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**An Introduction to the Personality Assessment Inventory – Adolescent
(PAI-A): Understanding Applicability for Use With Forensic
Adolescent Males and Investigation of Clinical Correlates**

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(PAI-A): Understanding Applicability for Use With Forensic
Adolescent Males and Investigation of Clinical Correlates**

by

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Report

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Dedication

This work is proudly dedicated to my beloved parents Bill and Bonnie, and my little sister Annaliese, whose support, love and joy constantly motivate, guide and enlighten me.

I would like to extend special appreciation to my dearest friends Aleeza Miller, Andrea Saathoff, Andrew Adelman, Mary Lenington, and Carol Cochrane, and my partner L. Burk McRae, for loving me, inspiring me, and believing in me and my work.

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Abstract

An Introduction to the Personality Assessment Inventory – Adolescent (PAI-A): Understanding Applicability for Use With Forensic Adolescent Males and Investigation of Clinical Correlates

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Published in 2007, the Personality Assessment Inventory – Adolescent (PAI-A) is rapidly becoming a widely used adolescent personality measure in psychological assessment, particularly with forensic/delinquent adolescents. The literature indicates forensic adolescent males differ in many domains from non-forensic adolescent males. It is important in adolescent forensic assessment research to align the PAI-A with the empirical literature. The goal of this literature review is understand the utility of the PAI-A for use with forensic adolescent males and provide a foundation for future research with the PAI-A and adolescent males. Particularly, this literature review seeks to identify particular PAI-A scales that are potentially descriptive of one's forensic status and combine prior research findings to delineate among inherent characteristics of forensic violent, forensic non-violent and non-forensic community adolescent males.

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Introduction

The term “forensic psychology” refers to the intersection between psychology and the criminal justice system and involves understanding both psychology and the law (Haward, 1981; Blackburn, 1996). Psychological assessment is requested often by the courts, and psychological testing is performed frequently during the course of forensic psychological assessments. Assessments are performed to answer a number of psychological questions posed by the courts, such as risk for reoffending, amenability to treatment, etiology and severity of the offender’s psychopathology. Psychological testing provides psychologists with meaningful, empirical sources of information.

An important aspect of forensic psychology is the ability to translate psychological findings into the language of the law by providing information to legal personnel in a way that can be understood (Nietzel, 1986). The use of psychological tests to measure a variety of psycholegal issues is becoming more widespread (Edens, Cruise & Buffington-Vollum, 2001). Therefore, it is beneficial for both psychologists and legal professionals to have multiple psychological tests for comprehensive psychological evaluations.

With adolescent populations, testing options are more limited since there are fewer adolescent versions of psychological tests than for adult populations (Cashel, 2002). With fewer tests available for use with adolescents, it becomes even more important to have good assessment techniques that are validated on adolescent populations, specifically with forensic adolescent populations.

One instrument gaining in popularity for use with forensic adolescent populations is the Personality Assessment Inventory – Adolescent (PAI-A), developed by Leslie C. Morey, Ph.D. (2007). The PAI-A is a self-administered, multidimensional objective personality test designed to assess and provide information about one's psychological functioning across critical personality domains and psychopathology. Beginning in 1999, the PAI-A was developed almost identically as its parent instrument, the empirically validated and widely used Personality Assessment Inventory (PAI). The PAI adult version was published in 1991 and designed for use with adults ages 18 and over (Morey, 1991). Recognizing the need for another adolescent specific personality assessment instrument and differences between adolescent and adult populations, Morey (2007) constructed and standardized the PAI-A for use with adolescent populations ages 12 to 18.

Since the adolescent PAI-A is a relatively new instrument, the body of research on the PAI-A is limited (Morey, 2011). Specifically, the PAI-A has not been validated for use with forensic adolescent populations. The literature supports the idea that forensic adolescents differ in many domains from non-forensic adolescent populations (Puzzanchera, 2009; Grisso et al., 2003; Farrington, 1998). Specifically, the literature states that forensic adolescents differ along domains of aggression, behavioral activation and inhibition, impulse control, and substance use. In addition, adolescent males tend to be overrepresented in the juvenile justice system (Wasserman et al., 2003). It is important in adolescent forensic assessment research to know how forensic populations differ from non-forensic populations and align the PAI-A with the empirical literature.

