile, 62.1% of girls reoffended at the agency level compared to 61.1% of boys, $\chi^2(1, N = 814) = .062, p = .804$. In terms of violations, 38.9% of boys reoffended compared to 37.9% of girls, $\chi^2(1, N = 814) = .062, p = .804$.

Similarly, chi-square analyses examining the relationship between race and recidivism yielded null results across recidivism type. At the state-level, Whites (50%) recidivated more than Hispanics (43.1%) and African Americans (35%), $\chi^2(4, N = 898) = 5.245, p = .263$. Within the agency, African Americans (68.4%) reoffended at a higher rate than both Hispanics (59.5%)

and Whites (54.7%), $\chi^2(4, N = 819) = 7.482, p = .113$. Finally, Whites (45.3%) recidivated at the violations-level than Hispanics (40.5%) and African Americans (31.6%), $\chi^2(4, N = 819) = 7.482, p = .113$.

Lastly, chi-square analyses examining the relationship between recidivism and overall risk to reoffend did demonstrate a significant relationships across recidivism types.

Table 9

Rate of Recidivism based on Overall Risk Level

Risk Level	State Recidivism	EPJPD Recidivism	Violations
Low	206 (22.9)	210 (25.6)	164 (20.0)
Moderate	87 (9.7)	119 (14.5)	75 (9.2)
Moderate-High	43 (4.8)	82 (10.0)	37 (4.5)
High	41 (4.6)	91 (11.1)	41 (5.0)

Overall risk to reoffend was related to state-level recidivism, $\chi^2(3, N = 898) = 15.648, p = .001$, with Low-Risk youth having the highest rate of state recidivism (22.9%) and High-Risk youth having the lowest (4.6%). Overall risk to reoffend was also significantly related to agency-level, $\chi^2(3, N = 819) = 10.332, p = .016$; and violation-type reoffending, $\chi^2(3, N = 819) = 10.332, p = .016$. Low risk youth had the highest rate of agency-level recidivism (25.6%) and violations recidivism (20.0%). Youth classified as Moderate-High risk to reoffend had the lowest rates of recidivism at the agency (10.0%) and violations-level (4.5%) of reoffending.

Predicting Recidivism

Bivariate correlations

Bivariate correlations were calculated for each cohort to pinpoint which PACT criminal history scores and domains demonstrate a relationship with each type of recidivism (see Table 10). Higher scores on static/dynamic protective factors signify a *decreased* risk to reoffend while higher scores on static/dynamic risk factors indicate an *increased* risk to reoffend.

Table 10

Significant Correlations for PACT Domains with Recidivism per Cohort.

Domain	Static/Dynamic and Risk/Protective	State Recidivism	JPD Recidivism	Violation Recidivism
1 (Record of Referrals)				
	Static Protective	-	-	-
	Dynamic Protective	-	-	-
	Static Risk	.055	-.047	.047
	Dynamic Risk	-	-	-
Criminal History Score		.055	-.047	.047
3a (School History)				
	Static Protective	-.020	.015	-.015
	Dynamic Protective	.002	-.015	.015
	Static Risk	.032	-.033	.033
	Dynamic Risk	-.002	.015	-.015
3b (Current School)				
	Static Protective	-	-	-
	Dynamic Protective	-.033	.030	-.030
	Static Risk	-	-	-
	Dynamic Risk	.015	-.011	.011
4a (Historic Use of Free Time)				
	Static Protective	-.085*	.073*	-.073*
	Dynamic Protective	-	-	-
	Static Risk	-	-	-
	Dynamic Risk	-	-	-
4b (Current Use of Free Time)				
	Static Protective	-	-	-
	Dynamic Protective	-.073*	.077*	-.077*
	Static Risk	-	-	-
	Dynamic Risk	.083*	-.086*	.086*
5a (Employment History)				
	Static Protective	.004	-.010	.010
	Dynamic Protective	-	-	-
	Static Risk	.004	-.010	.010
	Dynamic Risk	-	-	-
5b (Current Employment)				
	Static Protective	-	-	-
	Dynamic Protective	.023	-.027	.027
	Static Risk	-	-	-
	Dynamic Risk	-.028	.028	-.028
6a (History of Relationships)				
	Static Protective	-.034	.022	-.022

	Dynamic Protective	-	-	-
	Static Risk	-.033	.028	-.028
	Dynamic Risk	-	-	-
6b (Current Relationships)	Static Protective	-	-	-
	Dynamic Protective	-.056	.047	-.047
	Static Risk	-	-	-
	Dynamic Risk	.040	-.041	.041
7a (Family History)	Static Protective	.017	-.025	.025
	Dynamic Protective	.009	-.002	.002
	Static Risk	.000	.002	-.002
	Dynamic Risk	-.009	.002	-.002
7b (Current Living Arrangements)	Static Protective	-	-	-
	Dynamic Protective	-.016	.016	-.016
	Static Risk	-	-	-
	Dynamic Risk	.051	-.044	.044
8a (Alcohol and Drug History)	Static Protective	.000	.008	-.008
	Dynamic Protective	-.002	.007	-.007
	Static Risk	-.007	.002	-.002
	Dynamic Risk	.002	-.007	.007
8b (Current Alcohol and Drug)	Static Protective	-	-	-
	Dynamic Protective	-.013	.027	-.027
	Static Risk	-	-	-
	Dynamic Risk	-.023	.006	-.006
9a (Mental Health History)	Static Protective	-.029	.032	-.032
	Dynamic Protective	.012	-.019	.019
	Static Risk	.034	-.029	.029
	Dynamic Risk	.009	.002	-.002
9b (Current Mental Health)	Static Protective	-	-	-
	Dynamic Protective	-.015	.025	-.025
	Static Risk	-	-	-
	Dynamic Risk	-.004	-.007	.007
10 (Attitudes and Behaviors)	Static Protective	-	-	-
	Dynamic Protective	-.026	.029	-.029
	Static Risk	-	-	-
	Dynamic Risk	.038	-.035	.035
11 (Aggression)	Static Protective	-	-	-
	Dynamic Protective	-.015	.006	-.006

12 (Skills)	Static Risk	-	-	-
	Dynamic Risk	.020	.001	-.001
	Static Protective	-	-	-
	Dynamic Protective	-.005	.003	-.003
	Static Risk	-	-	-
	Dynamic Risk	-.024	.040	-.040

* $p < .05$.

Out of 84 static and dynamic factors across 12 domains, only 3 demonstrated significant correlations with recidivism. Notably, these factors were under one domain, Domain 4 Use of Free Time. The static protective factor from domain 4a (Historic Use of Free Time) demonstrated negative correlations with state-level recidivism, $r = -.085, p < .05$, and violations recidivism, $r = -.073, p < .05$. Juveniles who scored lower on items related to history of structured recreational activities and history of unstructured pro-social activities were more likely to reoffend at the state and violations level. Meanwhile, this same factor was positively correlated with agency-level recidivism, $r = .077, p < .05$. Youth who scored higher on these items were less likely to reoffend at the agency level.

Significant correlations were also present for both dynamic protective and dynamic risk factors under domain 4b (Current Use of Free Time). The dynamic *protective* factor for domain 4b demonstrated negative correlations with state ($r = -.073, p < .05$) and violations recidivism ($r = -.077, p < .05$) while having a positive correlation with agency-level recidivism ($r = .077, p < .05$). Thus, youth who scored high on items pertaining to current involvement in pro-social activities were less likely to reoffend at the state and violations levels, but more likely to reoffend at the agency-level. The dynamic *risk* factor, on the other hand, was positively correlated to state ($r = .083, p < .05$) and violations recidivism ($r = .086, p < .05$) and negatively correlated with agency-level reoffending ($r = -.086, p < .05$). Youth who scored high on items

pertaining to current use of unstructured leisure time were more likely to recidivate at the state and violations levels but less likely to reoffend within the agency.

Regression

A series of regressions were calculated to examine the extent to which overall risk scores, criminal history scores, and demographic characteristics were predictive of recidivism for the study sample. Additionally, static and dynamic risk factors were entered into regressions to assess which are more predictive of recidivism.

Overall risk level. The first predictor examined was the overall risk to reoffend score generated by the PACT (i.e. low, moderate, moderate-high, and high).

Table 11

Regression Predicting Recidivism based on Overall Risk Level

Recidivism Type	<i>B</i>	<i>SE B</i>	<i>t</i>	95% CI	<i>p</i>
State	-.059	.015	-3.957	[-.088, -.030]	<.001
JPD	.047	.015	3.130	[.018, .077]	.002
Violations	-.047	.015	-3.130	[-.077, -.018]	.002

The results of the regression indicate that Overall Risk Level was predictive of state reoffending, $F(1, 896) = 15.657, p < .001$, accounting for 1.7% of the variance ($R^2 = .017$). Overall risk level was also predictive of agency recidivism, $F(1, 817) = 9.798, p = .002$ and violation-level recidivism $F(1, 817) = 9.798, p = .002$, accounting for 1.2% of the variance in agency recidivism and 1.2% of violations recidivism, respectively.

Criminal History Score. Criminal history scores based on the PACT's Risk of Referral items was the next predictor to be regressed (see Table 12).

Table 12

Regression Predicting Recidivism based on Criminal History Score

Recidivism Type	<i>B</i>	<i>SE B</i>	<i>t</i>	95% CI	<i>p</i>
State	.009	.006	1.647	[-.022, .021]	.100
JPD	-.008	.006	-1.332	[-.019, .004]	.183
Violations	.008	.006	1.332	[-.004, .019]	.183

Unlike overall risk score, criminal history scores failed to predict state, agency, and violations recidivism in the present sample.

Static versus dynamic factors. Static and dynamic factors from each domain were entered into stepwise regression equations. Specifically, separate stepwise regressions were calculated for static versus dynamic protective factors, and static versus dynamic risk factors for each cohort to determine which items predicted recidivism. Separate regressions were calculated given that higher scores on protective factors indicate decreased risk while higher scores on risk factors indicate lower risk.

Table 17

Stepwise Regression Predicting Recidivism based on Static versus Dynamic Protective Factors

	<i>B</i>	<i>SE B</i>	β
State Recidivism			
Constant	.471	.026	
Domain 4A (S/P) ^a	-.035	.014	-.085**
Adjusted <i>R</i> ²	.006		
<i>F</i>	6.489**		
JPD Recidivism			
Constant	.562	.029	
Domain 4B (D/P) ^b	.024*	.011	.077*
Adjusted <i>R</i> ²	.005*		
<i>F</i>	4.924*		
VOP Recidivism			
Constant	.438	.029	
Domain 4B (D/P) ^b	-.024*	.011	-.077*
Adjusted <i>R</i> ²	.005		
<i>F</i>	4.924*		

Note. B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient.

^aS/P = Static Protective; ^bD/P = Dynamic Protective.

p* < .05; *p* < .01.

In terms of protective factors, the static protective factor from Domain 4A (Historic Use of Free Time) and the dynamic protective factors from Domain 4B (Current Use of Free Time) demonstrated statistically significant predictive power for state, JPD, and violations recidivism. When examining state-level recidivism, the static protective, Historic Use of Free Time (Domain 4A) was significantly related to recidivism, $F(1, 896) = 6.489, p < .05$. Specifically, youth with lower scores on questions related to past participation in unstructured pro-social activities were more likely to reoffend at the state-level than those with higher scores on these items. However, the multiple correlation coefficient, $R^2 = .007$, indicates that youth scores on Domain 4A account for less than 1% of the variance in state recidivism.

The predictive factor for agency-level recidivism was the dynamic protective factor for Domain 4B (Current Use of Free Time), $F(1, 817) = 4.924, p < .05$. Juveniles who scored higher on questions concerning their current involvement in structured and unstructured pro-social activities were more likely to recidivate at the agency-level than youth with lower scores on these items. The multiple correlation coefficient for this dynamic protective factor, $R^2 = .006$, indicates that youth scores on Domain 4B account for less than 1% of the variance in state recidivism.

Domain 4B (Current Use of Free Time) was also predictive of violations recidivism, $F(1, 817) = 4.924, p < .05$, accounting for 0.6% of the variance ($R^2 = .006$). However, in the case of violations recidivism, juveniles who scored *lower* on these items (indicating less involvement in unstructured pro-social activities) were more likely to receive a violation than juveniles with higher scores.

Stepwise regressions were also computed for static/dynamic *risk* factors.

Table 18

Stepwise Regression Predicting Recidivism based on Static versus Dynamic Risk Factors

	<i>B</i>	<i>SE B</i>	β
State Recidivism			
Constant	.391	.020	
Domain 4B (D/R) ^a	.087	.035	.083*
Adjusted R^2	.006		
<i>F</i>	6.220*		
JPD Recidivism			
Constant	.643	.021	
Domain 4B (D/R) ^a	-.088*	.036	-.086*
Adjusted R^2	.007*		
<i>F</i>	6.054*		
VOP Recidivism			
Constant	.357	.021	
Domain 4B (D/R) ^a	-.088*	.036	.086*
Adjusted R^2	.007		
<i>F</i>	6.054*		

Note. B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient.

^aD/R = Dynamic Risk.

* $p < .05$.

Here, no static factors were predictive of recidivism. Interestingly, only the dynamic risk factors from Domain 4B (Current Use of Free Time) demonstrated predictive power. First, the dynamic risk factor for Domain 4B was significantly related to recidivism, $F(1, 896) = 6.220$, $p < .05$. Youth with higher scores on questions related to current participation in unstructured pro-social activities were more likely to reoffend at the state-level than those with higher scores on these items. The multiple correlation coefficient, $R^2 = .007$, indicates that youth scores on Domain 4B only account for less than 1% of the variance in state recidivism.

The dynamic risk factor for Domain 4B was also predictive of agency-level recidivism, $F(1, 817) = 6.054$, $p < .05$. Here, youth with lower scores on items concerning current involvement in pro-social activities, were more likely to recidivate than those with higher scores on these items. Moreover, the multiple correlation coefficient, $R^2 = .006$, indicates that scores on this dynamic risk factor accounted for less than 1% of the total variance in JPD recidivism.

Finally, dynamic risk factor for Domain 4B predicted reoffending at the violations-level, $F(1, 817) = 6.054, p < .05$. As with state-level recidivism, juveniles with higher scores on these items were more likely to reoffend than those with lower scores. The multiple correlation coefficient, $R^2 = .007$, demonstrates the variable's weakness in predicting recidivism, accounting for less than 1% of the total variance explained.

Predictive Utility of the PACT

Receiver operator characteristics

Receiver operator characteristics (ROC), or Area Under the Curve (AUC), were calculated to examine the predictive utility of the PACT overall risk levels (see Table 19).

Table 19

<i>Area Under the Curve (AUC) Analyses Predicting State Recidivism based on Risk Level</i>				
Recidivism Type	<i>AUC</i>	<i>S.E.</i>	<i>p</i>	<i>95% CI</i>
State ^a	.429	.019	<.001	.391 - .467
Agency ^b	.561	.020	.003	.521 - .601
Violations ^c	.439	.020	.003	.399 - .479

Note. ^aRate of missing data for State Recidivism ($N = 626$) is 41%; ^bRate of missing data for JPD Recidivism ($N = 705$) is 46%; ^cRate of missing data Violations Recidivism ($N = 705$) is 46%.

AUC analyses for the present study yielded AUC scores that are much lower than the average found in other studies examining the validity of the PACT (see Baglivio, 2009; Baglivio, 2015, Martin, 2012; McKenzie, 2018; and Schwalbe, 2008). The lower than average AUC scores for these analyses suggests that the PACT overall risk levels are poor predictors recidivism, no matter how it is defined. More importantly, AUC scores for State and Violations recidivism were under the “at chance level” 0.5 cut-off, indicating that flipping a coin has better predictive utility than the PACT.

Time to Recidivism

The final stage of analyses involved the computation of Cox proportional hazard models to measure the extent to which PACT overall risk scores predicted time to recidivism. As stated previously, the recidivism follow-up period was set at 12 month. Due to the complexity and size of the dataset, study cohorts (i.e. calendar year) were examined separately. For these analyses, “High Risk” was the reference category with which the remaining risk levels were compared. In terms of recidivism at the state level, overall risk level was not a predictor of future recidivism for Cohort 2011, $\chi^2(3, N = 175) = .758, p = .859$; Cohort 2012, $\chi^2(3, N = 206) = 6.577, p = .087$; and Cohort 2013, $\chi^2(3, N = 213) = 2.576, p = .462$.

Table 22. *Cox Regression using Overall Risk Level to Predict Time to State Recidivism*

Sample	Overall Risk	B	S.E.	Wald	df	p	Hazard Ratio
Cohort 2011							
	Low	-.142	.202	.491	1	.483	.868
	Moderate	-.155	.225	.475	1	.491	.856
	Moderate-High	-.007	.302	.001	1	.980	.993
	High			.757	3	.860	
Cohort 2012							
	Low	-.477	.191	6.219	1	.013*	.621
	Moderate	-.417	.220	3.608	1	.058	.659
	Moderate-High	-.383	.262	2.132	1	.144	.682
	High			6.472	3	.091	
Cohort 2013							
	Low	-.250	.209	1.420	1	.233	.779
	Moderate	-.089	.236	.141	1	.707	.915
	Moderate-High	.009	.257	.001	1	.972	1.009
	High			2.565	3	.464	
Cohort 2014							
	Low	-.451	.271	2.771	1	.629	.637
	Moderate	-.175	.281	.386	1	.534	.840
	Moderate-High	.142	.294	.234	1	.096	1.153
	High			9.207	3	.027*	
Cohort 2015							
	Low	-.341	.328	1.083	1	.298	.711
	Moderate	.317	.352	.813	1	.367	1.374
	Moderate-High	-.124	.376	.109	1	.741	.883
	High			8.779	3	.032*	

Note. High risk level was used as the reference category.

* $p < .05$.

However, overall risk level did predict time to state recidivism for Cohort 2014, $\chi^2(3, N = 196) = 9.378, p = .025$ and Cohort 2015, $\chi^2(3, N = 137) = 9.015, p = .029$. The higher the risk level a youth was assigned, the more likely they were to reoffend within the 12 month follow-up period, with the exception of Moderate-High risk youth. This group of juveniles were more likely to recidivate than those classified as High Risk. For Cohort 2015, there were no significant differences in recidivism hazard between any of the risk levels, despite moderate-high risk youth being 1.153 times more likely to reoffend than high risk youth (see Figure 3).

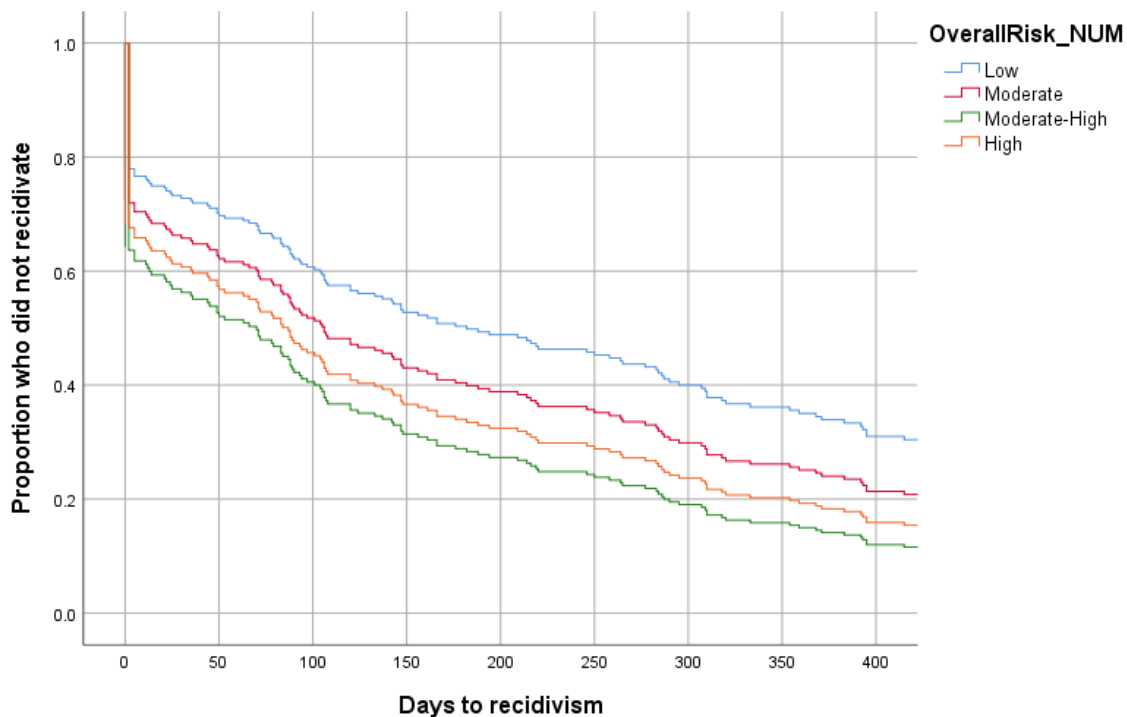


Figure 3. Survival curve for days to state recidivism for Cohort 2014 based on risk level.