This literature review is seeking to highlight and understand characteristics of forensic adolescent male populations and illustrate the need for research validating the PAI-A for use with forensic adolescent males. Particularly, criterion related validation research with the PAI-A may be helpful to identify which scale elevations are descriptive of one's status as a forensic adolescent male (Smith & Archer, 2008). More specifically, this review seeks to combine prior research findings to clarify differences among forensic violent, forensic non-violent and non-forensic community adolescent males.

Review of the Literature

Personality Assessment Inventory – Adolescent (PAI-A)

An appropriate place to begin understanding the PAI-A's inception is the PAI-A's precursor and adult counterpart, the Personality Assessment Inventory (PAI). The PAI is a 344-item self report objective personality measure designed for use with adults ages 18 and over and intended to assess personality and psychopathology (Helmes, 1993).

Development of the PAI incorporated both empirical research and theoretically derived constructs based in factor analysis. Constructs for the PAI were selected based on two criteria: their utility in contemporary modern practice, and formal classification of mental disorders (i.e. DSM-IV-TR, APA, 2000). Selection of each construct involved a process of examination of relevant historical and contemporary literature (Morey, 2003).

Most important to item selection was the tenet that “no single quantitative item parameter should be used as the sole criterion for item selection” (Morey, 2007, p. 59). In other words, items were selected on the basis of many criteria, which include but are not limited to: research team item rating and panel review of both scales and items, statistical discrimination correlates established with other PAI scales and other instruments, and mean differences examined with regards to normal and clinical samples, gender, age, and race/ethnicity (Morey, 2007). Each scale includes items assessing the full range of severity for each construct, from most mild to most severe (Morey, 1991, 2007; Morey & Hopwood, 2008).

Also of importance, the PAI has nonoverlapping items. This is important because it allows for increased discriminant validity and subsequently prevents confounding and

test influenced covariance of scale variables (Morey, 2007). Since each item loads only on one scale, responses to each item effect elevations on that particular scale rather than on multiple scales. This is important because item loading on multiple scales may create the illusion of higher degrees of pathology than actually exist (Kurtz & Blais, 2007).

Like many other adult personality instruments, the adult PAI has been used in adolescent forensic research (Mullen & Edens, 2008). The PAI's ease of administration, shorter length, and lower reading level compared to other personality measures (Morey, 2007) has prompted researchers to utilize the instrument with younger adolescent populations. However, the application of adult personality measures to adolescent populations has posed numerous problems in psychological assessment and research. Research comparing adolescent norms with adult instruments such as the MMPI and the PAI found that these established adult norms tend to be less sensitive and underclassify adolescents with known psychopathology and psychiatric symptoms (Archer, 1984; Ehrenworth & Archer, 1985). In addition, PAI-specific research has shown that younger adults tend to score higher on the Borderline (BOR) and Antisocial (ANT) scales, two scales which specifically target character pathology (Morey & Hopwood, 2008).

Due to these limitations, Morey (2007) felt that development of an adolescent version of the PAI was necessary. The PAI-A, like its adult counterpart, is used to provide information on critical adolescent client variables in professional settings. The PAI-A was specifically designed to be used with adolescent populations and grew out of expressed interest by professionals to use the PAI with adolescents in clinical settings.

The PAI-A was developed and standardized for use in psychological assessment of adolescents between ages 12 and 18.

Given the acceptable to superior reliability and validity data (Alterman et al., 1995; Morey, 1991; Schinka, 1995), the PAI's amenability for use with populations under age 18 (Morey, 2007), and significant literature supporting the PAI's use across numerous clinical settings, Morey began to adapt and extend the existing PAI structure for use with adolescents between ages 12 and 18 (Morey, 2007).

Initially, PAI items were examined to ensure applicability to adolescent populations. Items limited in applicability (i.e. references to work-related tasks, driving a car) were revised to reflect the adolescent experience (i.e. references to school-related tasks) with the goal of retaining each item's meaning and scale loading (Morey, 2007). Other qualities of the adult version such as the fourth-grade reading level, simple sentences, and respondents ranking items on the 4-point Likert-type scale, anchored at *false*, *slightly true*, *mainly true* and *very true*, remained the same.