For Cohort 2015 (see Figure 4), moderate risk youth were the most likely to recidivate. Specifically, youth classified as moderate risk to reoffend were 1.374 times more likely than high

risk youth to reoffend. However, as with Cohort 2014, these differences were not statistically significant, Wald test $\chi^2 = .813, p = .367$.

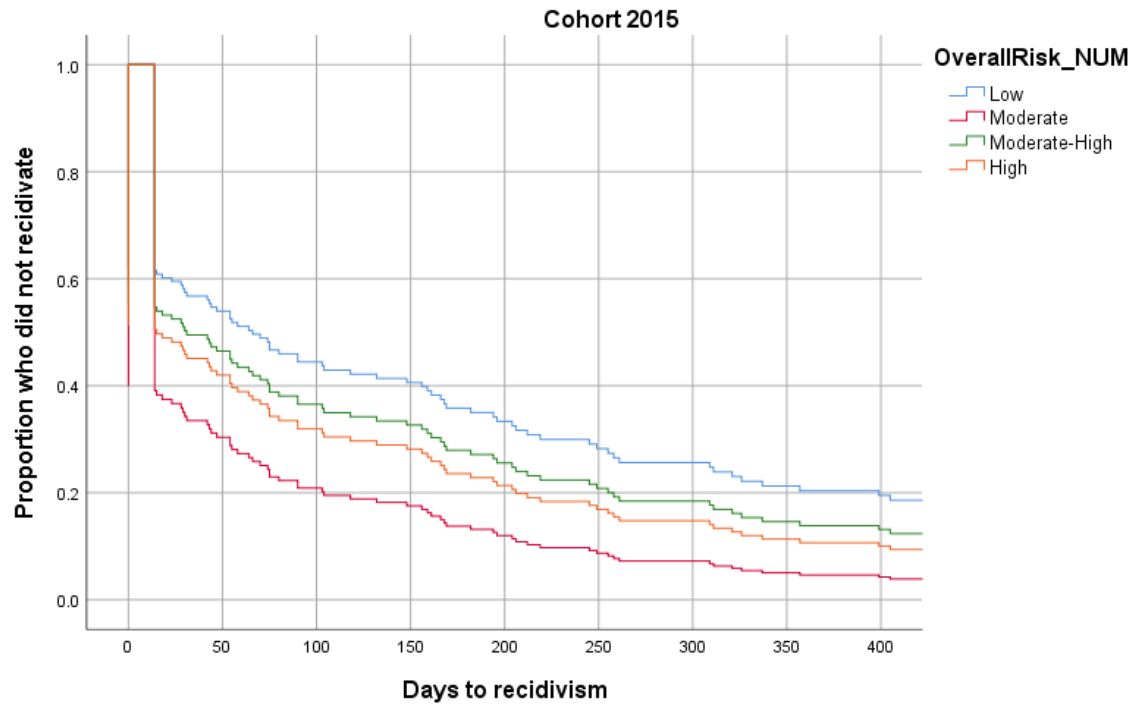


Figure 4. Survival curve for days to state recidivism for Cohort 2014 based on risk level.

Table 23 below summarizes survival analyses for JPD and Violations recidivism.

Omnibus models for Cohort 2015, JPD-level recidivism $\chi^2(3, N = 213) = 8.524, p = .036$ and Cohort 2014, Violations recidivism, $\chi^2(3, N = 52) = 24.495, p < .001$ were statistically significant. These results indicate that overall risk level was predictive of time to recidivism for these cohorts.

Table 23. Summary of Cox Regressions for Predicting JPD-level and Violations Recidivism

Recidivism Type	-2 Log Likelihood	χ^2	df	p
JPD				
Cohort 2011	768.114	1.024	3	.796
Cohort 2012	1,300.195	4.610	3	.203
Cohort 2013	1,388.635	.630	3	.890

Cohort 2014	1,384.493	2.842	3	.417
(continued)				

Table 23.

Summary of Cox Regressions for Predicting JPD-level and Violations Recidivism

Recidivism Type	-2 Log Likelihood	χ^2	df	p
JPD				
Cohort 2015	1,015.456	8.524	3	.036*
Violations				
Cohort 2011	700.021	.406	3	.939
Cohort 2012	507.751	5.258	3	.154
Cohort 2013	489.828	5.990	3	.112
Cohort 2014	294.505	24.495	3	< .001**
Cohort 2015	89.287	1.651	3	.648

Note. * $p < .05$; ** $p < .001$.

Figure 5 below illustrates the survival curve to Cohort 2015 and JPD-level recidivism. Here, the survival curve for moderate-risk indicates that youth in this category had the highest proportion of youth who recidivated. Specifically, moderate-risk youth were .701 times more likely than high risk youth to reoffend. These results however, were not statistically significant, Wald test $\chi^2 = .983$, $p = .321$.

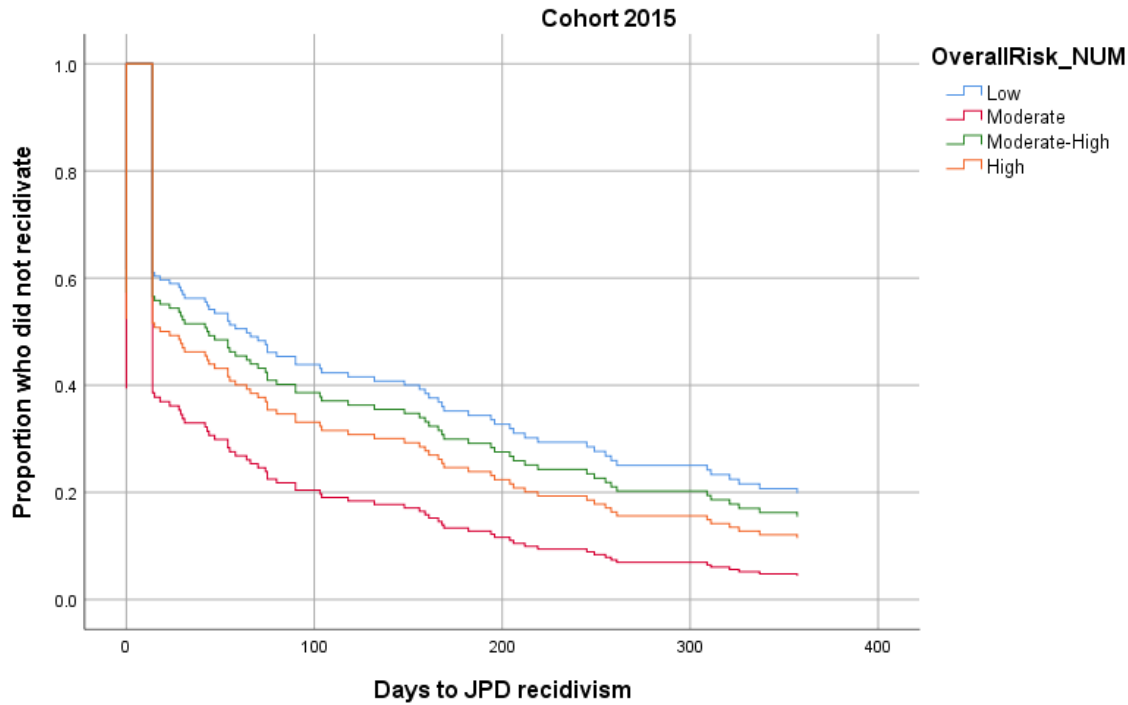


Figure 5. Survival curve for days to state recidivism for Cohort 2015 based on risk level.

When examining Violation recidivism and overall risk for Cohort 2014, results showed that the proportion of youth who recidivated was lower for those classified as low-risk compared to youth classified as high risk, Wald test $\chi^2 = 5.593$, $p = .003$. Low risk youth were .189 times less likely to reoffend than high risk youth, indicating that youth categorized as low risk was 81.1% less likely than high risk youth to violate their probation.

Table 24. Cox Regression Statistics for Cohort 2015 (JPD) and Cohort 2014 (Violations)

Sample	Overall Risk	B	S.E.	Wald	df	p	Hazard Ratio
Cohort 2015							
	Low	-.294	.343	.731	1	.393	.380
	Moderate	.363	.366	.983	1	.321	.701
	Moderate-High	-.150	.399	.141	1	.707	.394
	High			8.286	3	.040*	
Cohort 2014							
	Low	-1.663	.567	8.593	1	.003**	.189
	Moderate	-.711	.581	1.500	1	.221	.491
	Moderate-High	.429	.697	.379	1	.538	1.536
	High			20.409	3	<.001	

Note. High risk level was used as the reference category.

* $p < .05$; ** $p < .001$.