Subsequently, a diverse, representative adolescent sample of 275 adolescents from California, Tennessee, Texas and Illinois was compiled and administered the 344-item beta version of the PAI-A. Samples were obtained from juvenile detention facilities (54%), inpatient hospital facilities (26.7%), and outpatient mental health settings (22.8%) (Morey, 2007). The purpose of this stage of PAI-A development was to examine how comparable the 344-item beta form, a parallel form to the adult PAI, was for use with adolescent populations. Results indicated that the adolescent sample internal consistency and mean inter-item correlations were lower than those of the adult version, which

suggested that certain items covaried greater for the adult sample than for the adolescent sample. In other words, these findings were problematic since they suggested the PAI-A beta form may not be measuring what it was intended to measure with adolescent populations. Subsequently, those items that differed between adolescents and adults were taken out while still preserving the test content validity. The resulting 80 item omission provided a shortened adolescent test version, 264 items, which corrected problems with lower adolescent compliance and attention spans (Steinberg, 2005; Morey, 2007).

The finalized PAI-A Standardized Version was then validated with community and clinical adolescent populations. Specifically, PAI-A standardization began with utilizing test profiles obtained from two groups of participants. The first group was comprised of 707 community dwelling adolescents between ages 12 and 18 attending junior and senior high schools as well as college. The second group was comprised of 1,160 adolescents being evaluated and treated in clinical settings such as hospitals. Samples were stratified based on 2003 US Census information, with matched samples representative of direct stratification. Specifically, the standardization sample was recruited from 21 states and matched across age, gender and race/ethnicity, with these variables fully crossed based on percentages of each variable's representation in the general population. The community standardization sample (N=707) contained 51.1% male and 48.9% female participants by gender, and 61.5% Caucasian, 15.4% African American, 16.3% Hispanic and 6.8% "Other" by race/ethnicity (Morey, 2007).

PAI-A Characteristics

Similar to the PAI, the PAI-A contains 22 scales: four Validity scales, 11 Clinical scales, five Treatment Consideration scales, and two Interpersonal scales. In addition, the PAI provides broad assessment of response styles, including carelessness, random responding, and minimization or exaggeration of symptoms. A listing of the scales and their descriptions can be found in Appendix A. The PAI-A yields linear T-scores on all full scales and subscales with a mean score of 50 and a standard deviation of 10. Scores above 60T on PAI-A scales may warrant clinical attention, and scores above 70T represent significant deviation from typical responses of the normative community sample (Morey, 2007). T-scores are derived from the community sample, thus providing a helpful means to interpret elevated scores since relatively few normal, well adjusted individuals will endorse these items nor obtain significantly elevated scores (Morey & Hopwood, 2008). In addition, the representative clinical sample responses created profile skylines for each scale which serve as guides to base rate expectations of elevations when the setting changes from community to clinical. Therefore, PAI-A profiles can be interpreted in comparison to both groups (Morey & Hopwood, 2008).

In addition, the PAI-A interpretative manual provides a list of clinical scale elevation constellations and grouping of symptoms to assist the clinician in accurately interpreting configural profiles. According to Morey (2007), historically, configural profile interpretations are driven by codetypes determined by 2 to 3 scores that are most elevated, and which Morey refers to as “clusters”. Based on these scale elevation constellations, certain personality patterns, or clusters, are descriptive of the test taker’s

functioning style and personality traits. Morey (2007) decided that it was more beneficial to use a configural approach to interpretation which entails using more information in the testing profile. In other words, PAI-A clusters include information gleaned from multiple elevated scales (typically from 3 to 7 scales) for a more holistic interpretation.

The PAI has enjoyed documented reliability and validity across normative, college and clinical samples (Deisinger, 1995; Morey, 1991) as well as alcohol dependent (Schinka, 1995) and eating disordered populations (Tasca, Wood, Demidenko, & Bissada, 2002). Each applied study has provided a set of unique PAI clusters of scales, or codetypes, indicated in the PAI manual (Morey, 2007). Given that these clusters have been found in adult samples on the PAI, it follows that group differences would also be found on the PAI-A. Specifically, the PAI-A is being more frequently used in adolescent forensic settings, and therefore a prime research opportunity exists to validate the PAI-A for use with adolescent forensic populations as well as understand the codetypes that discriminate between forensic and non forensic adolescent populations.

PAI-A Validation Studies and Necessity of Validation Studies

Validity is the most important element when evaluating the quality and utility of a measure. When using a measure with a population for which it was not originally normed, it becomes necessary to validate the instrument for use with that population. This process is done in order to determine and document whether a relationship between test scores and an external criterion measure exists. Specifically, it is vital to identify whether scale elevation codetypes, or clusters, can be identified for a forensic adolescent male sample and subsequently created (Smith & Archer, 2008).