DISCUSSION

With recommendations outlined in the Juvenile Justice Delinquency Prevention Act (JJDPA) of 2002, agencies across the nation have the onus to aid in the design and utilization of risk assessment for the determination of appropriate sanctions to delinquent juvenile behavior (42 U.S.C. § 5601). To do so, juvenile justice agencies have adopted policies and procedures in line with the Risk-Need-Responsivity (RNR) model of offender management (Andrews et al., 1990b). The RNR model is the most widely used evidence-based model by adult and juvenile justice agencies to address offender risk assessment and rehabilitative programming (Andrews et al., 2011; Andrews & Dowden, 2007; Howell, Lipsey, & Wilson, 2014; McGrath & Thompson, 2012; Peterson-Badali, Skilling, & Haqanee, 2015; Vose, Lowencamp, Smith, & Cullen, 2009). Meta-analyses have demonstrated the RNR model's robustness across settings, criminal behaviors, and subtypes of offenders (Andrews & Bonta, 2010). More importantly, research has shown that adherence to RNR has demonstrated reduced recidivism across community and corrections settings (Andrews & Bonta, 2010).

A key principle of RNR is the categorization of offenders based on level of risk using validated risk assessment tools. The purpose of risk classification is to ensure that offenders receive the rehabilitation services (including dosage) commensurate to their level of risk (Andrews et al., 1990b). Intensive services and resources should be reserved for juveniles deemed to be at higher risk to reoffend while less intensive services and interventions should be provided to youth classified as low-risk (Lipsey, 2009). Failure to adhere to these principles can result in negative youth outcomes such as the increased risk to reoffend (Andrews & Dowden, 2006; Bonta, Wallace-Capretta, & Rooney, 2000; Lipsey, 2009). In order to develop accurate

classifications of juvenile (and adult) offenders, agencies must implement risk assessment tools that have demonstrated to have a high degree of predictive utility.

The present research marks the first time the predictive validity of the PACT risk assessment instrument has been examined within the EPJPD since its implementation in 2010. The aims of this project were to a) measure the predictive validity of the PACT within the EPJPD and compare its performance to other juvenile justice agencies and b) to compare the predictive validity of dynamic and static risk factors. The practical and theoretical implications of the current findings, competing theories of juvenile risk assessment, and directions for future research will be discussed after addressing the limitations of this research.

Key Findings

The main aim of the present research was to measure the predictive utility of the Positive Achievement Change Tool (PACT) juvenile risk assessment tool currently being utilized at the El Paso Juvenile Probation Department. It was hypothesized that the instrument would demonstrate poor predictive utility. Results from bivariate correlations, logistic and multiple regression, and area under the curve analyses support this hypothesis. First, key variables such as overall risk scores and criminal history scores failed to yield significant correlations with recidivism. Second, the PACT criminal history score failed to predict recidivism across all three levels of recidivism. And although the PACT overall risk to reoffend level was a statistically significant predictor of all three recidivism types, the variance explained (ranging between 1.2% to 1.7%) did not demonstrate its pragmatic significance. Lastly, AUC scores were far lower than what other researchers have found for this juvenile risk assessment tool. Previous examinations of the PACT's predictive utility at agencies in Florida and Texas, have yielded AUC scores that range between .59 (Baglivio, 2009) to .632 (Martin, 2012).

Another key finding in the present study was the lack of support for the predictive power of dynamic factors over static ones and vice versa. It was hypothesized that dynamic risk factors such as substance use and poor family relationships would be more predictive of offending than static factors such as age at first referral. However, the results of the present study failed to support this hypothesis. Statistically significant bivariate correlations were found for static and dynamic factors and recidivism while regression analyses showed that both types of factors were predictive of recidivism. Notably, the factors that correlated with and predicted recidivism are items found in Domain 4, Historic and Current Use of Free Time. The implications of these findings are outlined in a subsequent section.

Limitations

The present research makes important contributions to the juvenile risk assessment literature and to the EPJPD agency. However, it is not without limitations. First, the predictive utility of the PACT was measured using archival data. Although using secondary data has its advantages (e.g. allows for immediate analysis of outcomes across various time points and serves as a control for social desirability effects), it is impossible to control for systematic errors that may have occurred during the data collection process (Vieira et al., 2009). This includes failing to update domain indicators in light of new information about a youth and their case, not reassessing youth at the appropriate time (i.e. every 150 days), and the like. Furthermore, secondary data lacks key information (e.g. such as information disclosed in self report measures) that can be used to understand the full scope of offending among juveniles (Barnes et al., 2016). This was a key limitation in the present study, as the social history component scores were missing from the dataset.

Second, federal regulations (Criminal Justice Information Systems, 2010) did not allow the use of the Computerized Criminal History database (CCH) via the Texas Law Enforcement Telecommunications System (TLETS) to obtain national-level recidivism information. Instead, juvenile information (i.e. personal identification number, or PID) was entered into the Texas Department of Public Safety (DPS) database containing recidivism information specific to Texas. Given El Paso County's proximity to the Mexico and New Mexico borders, the full impact of this limitation is uncertain.

Third, the high rate of missing data greatly hindered efforts to perform robust analyses. For example, the percentage of missing recidivism data for area under the curve analyses was over 40%. Missing data is a common dilemma in recidivism research, as it is contingent upon a number of factors. For example, only crimes/violations detected by law enforcement officials are tracked. Additionally, the amount of missing data can vary depending on the length of the follow up period (Baglivio, 2015). In the case of the present study, adult recidivism was unavailable as were offenses committed in the neighboring states of New Mexico and Chihuahua (Mexico). Thus, the true amount of missing data is impossible to measure.

Finally, the reliability of the PACT was not examined. Previous research has demonstrated that strong predictive utility of risk assessment tools are contingent upon (in part) their sound implementation, or fidelity, as measured by interrater reliability and interrater agreement (Cottle et al., 2001; Harris, Gingerich, & Whittaker, 2004; Luong & Wormith, 2011). Unfortunately, a confluence of circumstances outside of the control of the author did not allow the examination of reliability. These included issues such as officer turn-over, lack of consistent training, poor data collection practices, and lack of support from the original vendor. Additionally, the EPJPD recently changed vendors in late 2017. As such, juvenile probation

officers have already received updated training on the PACT and its proper administration, making it impossible to accurately measure reliability for the time period of the study.

The results of the present research should be interpreted with some caution given the aforementioned limitations. The examination of interrater reliability and interrater accuracy coupled with periodic revalidation of the PACT instrument are necessary to make a more accurate assessment of its performance in the categorization of youth at the EPJPD. The subsequent sections will delve into the theoretical implications of the present research and conclude with a discussion on the practical implications and future directions.

Theoretical and Practical Implications

The present findings provide further empirical support of the importance of adhering to sound implementation processes to ensure the success of risk assessment efforts. Various studies and meta-analyses in adult (see Harris, Gingerich, & Whittaker, 2004; Luong & Wormith, 2011) and juvenile justice literatures (Cottle et al., 2001) emphasize the importance of fidelity in the predictive utility of risk assessment instruments and their ability to reduce recidivism. This line of research has focused on a number of implementation issues endemic of both adult and juvenile justice agencies. They include tool non-completion, tool manipulation, non-adherence to tool recommendations, and failure to ensure staff buy-in (Miller & Maloney, 2013; Vincent, Paiva-Salisbury, Cook, Guy, & Perrault, 2012b).

The EPJPD fell victim to many of the issues presented in adult and juvenile justice literatures. First, juvenile probation officers frequently failed to complete the PACT tool as intended. For example, criminal history and referral information was often not updated post-adjudication (i.e. post-conviction). This is particularly problematic when considering the PACT

heavily weighs this static risk factor (Record of Referrals). Failure to update this information increases the likelihood that the PACT will underestimate a youth's level of risk.

Second, the EPJPD failed to ensure staff buy-in throughout the implementation process. The main barrier to staff buy-in involves the amount of time it takes to administer each PACT. Tool administration ranges between 2.5 and 4.5 hours on average, depending on the complexity of a case. Additionally, officers are required to collect collateral information after interviewing a youth and their guardian, adding additional time to the process. Thus, juvenile probation officers are spending a considerable portion of their day solely on PACT administration. This is in addition to other job tasks including field visits (including home and school visits), documenting field visits, attending court hearings, case planning and case management, attending staff hearings with supervisors to discuss caseloads, the list goes on. Adding an additional task to a long list of job duties, particularly one that is time consuming and complex, makes staff buy-in highly unlikely.

Results of the present study also draw attention to a number of pragmatic issues concerning risk assessment within the juvenile justice field broadly, and the El Paso Juvenile Probation Department, specifically. Namely, the PACT failed to demonstrate sound predictive utility in the present study, having performed poorly compared to other agencies across Texas (Baglivio, 2015; Martin, 2012; McKenzie, 2018) and Florida (Baglivio, 2009; Baglivio & Jackowski, 2013; Winokur-Early, Hand, & Blankenship; 2012). Although the PACT has consistently generated what Rice and Harris (2005) consider a small magnitude of effect in terms of predictive utility, it is the agency's lack of sound tool implementation and sustainability protocols that further limited the tool's predictive powers.

To start, the PACT was not validated within the EPJPD prior to its implementation nor shortly thereafter, going against risk assessment tool recommendations (National Institute of Corrections, 1981; Jung & Rawana, 1999). Skeem and Eno Loudon (2007) discuss two key characteristics of actuarial risk assessment tools that highlight the importance of local validation. First, although most tools incorporate dynamic risk factors, static risk factors are often weighted heavily in comparison. Second, actuarial formulas are constructed based on the relationships between variables present in the population in which a tool is created. At times, these variables lose predictive power when applied to new samples (Monahan, Steadman, Appelbaum, Grisso, Mulvey, Roth...Silver, 2005). As such, tool accuracy tends to be overestimated in the sample of origin while prediction error is underestimated (Skeem & Eno Loudon, 2007). Thus, local validation of assessment instruments prior to full implementation is key.

Another implementation and sustainability issue deals with the agency's failure to assess its own data management infrastructure. A sound data collection and data management system is vital to the success of any agency's operations, from reporting to state and national entities, to tracking the performance of supervision and treatment programs. The EPJPD failed to identify critical gaps in data collection processes prior to implementing the PACT. For example, key variables (e.g. school) pertinent to criminogenic needs and protective factors (e.g. prosocial activities/outcomes) were never tracked. A more serious limitation was the lack of a centralized data management system. Prior to JMIS, juvenile data was being entered into multiple databases (i.e. Caseworker 5, JCMS, and others). This made it impossible to sustain sound data collection and data management protocols, preventing the EPJPD's ability to implement and sustain sound risk assessment efforts.