In addition to instrument validation, forensic assessment must also adhere to the legal *Daubert* (1993) standard, which requires an instrument to demonstrate adequate reliability and validity to be admissible in the court of law. To demonstrate reliability and validity, researchers must validate instruments on specific populations, namely forensic populations. To date, only one forensic based validation study has been performed with the PAI-A, which examined the utility of the PAI-A in predicting aggressive behaviors with detained adolescent females. This study was mentioned in the PAI-A Professional Manual but has not been published. To date, there appear to be no published peer reviewed forensic adolescent validation studies using the PAI-A.

In the course of a forensic evaluation, psychologists often rely on personality inventories to provide information that is useful in making recommendations regarding case disposition (parole, treatment, detention). Prior studies have evaluated the ability of the adult PAI to distinguish between forensic and non-forensic adolescent offenders. One dissertation study found that aggression, antisocial and borderline personality traits, drug

abuse, suicidality and treatment rejection were correlated with violent juvenile delinquent behavior (Sanford, 2003). In addition, a study performed with the adult PAI found that the ANT and AGG scales were correlated with forensic status (Hoekstra, 2000). However, given the advent of the PAI-A, researchers and clinicians now have a tool to validate these elevations based on adolescent normative data.

Forensic Adolescent Male Demographics

The literature as well as case law demonstrates that adolescents committing serious crimes more likely suffer from serious psychological problems, which tend to compound and substantially exacerbate the already existing vulnerabilities of adolescence (AMA, 2005). The American Bar Association (2004), The American Medical Association (2005) and The American Psychological Association (2004) *Amici Curiae* Briefs agree that adolescents are fundamentally different from adults. Landmark court cases such as *Roper v. Simmons* (2005) which abolished the death penalty for individuals under age 18, *Kent v. United States* (1966) which prescribed specific criteria adolescents must meet before having their case tried in adult court versus juvenile court, and *Atkins v. Virginia* (2002), which specified that adolescents possess “disabilities in areas of reasoning, judgment, and control of their impulses” have legally acknowledged existing baseline adolescent deficits as compared to adults. It is important to recognize and understand these specific differences when conducting research with forensic adolescent populations.

Schematic Variables

Schematic variables (i.e., clusters of knowledge about social events, people, and oneself) such as ethnic identity, gender, and socioeconomic status have been shown to impact an adolescent’s self-worth and social goals, which are especially relevant with delinquent children and adolescents. Relevant literature suggests that minority groups, males and individuals from low socioeconomic backgrounds have a greater chance of being involved in the legal system (Barker et al., 2006; Puzzanchera, 2009; Wasserman et

al., 2003). Therefore, it is important to control for these variables within the context of research validation studies because they may impact the results of studies performed.

Gender. The Office of Juvenile Justice and Delinquency Prevention (OJJDP) found that in 2008, 70% of juvenile arrests were male offenders in the United States. In addition, 83% of violent crime arrests were committed by male offenders. That is, one in 8 violent crimes were attributed to male juvenile offenders. OJJDP statistics further show that adolescent males consistently comprise the majority of juvenile arrests (Puzzanchera, 2009). It is especially important to examine boys and girls separately in forensic research given gender role expectations in our society as well as gender differences in arrest trends (Puzzanchera, 2009). Biological research suggests that physiological maturation processes may pose an increased threat to males regarding delinquency. Notably, rates of aggression are noted to be higher for males than for females, and increased testosterone levels correlated with the onset of puberty has been linked to increased male aggression in adolescence (Kenrick & Luce, 2000). Some research suggests that there are differing pathways to violence as well as general antisocial behavior for boys than those for girls (Moretti & Odgers, 2002). Galambos and colleagues (1990) found that gender role differences intensified between 6th and 8th grades, and self reported masculinity solidified during this time. Whereas girls increased in their emotional expressiveness, boys became more restrictive (Polce-Lynch, Myers, Kliewer & Kilmartin, 2001).