Finally, the results of the present study highlight the impact of poor staff training on implementation and sustainability. PACT training of directors and senior juvenile probation officers was limited and inconsistent from the get-go. According to directors, booster (refresher) trainings have not been provided to senior staff members tasked with training line staff since 2012. These senior-level staff, also known as “Trained Trainers” play a critical role in the success of risk assessment efforts given the high rate of staff turn-over at the agency. For example, the Intake Unit alone has experienced the loss of 30 staff members since 2010. It is important to note that this number does not include staff who leave on Federal Medical Leave (FMLA), military leave, and the like. It is unlikely that the Trained Trainers at the EPJPD were sufficiently trained over the course of the study period to fulfill their responsibilities in training line staff. This lack of training could explain a number of issues plaguing the present study including the lack of re-assessment information and the amount of missing data.

Key findings in the present study also draw attention to the financial and operational impact risk assessment tools have on juvenile justice agencies. First, risk assessment tools cost agencies hundreds of thousands of dollars. For example, the EPJPD has spent approximately \$254,000 over the course of the study period to cover the cost of the PACT. This includes \$72,000 for 30 licenses and \$13,200 for the initial training. Agencies also incur financial and operational costs in the form of hours worked by line staff. Caseloads for juvenile probation officers can range between 18 to 35 youth per officer. The administration of the PACT can range between 2.5 hours and 4.5 hours depending on the complexity of the case. Thus, juvenile probation officers are spending between 87.5 and 175 hours on tool administration alone, per caseload. Additionally, officers are obligated to conduct weekly home visits based on a youth’s risk level (see Table 25), attend court hearings, and complete administrative tasks (e.g. create

court reports, document home visits, conduct urine analyses on youth, and case planning/management). In order to complete this dense volume of work, juvenile probation officers often work overtime – an additional cost to the agency.

Table 25

Supervision Matrix Based on PACT Overall Risk to Reoffend

Risk Level	Level III Supervision ^a	Level IV Supervision ^b
Low	1 in person contact/month	2 contacts/month with a minimum of 1 contact in the home per month
Moderate	2 contacts/month with a minimum of 1 contact in the home	3 contacts/month with a minimum of 2 contacts in the home per month
High	Weekly contact with a minimum of 2 contacts in the home per month	Weekly contact with a minimum of 3 contacts in the home per month

^aLevel III Supervision is reserved for youth who are low to moderate risk to reoffend.

^bLevel IV Supervision is reserved for youth who are moderate to high risk to reoffend.

Future Directions

In their guide for risk assessment tool implementation, Vincent, Guy, and Grisso (2012c) outline key steps to ensure the sound implementation and success of risk assessment tools. The first step in preparing for the implementation of a tool involves administrative, operational, and staff readiness, preparing data systems, and identifying a neutral expert in risk assessment. The latter can include a university partner. Partnering with a university helps agencies establish sound research and evaluation protocols in the absence of an in-house Research and Evaluation Department stemming from the inherent lack of financial and institutional resources often encountered by public government agencies. The EPJPD should capitalize on their current collaborative relationship with the University of Texas at El Paso and gain guidance and support in educating themselves about choosing a risk assessment tool that fits both the criteria for Evidence-Based Practice and the agency's needs, as well as how to properly implement, sustain, and measure the accuracy and effectiveness of the tool. In their guide,

Vincent et al. (2012c) offer samples of Memorandums of Agreement with University Partners that would facilitate this process.

It is also recommended that agencies integrate their risk assessment tool directly to their in-house data systems for the purposes of tracking its performance (Vincent et al., 2012c). Furthermore, agencies should be wary of tools (e.g. PACT) that utilize elaborate software and/or algorithms that generate scores in a manner that is not transparent to the user. Unfortunately, these recommendations were not adhered to by the EPJPD. The PACT vendor, Assessments.com, not only maintained ownership of the data and had it stored within their own data systems, but they also maintained proprietary rights to the algorithms used to generate risk scores (i.e. overall risk and social history scores). In the future, the EPJPD should adhere to these recommendations by fully integrating risk assessment tools to their Juvenile Management Information System (JMIS) and by contractually obligating tool vendors to provide transparency in the generation of assessment scores. Adhering to these recommendations will allow the agency to better track tool performance and also, greatly facilitate and improve future tool validation efforts.

The lack of proper quality assurance protocols also hindered the success of the PACT in predicting recidivism at the EPJPD. Among the components identified by Vincent et al. (2012c) identify three components of quality assurance: a) staff performance in administering the tool (i.e. interrater reliability); b) audits by supervisors; and c) group data checks. The purpose of measuring staff performance in tool administration is to track the naturally occurring decrease in accuracy over time. Given the ever increasing demands of the job and staff turnover, it is important to measure interrater reliability and interrater accuracy consistently and periodically. This also serves to help the agency identify staff who are struggling and in need of additional

training and also identify areas where the tool may not be serving its intended purpose. As discussed previously, interrater reliability and interrater accuracy was not tracked at the EPJPD during the study time frame. This made it impossible to measure the extent to which interrater reliability impacted the predictive utility of the PACT. Fortunately, the agency has established continual monitoring of interrater reliability as well as interrater accuracy with their new vendor, Noble Software Inc. Currently, Juvenile Probation Officers are required to complete an online assessment based on a sample case (via video) provided by Noble Software Inc. Officer scores are then compared to expert raters (i.e. scores generated by the tool vendor) and flagged for weaknesses, or areas of improvement. All officers are required to complete at least one online assessment for the purposes of interrater reliability and interrater accuracy every 6 months. Thus, current quality assurance protocols have greatly improved in this area since the establishment of a new contract with a new PACT vendor. Finally, ongoing sustainability efforts should be adopted by the EPJPD to ensure the success of risk assessment tools at their agency. This includes promoting sustainability at all levels of the organization, from administrative secretaries to directors and supervisors. Researchers suggest staff complete booster trainings every six months in order to prevent drift, or decrease in accuracy over time (Vincent et al., 2012c). Additionally, ongoing and consistent data-monitoring is necessary to ensure the full integration of risk assessment tool results in the decision-making process including the administration of appropriate sanctions and allocation of treatment services to youth based on risk and criminogenic needs (Vincent et al., 2012c). Currently, the PACT exerts significant influence in the decision-making process. To start, the PACT risk score is considered heavily when determining level of probation (i.e. type of supervision). Second, case planning and management focus on the top 3 criminogenic risk factors identified through the PACT. Juvenile probation

officers then utilize this information to develop goals and interventions that target these risk factors. Case plans are then monitored monthly and updates are made based on PACT re-assessment information.

In conclusion, although the present study demonstrated the PACT's poor predictive utility at the EPJPD, it did shed light on weaknesses that the agency will be able to address moving forward. This includes utilizing the existing collaborative relationship with the local university by having their researchers serve as the outside, neutral expert in risk assessment, the improvement of staff training policy and procedures, the integration of risk assessment tools to existing data management systems to track tool performance, and the establishment of continual quality control protocols to aid in the accuracy and sustainability of risk assessment over time. By addressing the identified areas of weakness and adhering to the expert recommendations outlined in the risk assessment literature outlined above, the agency should see improvement in the predictive utility of the PACT in future re-validation efforts. More importantly, it will lay the groundwork for the successful vetting, implementation and sustainability of any additional or alternative risk assessment instruments the agency may want to introduce in the future.

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APPENDIX A

Table A1

Description of EPJPD Units Tasked with PACT Administration

Unit	Purpose	Responsibilities
Intake	Processes incoming referrals from all law enforcement agencies within El Paso County on juveniles accused of committing an offense.	<ol style="list-style-type: none"> 1. Review police reports to verify jurisdiction and probable cause. 2. Conduct juvenile background investigation. 3. Conduct interviews of referred juveniles and their families. 4. Conduct assessments (e.g. PACT). 5. Recommend for the juvenile to be detained or released. 6. Recommend court intervention or other alternatives.
Probation	Responsible for conducting assessments of protective factors and criminogenic needs with the juvenile and the family.	<ol style="list-style-type: none"> 1. Make supervision and treatment recommendations to the courts. 2. Monitor and supervise children ordered and placed on different levels of probation.

APPENDIX B

Table A2

<i>Variables Extracted from the Juvenile Management Information System (JMIS)</i>	
Data Type	Variables
Basic Demographics	Race Gender CPS involvement Military family Juvenile Identification Number (JID)
Detentions	Begin/End dates Facility Reason for detention
Referrals & Offenses	Referral ID Referral type Age at Referral Referring agency Violation (yes/no) Referring offense Offense severity
Supervision	Year of supervision Begin/End dates Supervision type Supervision outcome
Placements	Placement facility Begin/End dates Reason for placement discharge Referring offense Offense severity
Substance Use/Drug Test	Substance Use severity Urine Analysis (UA) results UA test dates
MAYSI (Mental Health Screener)	Domain scores Subsequent referral (yes/no)

APPENDIX C

Table A3

PACT Full Assessment Questions and Response Options

Domain	Item
1. Record of Referrals	<p>1. Age at first offense: the age at the time of the offense for which the minor was referred to juvenile court for the first time on a non-traffic misdemeanor or felony that resulted in diversion, adjudication withheld, adjudication, deferred prosecution or referral to adult court.</p> <p>2. Misdemeanor referrals: Total number of referrals, as defined in “Domain 1 Definitions” (see above), for which the most serious offense was a non-traffic misdemeanor that resulted in diversion, adjudication withheld, adjudication, deferred prosecution or referral to adult court (regardless of whether successfully completed).</p> <p>3. Felony referrals: Total number of referrals, as defined in “Domain 1 Definitions” (see above), for which the most serious offense was for a felony offense that resulted in diversion, adjudication withheld, adjudication, deferred prosecution or referral to adult court (regardless of whether successfully completed).</p> <p>4. Weapon referrals: Total referrals for which the most serious offense was a firearm/weapon charge or a weapon enhancement finding.</p> <p>5. Against-person misdemeanor referrals: Total number of referrals for which the most serious offense was an against-person misdemeanor – a misdemeanor involving threats, force, or physical harm to another person or sexual misconduct (assault, coercion, harassment, intimidation, etc).</p> <p>6. Against-person felony referrals: Number of referrals for which the most serious offense was an against-person felony involving force or physical harm to another person including sexual misconduct defined as</p>

a violent felony.

7. Sexual misconduct misdemeanor referrals: Number of referrals for which the most serious offense was a sexual misconduct misdemeanor including obscene phone calls, indecent exposure, obscenity, pornography, or public indecency, or misdemeanors with sexual motivation.

8. Felony sex offense referrals: Referrals for a felony sex offense or involving sexual motivation including carnal knowledge, child molestation, communication with minor for immoral purpose, incest, indecent exposure, indecent liberties, promoting pornography, rape, sexual misconduct, or voyeurism.

9. Confinements in secure detention where minor was held for at least 48 hours: Number of times the minor was held for at least 48 hours physically confined in a detention facility.

10. Commitment orders where minor served at least one day confined under residential commitment: Total number of commitment orders and modification orders for which the minor served at least one day confined under residential commitment. A day served includes credit for time served.

11. Escapes: Total number of attempted or actual escapes that resulted in adjudication.

12. Warrants for failure-to-appear in court or absconding from supervision: Total number of failures-to-appear in court or absconding from supervision that resulted in a warrant being issued. Exclude failure-to-appear warrants for non-criminal matters, e.g., traffic citations or infractions.

3A. School History

1. Minor is a special education student or has a formal diagnosis of a special education need. *(Check all that apply)*

2. History of expulsions and out of school suspensions since the first grade.

3. Age at first expulsion or suspension.

4. Minor has been enrolled in school during the last 6 months, regardless of attendance: *School includes a conventional academic or vocational public or private school, continuation school, or accredited distance learning classes, home school and independent study programs.*

3B. Current School Status

1. Minor's current school enrollment status, regardless of attendance. *If the minor is in continuation school, home school or independent study program as a result of being expelled or dropping out, check expelled or dropped out, otherwise check enrolled, if in continuation school/home school or independent study program.*

2. Type of school in which minor is enrolled.

3. Minor believes there is value in getting an education.

4. Minor believes school provides an encouraging environment for him or her.

5. Teachers, staff, or coaches the minor likes or feels comfortable talking with.

6. Minor's involvement in school activities during most recent term. *School leadership; social service clubs; music, dance, drama, art; athletics; and other extracurricular activities.*

7. Minor's conduct in the most recent term. *Fighting or threatening students; threatening teachers/staff; overly disruptive behavior; drug/alcohol use; crimes (e.g., theft, vandalism); lying, cheating, dishonesty. This question is progressive. Please select the most severe.*

8. Number of expulsions and suspensions in the most recent term.

9. Minor's attendance in the most recent term. *Partial-day absence means attending the majority of classes and missing the minority. Full-day absence means missing majority of classes.*

10. Minor's academic performance in the most recent

school term.

11. Interviewer's assessment of likelihood the minor will stay in and graduate from high school or an equivalent vocational school.

4A. Historic Use of Free Time

1. History of structured recreational activities: *Within the past 5 years minor has participated in structured and supervised pro-social community activities, such as religious group/church, community group, cultural group, club, athletics, or other community activities.*

2. History of unstructured pro-social recreational activities: *Within the past 5 years, minor has engaged in activities that positively occupy the minor's time, such as reading, hobbies, etc.*

4B Current Use of Free

1. Current interest and involvement in structured recreational activities. *Minor participates in structured and supervised pro-social community activities, such as religious group/church, community group, cultural group, club, athletics, or other.*

2. Types of structured recreational activities in which minor currently participates.

3. Current interest and involvement in pros-social unstructured recreational activities. *Minor engages in activities that positively occupy his or her time, such as reading, hobbies, etc.*

5A Employment History

1. History of employment: **If "too young..." has been selected then items 2 and 3 should be grayed out and Domain 5B should be grayed out. *If "14 years old..." has been selected then items 2 and 3 should be grayed out along with Domain 5B, items 1 and 4. Items 2 and 3 of Domain 5B should still be open for a response. *If "currently employed has been selected, then the response of "currently employed" in Domain 5B, Item 1 should be automatically selected.*

2. History of employment performance: *(Check all that apply).*

3. History of positive personal relationship(s) with past employer(s)/adult coworker(s):

5B Current Employment

1. Current employment status.
2. Understanding of what is required to maintain a job.
3. Current interest in employment.
4. Current positive personal relationship(s) with employer(s)/adult coworker(s).

6A History of Relationships

1. History of positive adult non-family relationships not connected to school or employment. *This includes adults, who are not teachers and not part of the minor's family, who can provide support and model pro-social behavior, such as religious leader, club member, community person, etc.*
2. History of anti-social friends/companions. Minor feels there are people in his or her community who encourage him or her to stay out of trouble and are willing to help the minor. *(Check all that apply).*

6B Current Relationships

1. Current positive adult non-family relationships not connected to school or employment. *Adults, who are not teachers and not part of the minor's family, who can provide support and model pro-social behavior, such as religious leader, club member, community person, etc.*
2. Current pro-social community ties. *Minor feels there are people in his or her community who discourage him or her from getting into trouble or are willing to help the minor.*
3. Current friends/companions minor actually spends time with. *(Check all that apply).*
4. Currently in a "romantic," intimate, or sexual relationship.
5. Currently admires/ emulates anti-social peers.
6. Current resistance to anti-social peer influence.

7A Family History

1. History of court-ordered or child welfare/child protective/social services voluntary out-of-home and

shelter care placements exceeding 30 days. *Exclude delinquency-related referrals or placements.*

2. History of running away or getting kicked out of home. *Include times the minor did not voluntarily return within 24 hours, and include incidents not reported by or to law enforcement.*

3. History of dependency petitions filed. Include all petitions regardless of whether the petition was sustained.

4. History of jail/imprisonment of persons who were ever involved in the household for at least 3 months. Mother and father refer to current parent or legal guardian. *(Check all that apply).*

5. Minor living under any “adult supervision”. *Adult supervision must be someone who is responsible for the minor’s welfare, either legally or with parental consent.*

7B Current Living Arrangements

1. All persons with whom minor is currently living. *(Check all that apply).*

2. Annual combined income of minor and family. Answer to the right will auto-populate from the numbers entered below.

Number of persons in household: _____

Income: _____

**Response will be selected based on the numbers put into the above fields.*

3. Jail/imprisonment history of persons who are currently involved with the household. *(Check all that apply).*

4. Problem history of parents who are currently involved with the household. *(Check all that apply).*

5. Problem history of siblings who are currently involved with the household. *(Check all that apply).*

6. Support network for family. *Extended family and/or family friends who can provide additional support to the family.*

7. Family willingness to help support minor.
8. Family provides opportunities for Minor to participate in family activities and decisions affecting the minor.
9. Minor has run away or been kicked out of home. *Include times minor did not voluntarily return within 24 hours, and include incidents not reported by or to law enforcement.*
10. Family member(s) minor feels close to or has good relationship with.
(Check all that apply).
11. Level of conflict between parents, between minor and parents, among siblings.
(Check all that apply).
12. Parental supervision. *Parents know who minor is with, when minor will return, where minor is going, and what minor is doing.*
13. Parental authority and control:
14. Consistent appropriate punishment for bad behavior. *Appropriate means clear communication, timely response, and response proportionate to conduct.*
15. Consistent appropriate rewards for good behavior. *Appropriate means clear communication, timely response, and response proportionate to conduct; rewards mean affection, praise, etc.*
16. Parental characterization of minor's anti-social behavior:

8A Alcohol and Drug History

1. History of minor's alcohol use. (Check all that apply).
2. History of minor's drug use.
(Check all that apply).
3. History of referrals for drug/alcohol assessment.

4. History of attending drug/alcohol education classes for a drug/alcohol problem.

5. History of participating in drug/alcohol treatment program.

6. Minor using alcohol or drugs.

8B Current Alcohol and Drugs

1. Minor's alcohol use. *(Check all that apply).*

2. Minor's drug use: *(Check all that apply).*

3. Type of drugs currently used.

4. Current drug/alcohol treatment program participation.

9A Mental Health History

1. History of suicidal ideation. Include any previous thoughts, threats, plans and attempts even if minor indicates they were manipulative or there was no intent. *(Check all that apply).*

2. History of violence/physical abuse: *Include incidents of violence/physical abuse disclosed by minor, whether or not reported or substantiated, but exclude reports investigated and proven to be false. (Check all that apply).*

3. History of witnessing violence. *Include perpetrators and victims of violence as having witnessed violence. Include witnessing of violence disclosed by minor, whether or not reported or substantiated, but exclude reports investigated and proven to be false. (Check all that apply).*

4. History of sexual abuse/rape: *Include suspected incidents of abuse if disclosed by minor, whether or not reported or substantiated, but exclude reports investigated and proven to be false. (Check all that apply).*

5. History of being a victim of neglect. *Include neglect disclosed by minor, whether or not reported or substantiated, but exclude reports investigated and proven to be false.*

6. History of ADD/ADHD. *Confirmed by a professional in the social service/healthcare field.*

7. History of mental health problems. *Such as schizophrenia, bi-polar, mood, thought, personality, and adjustment disorders. Exclude conduct disorder, oppositional defiant disorder, substance abuse and ADD/ADHD. Confirm by a professional in the social service/healthcare field.*

8. History of anger/irritability.

9. History of depression /anxiety.

10. History of somatic complaints. *Bodily or physical discomforts associated with distress, such as stomachaches or headaches.*

11. History of thought disturbance.

12. History of traumatic experience. *Lifetime exposure to events such as rape, abuse or observed violence, including dreams or flashbacks.*

13. Currently has health insurance.

14. Current mental health problem status.

9B Current Mental Health

1. Current suicidal ideation.

Include any previous thoughts, threats, plans and attempts even if minor indicates they were manipulative or there was no intent. (Check all that apply).