Racial/Ethnic Identity. Literature exists to support the idea that forensic adolescent males display markedly distinct characteristics from community non-forensic adolescent males (Puzzanchera, 2009; Santrock, 2008). These schematic variables are

particularly critical for African American youth because research has found that African American males are more likely to spend time in the juvenile system, have shorter life spans due to drug overdose and homicide, and have higher rates of suicide compared to their European American counterparts (Wasserman et al., 2003). Although the racial composition of United States adolescents ages 10 to 17 in 2007 was predominantly White (78%), over 53% of arrests for violent crimes involved racial minorities, specifically African American youth (Puzzanchera, 2009). More specifically, African American males comprised 57% of murder arrests, 68% of robbery arrests, and 81% of assault and aggravated assault arrests (Puzzanchera, 2009). Inherently problematic is the inclusion of Hispanic ethnicities in the White racial category, so the percentage of Hispanic minority arrests is likely higher than reported.

A study of racial disparities in the juvenile justice system by Hoytt and colleagues (2001) reported a dramatic increase in minority adolescent arrests between 1985 and 1995. Specifically, Wordes and Jones (1998) found that in 1985, White adolescents were detained at the rate of 45 per 100,000, while African American and Hispanic youth rates were 114 and 73 per 100,000, respectively. By 1995, rates for White adolescent detainment had decreased by 13 percent, while the rates for African American youth (180 percent increase) and Hispanic youth (140 percent increase) had increased exponentially. Sickmund (2009) reported that in 2006, African Americans were detained at the rate of 1,317 per 100,000, with Hispanic adolescent males at 560, Native Americans at 789 and Whites at 270, all per 100,000.

Additional statistics illustrate the continued increase in racial disparities within the juvenile justice system. For instance, of the 105,790 youth in juvenile detention facilities in 1997, minority youth represented 63% of the population even though they only represent 34% of the total youth population in the United States. White adolescents represented 71% of the youth arrested for crimes nationwide but only 37% of detained or committed youth. Comparatively, African American youth represented 15% of the total youth population, but 26% of the youth arrested, 31% of the youth referred to juvenile court, and 44% of the youth detained (Jones & Poe-Yamagata, 2000). Nationally, in 30 out of the 50 United States, which together contain 83% of the U.S. population, minority youth represent the majority in the juvenile justice system. Even in states with relatively low minority populations where minorities comprise 10 to 15% of the state's population, minority adolescents make up over half of the population in juvenile detention facilities (Snyder & Sickmund, 2006).

Research also demonstrates that the treatment of minority youth in the juvenile justice system differs widely from their white adolescent counterparts. Compared to white adolescents with no prior criminal involvement charged with the same offenses, African American adolescents were 6 times more likely to be incarcerated or detained than white youth. In addition, Hispanic adolescents were 3 times more likely to be incarcerated or detained as compared to white adolescents. When considering transfer to adult court, Jones and Poe-Yamagata (2000) found that minority youth made up 46% of cases transferred to the adult criminal system and 75% of youth remanded to adult state prisons.

Socioeconomic Status. The literature supports a close correlation between low socioeconomic status and racial/ethnic minority status. Sampson and Lauritsen (1997) maintain that conversations about race and ethnicity occur within a social context, particularly in the United States. More specifically, the social concepts of race and ethnicity have validity and reliability within U.S. culture, and minority communities are typically found in low socioeconomic areas. According to social disorganization theory, crime tends to increase in neighborhoods with high residential mobility, low socioeconomic status, and high racial diversity (Williams, 2007).

Low family income has been associated with a variety of antisocial activities in adolescents, such as early sexual activity, cigarette smoking, adolescent pregnancy, and delinquency (National Research Council, 1995; Blum et al., 2000). In addition, high-poverty neighborhoods are more likely to have crime and street violence, illegal drug accessibility, and more negative peer influences and adult role models as residents (McLoyd, 1998; National Research Council, 1995). The literature suggests that low income neighborhoods negatively impact cognitive functioning, socialization, physical health, emotional functioning, and academic achievement of children and adolescents (e.g., Ellen and Turner, 1997), which have been shown as risk factors for adolescent delinquency (Wasserman et al., 2003).

Stratification and segregation are commonplace in low SES neighborhoods, which negatively impacts educational opportunities. Schools in these neighborhoods tend to be underfunded, understaffed, have less qualified teachers, and lack resources such as laboratory equipment, textbooks and other educational materials (Kozol, 1991; Oakes,

1990). In particular, compared with their higher SES neighbors, low-income adolescents receive lower grades, earn lower scores on standardized tests, and are much more likely to drop out of high school (e.g., Kao, Tienda, and Schneider 1996; Hauser, Simmons, and Pager 2000), all of which are risk factors for delinquency (Wasserman et al., 2003).

Behavioral Factors

Factors inherent in adolescent male criminality include early problems with obeying rules and authority, emotional factors such as high behavioral activation and low behavioral inhibition, poor cognitive development, low intelligence, and hyperactivity (Grisso, 1998; Grisso et al., 2003; Steinberg & Cauffman, 1996; Kassin et al., 2010). Wasserman and colleagues (2003) list early antisocial behaviors and poor behavioral management (such as high activation and low inhibition) as two risk factors for adolescent involvement in the legal system. Many of these include both violent and non-violent criminal behaviors. For instance, Barker and colleagues (2006) indicate that reactive aggression is a byproduct of poor emotional regulation. Arnett (1992) reported that reckless behavior evolves in adolescence and identified increased drug and alcohol abuse as factors which weigh on other reckless, antisocial behaviors. In addition, a number of studies have found that aggression and illegal antisocial behavior such as theft and risk-taking behaviors have been shown to be higher in adolescent boys than in adolescent girls (Arnett, 1992; Petersen et al, 1993; Byrnes et al, 1999, Moffitt et al, 2001).

Aggression. Within forensic populations in general, numerous emotional activation factors have been identified in the literature as risk factors for violent

criminality in adolescents. Although early aggressive behavior is the most obvious and best predictor of later delinquency, socialization of emotional expression is also a core component of violent delinquency. Studies have found that high levels of behavior activation (which includes novelty and sensation seeking, impulsivity, hyperactivity and predatory aggression) coupled with low behavioral inhibition are more often seen with violent adolescent offender behavior (Wasserman et al., 2003). In addition, a study by Farrington (1998) found that violent adolescent offenders typically displayed high levels of daring behavior between ages 8 and 10, and displayed less anxiety and guilt as compared to their community and non-violent offender counterparts. Emotion, like stress, also plays an important part in cognition, influencing decision-making and risk-taking behavior.

A study by Barker and colleagues (2006) illustrated that early adolescence may be a challenging period for a substantial number of males with less sophisticated abilities to regulate emotionally based reactions. This study found that adolescent males are more likely to resort to aggression to regulate their emotions (Barker et al., 2006). Another study revealed that younger men had higher scores for identity problems and self-harm than did older men (De Moor et al., 2009). In addition, adolescent males may be at particular risk for greater proactive aggression, as well as greater overall risk of delinquent behavior and hence be more likely to affiliate with aggressive peers (Moffitt, Caspi, Rutter & Silva, 2001).

Aggression is displayed typically in an emotionally charged situation, and the literature is in agreement that forensic adolescents are more reactive to aggression-laden

words and situations. Physical aggression, however, is a complex phenomenon, comprised of a variety of actions that have different functions, each of which could follow different developmental trajectories (Barker et al., 2006). Distinguishing between various aspects of control (e.g., self vs. others and capabilities vs. needs) is highly important for understanding violence. The literature shows that males may be at greater risk for aggression in adolescence (Moffitt, Caspi, Rutter & Silva, 2001).

Drug/Alcohol Abuse. The literature is clear that forensic adolescents are more likely to have problems with drugs and alcohol, many of which provide the gateway to initial offenses in the juvenile justice system (Stahl, 2008b; Wasserman et al., 2003; Morey, 2007). OJJPD statistics illustrate that between 1991 and 2004, the number of juvenile court cases involving drug offenses more than doubled. Drug offense cases accounted for 12% of the overall delinquency caseload in 2004, compared with 7% in 1985. Of these cases, 58% were formally charged (Stahl, 2008b).

Forensic adolescent males tend to be more likely to abuse alcohol and drugs (Stahl, 2008b). Males have comprised the majority of drug offense cases processed in juvenile courts and accounted for 80% to 88% of drug violation cases between 1985 and 2004. Of the white and Hispanic male caseload, 77% to 83% were drug related, and of the African American/Black adolescent male caseload, 90% to 94% of cases were drug related (Stahl, 2008a). According to Stahl (2008b), from 1985 to 1991, the drug offense caseload involving white and Hispanic juveniles decreased from 79% to 50% but subsequently increased to 75% by 2004. During the same period, the proportion of cases involving black juveniles increased from 19% to 48%, then decreased to 22% in 2004.