2. Currently diagnosed with ADD/ADHD. *Confirmed by a professional in the social service/healthcare field.*
Type of medication: _____

3. Mental health treatment currently prescribed, excluding ADD/ADHD treatment.

4. Mental health medication currently prescribed excluding ADD/ADHD medication.
Type of medication: _____

5. Mental health problems currently interfere with

working with the minor.

10 Attitudes/Behavior

1. Primary emotion when committing crime(s).
2. Primary purpose for committing crime(s) within last 6 months.
3. Optimism. *Minor talks about future in positive way with plans or aspirations of a better life that could include employment, education, raising a family, travel, or other pro-social life goals.*
4. Impulsive; acts before thinking.
5. Belief in control over anti-social behavior.
6. Empathy, remorse, sympathy, or feelings for the victim(s) of criminal behavior.
7. Respect for property of others.
8. Respect for authority figures.
9. Attitude toward responsible law abiding behavior.
10. Accepts responsibility for anti-social behavior.
11. Minor's belief in successfully meeting conditions of court supervision.

11 Aggression

1. Tolerance for frustration.
2. Hostile interpretation of actions and intentions of others in a common non-confrontational setting.
3. Belief in yelling and verbal aggression to resolve a disagreement or conflict.
4. Belief in fighting and physical aggression to resolve a disagreement or conflict.
5. Reports/evidence of violence not included in criminal history. (*Check all that apply*).
6. Reports/evidence of sexual aggression not included in criminal history.

(Check all that apply).

12 Skills

1. Consequential thinking.
2. Goal setting.
3. Problem-solving.
4. Situational perception. *Ability to analyze the situation, choose the best pro-social skill, and select the best time and place to use the pro-social skill.*
5. Dealing with others. *Basic social skills include listening, starting a conversation, having a conversation, asking a question, saying thank you, introducing yourself, introducing other people, and giving a compliment. Advanced social skills include asking for help, joining in, giving instructions, following instructions, apologizing, and convincing others.*
6. Dealing with difficult situations. *Incl. making a complaint, answering a complaint, dealing with embarrassment, dealing with being left out, standing up for a friend, responding to frustration, responding to failure, dealing with contradictory messages, dealing with accusation, getting ready for a difficult conversation, and dealing with group pressure.*
7. Dealing with feelings/emotions. *Includes knowing his or her feelings, expressing feelings, understanding the feelings of others, dealing with someone else's anger, expressing affection, dealing with fear, and rewarding oneself.*
8. Monitoring/controlling of internal triggers, distorted thoughts that can lead to trouble.
9. Monitoring/controlling of external triggers, events or situations that can lead to trouble.
10. Control of impulsive behaviors that get minor into trouble. *Reframing, replacing anti-social thoughts with pro-social thoughts, diversion, relaxation, problem solving, negotiation, and relapse prevention.*

11. Control of aggression. *Includes asking permission, sharing thoughts, helping others, negotiating, using self control, standing up for one's rights, responding to teasing, avoiding trouble with others, and keeping out of fights.*

APPENDIX D

Table A4

Base Rate Information for El Paso County

Cohort Year	PACT Risk Level	Recidivism at 12 months	Recidivism at 24 months	Recidivism at 36 months
One year (2016)	High	32	26	0
	Medium-High	17	15	0
	Medium	73	44	0
	Low	217	44	0
Two years (2015)		9	30	8
	High	18	21	12
	Medium-High	55	32	34
	Medium	191	61	38
Three years (2016)	Low	15	15	11
		8	23	10
	High	33	48	23
	Medium-High	153	60	38
	Medium	32	26	0
	Low	17	15	0

Note. Count data reflects youth who reoffended with a Misdemeanor B or higher.

APPENDIX E

Table A5

Regression Predicting Recidivism based on Assessment Type

Recidivism Type	Assessment Type	<i>B</i>	<i>SE B</i>	<i>p</i>
State	Initial (n = 851)	-.339	.070	<.001
	Re-assessment (n = 27)	-.375	.392	.339
	Final (n = 8)	1.099	.816	.178
	Amended (n = 12)	.000	.577	1.000
Agency	Initial (n = 776)	.483	.074	<.001
	Re-assessment (n = 24)	.336	.414	.416
	Final (n = 8)	-1.099	.816	.178
	Amended (n = 11)	.182	.606	.763
Violations	Initial (n = 776)	-.483	.074	<.001
	Re-assessment (n = 24)	-.336	.414	.416
	Final (n = 8)	1.099	.816	.178
	Amended (n = 11)	-.182	.606	.763

APPENDIX F

Table A6

Percent Recidivism for Demographic Characteristic per Cohort

Cohort	Demographic	State (%)	EPJPD (%)	VOP (%)
2011	Gender			
	Boy	151 (97.4)	64 (44.1)	81 (55.9)
	Girl	34 (91.9)	14 (48.3)	15 (51.7)
	Race			
	Hispanic	126 (94.7)	52 (43.7)	67 (56.3)
	Uncategorized	39 (100.0)	18 (50.0)	18 (50.0)
	White	10 (100.0)	3 (30.0)	7 (70.0)
	African American	7 (100.0)	2 (33.3)	4 (66.7%)
	Age at First Referral			
	Under 13	47 (100.0)	8 (17.0)	39 (83.0)
	13 to 14	93 (95.0)	42 (47.1)	47 (48.0)
	15	36 (94.7)	22 (68.8)	10 (31.3)
	16 and over	10 (100.0)	6 (85.7)	1 (14.3)
2012	Gender			
	Boy	176 (98.3)	102 (66.2)	52 (33.8)
	Girl	56 (98.2)	28 (53.8)	24 (46.2)
	Race			
	Hispanic	168 (97.7)	91 (61.5)	57 (38.5)
	Uncategorized	35 (100.0)	19 (63.3)	11 (36.7)
	White	16 (100.0)	7 (46.7)	8 (53.3)
	African American	13 (100.0)	13 (100.0)	0 (0.0)
	Age at First Referral			
	Under 13	38 (100.0)	12 (35.3)	22 (64.7)
	13 to 14	101 (99.0)	56 (58.9)	39 (41.1)
	15	56 (98.2)	34 (70.8)	14 (29.2)
	16 and over	37 (94.9)	28 (96.5)	1 (3.4)
2013	Gender			
	Boy	184 (99.5)	109 (63.7)	62 (36.3)
	Girl	42 (95.5)	28 (71.8)	11 (28.2)
	Race			
	Hispanic	169 (98.3)	99 (63.5)	57 (36.5)
	Uncategorized	37 (100.0)	26 (76.5)	8 (23.5)
	White	14 (100.0)	7 (53.8)	6 (46.2)
	African American	10 (100.0)	7 (70.0)	3 (30.0)

(continued)

Table A6

Percent Recidivism for Demographic Characteristic per Cohort

Cohort	Demographic	State (%)	EPJPD (%)	VOP (%)
2013	Age at First Referral			
	Under 13	43 (97.8)	18 (42.9)	26 (61.9)
	13 to 14	104 (98.1)	60 (62.5)	36 (37.5)
	15	59 (100.0)	46 (80.7)	11 (19.3)
	16 and over	24 (100.0)	17 (94.4)	1 (0.1)
2014	Gender			
	Boy	171 (97.7)	114 (72.2)	44 (27.8)
	Girl	44 (93.6)	28 (77.8)	8 (22.2)
	Race			
	Hispanic	150 (95.5)	93 (67.9)	44 (32.1)
	Uncategorized	38 (100.0)	32 (94.1)	2 (5.9)
	White	12 (100.0)	8 (80.0)	2 (20.0)
	African American	9 (100.0)	5 (62.5)	3 (37.5)
	Age at First Referral			
	Under 13	29 (100.0)	7 (25.9)	20 (70.1)
2015	13 to 14	89 (94.7)	60 (71.4)	24 (28.6)
	15	63 (100.0)	46 (85.2)	8 (14.8)
	16 and over	36 (94.7)	31 (100.0)	0 (0.0)
	Gender			
	Boy	111 (98.2)	89 (85.6)	15 (14.4)
	Girl	36 (100.0)	27 (81.8)	6 (18.2)
	Race			
	Hispanic	115 (99.1)	89 (83.2)	18 (16.8)
	Uncategorized	12 (92.3)	12 (100.0)	0 (0.0)
	White	13 (100.0)	11 (91.7)	1 (8.3)
	African American	5 (100.0)	3 (60.0)	2 (40.0)
	Age at First Referral			
	Under 13	20 (100.0)	11 (61.1)	7 (38.9)
	13 to 14	63 (96.9)	47 (77.0)	14 (33.3)
	15	38 (100.0)	35 (100.0)	0 (0.0)
	16 and over	26 (100.0)	23 (100.0)	0 (0.0)

APPENDIX G

Table A7

Correlations for PACT Domain and Criminal History Score with Recidivism for Cohort 2011.

Domain	Static/Dynamic and Risk/Protective	State Recidivism	JPD Recidivism	Violation Recidivism
1 (Record of Referrals)				
	Static Risk	.038	-.038	.038
	Dynamic Risk	-	-	-
	Static Protective	-	-	-
	Dynamic Protective	-	-	-
Criminal History Score		.038	-.038	.038
3 (School - History)				
	Static Risk	-.003	-.062	.062
	Dynamic Risk	.020	-.068	.068
	Static Protective	.000	.101	-.101
	Dynamic Protective	-.020	.068	-.068
3 (School – Current ^a)				
	Static Risk	-	-	-
	Dynamic Risk	-.055	-.104	.104
	Static Protective	-	-	-
	Dynamic Protective	.035	.134	-.134
4 (Use of Free Time – History)				
	Static Risk	-	-	-
	Dynamic Risk	-	-	-
	Static Protective	-.054	.175*	-.175*
	Dynamic Protective	-	-	-
4 (Use of Free Time – Current)				
	Static Risk	-	-	-
	Dynamic Risk	.102	-.104	.104
	Static Protective	-	-	-
	Dynamic Protective	-.061	.072	-.072
5 (Employment – History)				
	Static Risk	-	-	-
	Dynamic Risk	-	-	-
	Static Protective	-.033	-.122	.122
	Dynamic Protective	-	-	-

(continued)

Table A7

Correlations for PACT Domain and Criminal History Score with Recidivism for Cohort 2011.