Deficits in Behavioral Activation and Inhibition. A propensity toward impulsiveness and lack of behavioral inhibition has been implicated in aggressive behavior and recidivism in various offender samples, thereby making thorough assessment of impulsivity among offenders crucial (Haden & Shiva, 2008). By ages 13 to 15, if undiagnosed, the adolescent has likely been labeled as the “problem child” in the classroom, developed a history of poor academic performance, and engaged in long standing impulsive patterns of behavior. Overall, studies have shown that more impulsive, less anxious, boys are more likely to commit delinquent acts by age 13 (Wasserman et al., 2003).

Future Research Directions

As noted, previous studies using the adult version of the PAI have shown differences with forensic adolescent males. Specifically, these studies found that forensic adolescent males tended to score higher on PAI scales measuring aggression, alcohol and drug use, and antisocial behaviors (Hoekstra, 2000; Sanford, 2003). Empirical literature suggests that forensic adolescents tend to be male, of a minority racial group, and come from a low socioeconomic status (Puzzanchera, 2009; Wasserman et al., 2003). Behaviorally, they tend to be more impulsive, display more aggressive behaviors, have a history of rule breaking, display high behavioral activation and low behavioral inhibition, have poor cognitive development, demonstrate low intelligence, and display hyperactivity (Grisso et al., 2003; Wasserman et al., 2003). Given that there are preliminary findings with the adult PAI coupled with what is known about forensic adolescent males, it stands to reason that the PAI-A will potentially show elevations on the Antisocial Features, Aggression, Alcohol Problems and Drug Problems scales when administered to forensic adolescent males. These scales and literature support are summarized in Table 1.

TABLE 1 – Hypothesized PAI-A Scale Elevations and Literature Support

Scales Hypothesized	Literature Support/Citations
Antisocial Features (ANT)	Morey, 2007; Hoekstra, 2000; Hoytt et al., 2001; Sickmund, 2009; Sickmund et al., 2008; Snyder & Sickmund, 2006; National Research Council, 1995; Blum et al., 2000; Williams, 2007; Sampson & Lauritsen, 1997; Wasserman et al., 2003; Grisso, 1998; Grisso et al, 2003; Arnett, 1992; Petersen et al, 1993; Byrnes et al, 1999; Moffitt et al, 2001; Haden & Shiva, 2008
Aggression (AGG)	Hoekstra, 2000; Arnett, 1992; Kenrick & Luce, 2000; Puzanchera, 2009; Wasserman et al., 2003; Barker et al., 2006; Farrington, 1998; De Moor et al., 2009; Moffitt, Caspi, Rutter & Silva, 2001; Sanford, 2003; Morey, 2007; Snyder & Sickmund, 2006
Alcohol (ALC) & Drug (DRG) Problems	Arnett, 1992; Stahl, 2008a; Stahl, 2008b; Wasserman et al., 2003; Morey, 2007; Puzanchera, 2009; Schinka, 1995, Snyder & Sickmund, 2006

Based on the literature, close examination of how the ANT, ALC and DRG clinical scales and AGG treatment consideration scale perform may be beneficial. The empirical literature suggests that the ANT, ALC and DRG scales should discriminate between forensic (both violent and non-violent) and non forensic adolescent male groups. The PAI-A Antisocial Features (ANT) scale measures a wide domain of antisocial behaviors, including illegal acts, authority problems, impulsivity, lack of empathy and risk taking (Morey, 2007). This domain does not appear empirically exclusive to violence, and many non-violent crimes may fit antisocial behavior criteria (Sickmund et al., 2008; Snyder & Sickmund, 2006). The literature demonstrates that forensic

adolescent males engage in more antisocial acts than their non-forensic community counterparts (Hoekstra, 2000). The PAI-A Alcohol and Drug Problems (ALC, DRG) scales measure problematic alcohol and drug use. The literature supports that forensic adolescent males have higher usage of drugs and alcohol than non-forensic adolescent males (Puzzanchera, 2009; Wasserman et al., 2003).

On the treatment consideration scales, the Aggression scale (AGG) was designed to delineate among domains of verbal aggression, physical aggression and aggressive attitudes. Future research should closely examine this scale, which the empirical literature shows should elevate based on forensic group membership. Future studies may also find that the AGG scale will discriminate greatest for the forensic violent group, less for the forensic non-violent group, with the lowest discrimination for the non-forensic community group. Research shows that adolescents are more likely to be violent if they exhibit the constellation of low self control, high behavioral activation, anger, aggression, and low self esteem (Puzzanchera, 2009; Wasserman et al., 2003; Barker et al., 2006; Sanford, 2003). Morey (2007) described the Aggression (AGG) scale as measuring traits of acting out aggressively and violently. The PAI-A Aggression (AGG) scale is indicative of adolescents who possess attitudes related to anger, hostility and aggression (Morey, 2007).

Prior studies with forensic adolescent males and the PAI have contained two groups, either comparing forensic and non forensic adolescent males (Sanford, 2003) or violent and non-violent forensic adolescent males (Hoekstra, 2000). Both of these studies found significant differences between the two groups studied. Therefore, future research

should examine each of the three groups studied in past research: forensic violent, forensic non-violent, and non forensic community based adolescent males. With PAI-A specific research, inclusion of these three groups can help determine if the PAI-A can classify adolescent male groups based on the nature of the offense and forensic status. Given the relative newness of the PAI-A, increased forensic applications, and literature support for personality differences in forensic adolescent males, it appears necessary to perform a validation study with the PAI-A to identify clusters of scale elevations that discriminate among forensic violent, forensic non-violent and non forensic community adolescent males.

Based on concerns regarding variability and onset of adolescence as well as development of more adult-like characteristics (Sherry et al., 2003; Kaser-Boyd, 2011), careful consideration should be given to specific age ranges of adolescent males included in future research. Age has been shown to vary within PAI profiles as a function of adolescent-specific characteristics (Morey, 1991). Grisso and colleagues (2003) found that juvenile comprehension of *Miranda* rights (*Miranda*, 1966) is significantly lower in juveniles ages 12 and younger, with more adult-like comprehension occurring in juveniles aged 16 and older. Wong and Lau (1993) and Colby, Kohlberg, Gibbs and Lieberman (1983) also argued that adolescents tend to display the most stable adolescent traits between ages 13 and 15. Therefore, study participant age range will be limited to males between ages 13 and 15. Empirical studies similar to this proposed study tend to use 10 times the number of independent variables as a reference point for sample size to obtain maximum power (Stevens, 2002). In this proposed study, there will be 16

independent variables, and therefore 162 participants (54 per group) will be included (Stevens, 2002).

According to Wasserman and colleagues (2003), ethnic minorities are overrepresented in the juvenile justice system. Multicultural research has shown increased variation in testing profiles as a result of racial/ethnic identity and socioeconomic status (Barker et al., 2006). According to Wasserman and colleagues (2003), 50.7% of detained male juveniles are African American/Black, 44.1% are Hispanic/Latin American, and 4.5% are White/Caucasian. The literature supports that ethnic minorities, males, and low SES individuals are overrepresented in forensic populations (Barker et al., 2006; Puzzanchera, 2009; Wasserman et al., 2003). To align with these prior research findings, future research may consider employing current US census results and matching participants across groups.

Conclusions and General Implications

The PAI-A is a relatively new personality assessment instrument for use with adolescents, and the literature is predictably limited (Morey, 2011). Given that there are fewer assessment tools available for use with adolescents, research examining the utility of the PAI-A in a variety of settings would be beneficial. Specific to forensic adolescent populations, PAI-A research should continue examining PAI-A scales in the context of forensic adolescent male populations.

Future research may also focus on expanding PAI-A research for a more comprehensive understanding of the utility of (and the limitations of) the PAI-A for use with forensic adolescent male populations. Differences on PAI-A scales may indicate the need for more extensive research and possibly the development and expansion of understanding specific scale and subscale elevations on the PAI-A with adolescent males. Future studies may benefit from exploring the discriminant functions of the PAI-A subscales to obtain richer, more descriptive forensic profiles. Future studies may also benefit from comparing PAI-A scale elevations in forensic females to forensic males, using more diverse samples (i.e. inclusion of Asian and Native American populations, high versus low SES groups), and examining the subscale elevation differences in various forensic adolescent populations. In addition, future research studies may benefit from including forensic and non-forensic comparison groups from different regions of the country.

On a more general level, research examining the PAI-A's utility within forensic adolescent populations can serve to bolster juvenile justice research by providing useful

information important to probation and deferred adjudication decisions. Understanding particular domain and scale elevations, personality traits and behaviors of specific domains of offenses may provide more guidance for judges, attorneys, and probation officers in making more effective, specific, and appropriate recommendations within the juvenile system.

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This report was typed by the author.