Domain	Static/Dynamic and Risk/Protective	State Recidivism	JPD Recidivism	Violation Recidivism
5 (Employment – Current)	Static Risk	-	-	-
	Dynamic Risk	-	-	-
	Static Protective	-	-	-
	Dynamic Protective	.078	-.158*	.158*
6 (Relationships – History)	Static Risk	-.143*	.058	-.058
	Dynamic Risk	-	-	-
	Static Protective	-.020	.019	-.019
	Dynamic Protective	-	-	-
6 (Relationships – Current)	Static Risk	-	-	-
	Dynamic Risk	-.093	.024	-.024
	Static Protective	-	-	-
	Dynamic Protective	-.086	.028	-.028
7 (Family – History)	Static Risk	-.059	.148	-.148
	Dynamic Risk	.025	.060	-.060
	Static Protective	.090	-.117	.117
	Dynamic Protective	-.025	-.060	.060
7 (Family – Current)	Static Risk	-	-	-
	Dynamic Risk	-.037	-.014	.014
	Static Protective	-	-	-
	Dynamic Protective	-.039	-.030	.030
8 (Substance Use – History)	Static Risk	-.233**	-.019	.019
	Dynamic Risk	-.065	.102	-.102
	Static Protective	.079	.056	-.056
	Dynamic Protective	.065	-.102	.102
8 (Substance Use – Current)	Static Risk	-	-	-
	Dynamic Risk	-.175*	.086	-.086

9 (Mental Health – History)	Static Protective	-	-	-
	Dynamic Protective	-.044	.020	-.020
9 (Mental Health – Current)	Static Risk	-.029	.003	-.003
	Dynamic Risk	.021	.008	-.008
	Static Protective	.025	-.009	.009
	Dynamic Protective	.012	-.029	.029
10 (Attitudes/Behaviors)	Static Risk	-	-	-
	Dynamic Risk	-.028	-.036	.036
	Static Protective	-	-	-
	Dynamic Protective	.020	-.018	.018
11 (Aggression)	Static Risk	-	-	-
	Dynamic Risk	-.040	.043	-.043
	Static Protective	-	-	-
	Dynamic Protective	.059	-.002	.002
12 (Skills)	Static Risk	-	-	-
	Dynamic Risk	-.008	-.040	.040
	Static Protective	-	-	-
	Dynamic Protective	-.004	.056	-.056
	Static Risk	-	-	-
	Dynamic Risk	-.060	.002	-.002
	Static Protective	-	-	-
	Dynamic Protective	.065	.076	-.076

^aCurrent is defined as “occurring within the last 6 months”.

* $p < .05$; ** $p < .01$.

APPENDIX H

Table A8

Predicting State Recidivism based on Static versus Dynamic Protective Factors for Full Study Sample

	<i>B</i>	<i>p</i>
Excluded Variables		
Domain 3A (S/P) ^a	.004	.879
Domain 5A (S/P)	-.022	.384
Domain 6A (S/P)	-.051	.052
Domain 7A (S/P)	.030	.240
Domain 8A (S/P)	.008	.742
Domain 9A (S/P)	-.022	.395
Domain 3A (D/P) ^b	-.027	.293
Domain 3B (D/P)	-.017	.512
Domain 4B (D/P)	.001	.981
Domain 5B (D/P)	.018	.479
Domain 6B (D/P)	-.041	.121
Domain 7A (D/P)	-.007	.780
Domain 7B (D/P)	.007	.783
Domain 8A (D/P)	-.025	.319
Domain 8B (D/P)	-.017	.508
Domain 9A (D/P)	.024	.339
Domain 9B (D/P)	-.028	.270
Domain 10 (D/P)	.001	.980
Domain 11 (D/P)	-.010	.698
Domain 12 (D/P)	.043	.095

Note. B = unstandardized regression coefficient.

^aS/P = Static Protective; ^bD/P = Dynamic Protective.

Table A9

Predicting JPD Recidivism based on Static versus Dynamic Protective Factors for Full Study Sample

	<i>B</i>	<i>p</i>
Excluded Variables		
Domain 3A (S/P) ^a	-.014	.599
Domain 4A (S/P)	.053	.052
Domain 5A (S/P)	.030	.257
Domain 7A (S/P)	-.039	.147
Domain 8A (S/P)	-.007	.780
Domain 9A (S/P)	.015	.573
Domain 3A (D/P) ^b	.022	.418
Domain 3B (D/P)	.015	.600
Domain 4B (D/P)	.029	.293
Domain 5B (D/P)	-.012	.652
Domain 6B (D/P)	.027	.374
Domain 7A (D/P)	.010	.705
Domain 7B (D/P)	-.013	.635
Domain 8A (D/P)	.033	.224
Domain 8B (D/P)	.028	.299
Domain 9A (D/P)	-.034	.203
Domain 9B (D/P)	.047	.081
Domain 10 (D/P)	.001	.984
Domain 11 (D/P)	.006	.824
Domain 12 (D/P)	-.050	.070

Note. B = unstandardized regression coefficient.

^aS/P = Static Protective; ^bD/P = Dynamic Protective.

Table A10

Predicting VOP Recidivism based on Static versus Dynamic Protective Factors for Full Study Sample

	<i>B</i>	<i>p</i>
Excluded Variables in Model 1		
Domain 3A (S/P) ^a	.014	.599
Domain 4A (S/P)	-.053	.052
Domain 5A (S/P)	-.030	.257
Domain 7A (S/P)	.039	.147
Domain 8A (S/P)	.007	.780
Domain 9A (S/P)	-.015	.573
Domain 3A (D/P) ^b	-.022	.418
Domain 3B (D/P)	-.015	.600
Domain 4B (D/P)	-.029	.293
Domain 5B (D/P)	.012	.652
Domain 6B (D/P)	-.027	.374
Domain 7A (D/P)	-.010	.705
Domain 7B (D/P)	.013	.635
Domain 8A (D/P)	-.033	.224
Domain 8B (D/P)	-.028	.299
Domain 9A (D/P)	.034	.203
Domain 9B (D/P)	-.047	.081
Domain 10 (D/P)	-.001	.984
Domain 11 (D/P)	-.006	.824
Domain 12 (D/P)	.050	.070

Note. ^aS/P = Static Protective; ^bD/P = Dynamic Protective.

Table A11

Predicting State Recidivism based on Static versus Dynamic Risk Factors for Full Study Sample

	<i>B</i>	<i>p</i>
Excluded Variables in Model 1		
Domain 3A (S/R) ^a	.011	.679
Domain 3B (S/R)	-.021	.405
Domain 4A (S/R)	-.021	.405
Domain 5A (S/R)	-.005	.859
Domain 6A (S/R)	-.027	.301
Domain 7A (S/R)	-.012	.630
Domain 7B (S/R)	-.021	.405
Domain 8A (S/R)	.000	.997
Domain 8B (S/R)	-.021	.405
Domain 9A (S/R)	.028	.272
Domain 9B (S/R)	-.021	.405
Domain 11 (S/R)	-.021	.405
Domain 12 (S/R)	-.021	.405
Domain 3A (D/R) ^b	.028	.275
Domain 3B (D/R)	-.009	.732
Domain 4A (D/R)	-.021	.405
Domain 5B (D/R)	-.024	.342
Domain 6A (D/R)	-.021	.405
Domain 6B (D/R)	.022	.392
Domain 7A (D/R)	.007	.793
Domain 7B (D/R)	.014	.582
Domain 8A (D/R)	.026	.308
Domain 8B (D/R)	.002	.940
Domain 9A (D/R)	.001	.954
Domain 9B (D/R)	-.003	.917
Domain 10 (D/R)	.007	.776
Domain 11 (D/R)	.011	.655
Domain 12 (D/R)	-.058	.025
Excluded Variables in Model 2		
Domain 3A (S/R) ^a	.021	.414
Domain 3B (S/R)	-.022	.378
Domain 4A (S/R)	-.022	.378
Domain 5A (S/R)	-.005	.850
Domain 6A (S/R)	-.016	.542
Domain 7A (S/R)	-.003	.916
Domain 7B (S/R)	-.022	.378
Domain 8A (S/R)	.007	.774
Domain 8B (S/R)	-.022	.378

(continued)

Table A11

Predicting State Recidivism based on Static versus Dynamic Risk Factors for Full Study Sample

	<i>B</i>	<i>p</i>
Excluded Variables in Model 1		
Domain 9A (S/R)	.036	.155
Domain 9B (S/R)	-.022	.378
Domain 11 (S/R)	-.022	.378
Domain 12 (S/R)	-.022	.378
Domain 3A (D/R) ^b	.028	.274
Domain 3B (D/R)	.019	.506
Domain 4A (D/R)	-.022	.378
Domain 5B (D/R)	-.022	.376
Domain 6A (D/R)	-.022	.378
Domain 6B (D/R)	.052	.064
Domain 7A (D/R)	.005	.853
Domain 7B (D/R)	.047	.102
Domain 8A (D/R)	.036	.164
Domain 8B (D/R)	.015	.559
Domain 9A (D/R)	.006	.800
Domain 9B (D/R)	.005	.847
Domain 10 (D/R)	.049	.100
Domain 11 (D/R)	.043	.124

VITA

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Dr. Hutchins was a recipient of two UTEP College of Liberal Arts Dodson Travel Awards and a Student Travel Award from the American Psychology-Law Society. These awards allowed her to present her research at several conferences including the 2014, 2015, and 2017 annual American Psychology-Law Society conferences.

During her tenure in the Psychology Doctoral Program, Dr. Hutchins completed a field placement with the El Paso Juvenile Justice Center in 2015. Her role as a program evaluator at the agency led to a full-time, permanent position as the Juvenile Justice Data Analyst, a position she continues to fulfill currently.

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