

THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY ADOLESCENT (MMPI-A) PERSONALITY PSYCHOPATHOLOGY FIVE (PSY-5) AND THE FACET SUBSCALES:
UTILITY WITH A JUVENILE OFFENDER POPULATION

by

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(Under the Direction of Georgia B. Calhoun)

ABSTRACT

The present study explored the Personality Psychopathology Five (PSY-5) parent scales and facet subscales when applied to a sample of juvenile offenders (n =394) from a southeastern city. An exploratory factor analysis indicated the presence of a two-factor structure over the established five-factor structure. Specifically, the two factors included a wide-ranging first factor and a second factor, which was comprised of subscales from the Introversion parent subscale (Low Sociability and Low Drive/Expectations) and Grandiosity (double loaded). Generally, the internal consistency within the facet subscales was lower than previous studies (i.e., Bolinsky et al., 2004; Stokes et al., 2009) with the exception of three scales (Psychotic Beliefs/Experiences, Odd Mentation, and Neuroticism/Negative Emotionality). The present findings warrant further investigation of the PSY-5 scales when used with a juvenile offender population.

INDEX WORDS: Juvenile Offenders, Minnesota Multiphasic Personality Inventory – Adolescent (MMPI-A), Personality Psychopathology Five (PSY-5), Factor Analysis

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DEDICATION

I would like to dedicate this work to my parents. They have always stood behind me as I have progressed academically. I will always have fond memories of how they have continually guided and supported me.

Also, this dissertation is dedicated to my partner, Amanda, whom has been supportive and patient. She has stuck with me through thick and thin and continues to be my emotional rock. I continue to treasure her encouragement and love.

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CHAPTER 1

INTRODUCTION

Based on Census data trends, the child population (individuals under age 18) has undergone significant shifts in the past several decades. The child population in the United States (individuals under age 18) has increased in the last 30 years, from 47.3 million in 1980 to 74.5 million in 2009, constituting roughly 24% of the total population (Child Trends, 2010(c)). Census data have also indicated that the racial composition of the child population is changing, especially regarding Hispanic children (Child Trends 2010(e)). While the proportion of Black children has remained constant at 15%, The proportion of Hispanic children have more than doubled in the last 30 years since 1980, constituting 22% of those under 18 in 2009 (Child Trends, 2010(e)). White children appear to be declining, making up 56% of the racial composition in 2009, down from 74% 30 years prior (Child Trends, 2010(e)).

While the population of individuals under 18 years of age is increasing and diversifying, mental health difficulties continue to be a pressing issue. In 2009, over one quarter of high school students reported feelings of sadness and hopelessness for a period greater than two weeks within the present year and 14% experiencing serious thoughts about suicide (Child Trends, 2010(a); Child Trends, 2010(d)). In addition, over half of individuals under age 18 were victims or witnesses to violence in 2008 (Child Trends, 2010(b)). Recent statistics indicate high prevalence of psychological and environmental problems within the 18 and younger population and an increased need for mental health services for youth.

Unfortunately, multiple barriers often preclude many youth from receiving necessary mental health services within the community (United States Government Accountability Office,

2003). Lack of accessible community-based mental health services and insurance coverage problems are obstacles that youth often face who are in need of mental health services (208 United States Government Accountability Office, 2003; Grisso, 2008). It has been noted that low numbers of mental health providers accept Medicaid patients, preventing children from lower income families from receiving adequate treatment (United States General Accounting Office, 2001).

Due to the difficulties that families face in obtaining adequate mental health treatment within the community, parents are forced to seek assistance from child protection and juvenile justice agencies (United States Government Accountability Office, 2003). A study that included 30 counties across 19 different states, estimated that 12,700 children were placed by parents into the child welfare or juvenile justice system in order to receive mental health services (United States Government Accountability Office, 2003). The juvenile justice system was estimated to have placed 9,000 of the 12,700 children (United States Government Accountability Office, 2003).

Youth with mental disorders exhibit externalizing behaviors and cognitive difficulties, causing them to be less manageable and cause them to be more at risk of harming self and others (Grisso, 2008). Consequently, symptoms of mental disorders that are associated with externalizing and aggressive behaviors also increase the probability that youth will be placed in a secure juvenile justice facility (Grisso, 2008).

Accordingly, mental health has also become a pressing issue for the Juvenile Justice System (Grisso, Vincent, & Seagrave, 2005). Studies have repeatedly found high prevalence rates of significant mental health difficulties in juveniles that come in contact with the Juvenile Justice System (Drerup, Croysdale, & Hoffmann, 2008; Colins et al., 2010). Furthermore, recent

policy changes have ousted the juvenile courts decision in their ability to make appropriate mental health placement determinations of individuals who commit certain offenses and may need such services (Grisso, 2008). Research also suggests that youth often have difficulty in receiving necessary mental health services within the juvenile justice system (Burns et al., 2003). The Juvenile Justice System appears to come into contact with a significant number of individuals who are in need of mental health services and is responsible for determining what and how mental health services should be allocated. The prevalence of mental health problems within the juvenile offender population and difficulties that individuals often face in receiving adequate mental health services are some factors that make juvenile offenders a special population, with unique set of mental health needs. Undoubtedly, there is a need for further attention of policy makers and mental health professions to address the gaps between demand and availability and quality of mental health services for the juvenile offender population.

Purpose and Significance of Study

In recent years, the mental health field has further emphasized the need for awareness concerning the applicability of the practice of psychology and research with diverse populations. In 2003, the American Psychological Association (APA) published the Guidelines on Multicultural Education, Training, Research, Practice, and Organizational Change for Psychologists, which outlined how psychologists should best proceed when working with various populations (American Psychological Association, 2003). In addition, APA has established guidelines for how psychologists should apply psychological practice to specific populations including lesbian, gay, bisexual, females, and older adults, each population presenting with a unique set of needs and areas of clinical concerns (see American Psychological Association, 2000; American Psychological Association, 2004; American Psychological

Association, 2007). The guidelines published and other articles (see Sue, 1999) illustrate trends in the increased concern the profession of psychology has about addressing diversity.

The APA ethics guidelines (e.g., 2.04, 9.02(b)) specifically address that best practice of assessment includes the knowledge of scientific basis of practice and the use of assessment instruments that have been validated for use with members of the population of interest (American Psychological Association, 2002). Ethnic groups differ in customs, languages, and interpersonal patterns that are important considerations in the interpretation of test results (Sattler, 2001). Clinicians are ultimately responsible for understanding many aspects of assessments that are administered. Theoretical orientation, the representativeness of the standardized sample, reliability, and validity are information that is vital in assessing the appropriateness of an assessment with any given client (Groth-Marnat, 2003).

In accordance with the recent focus on the applicability of psychological services with diverse populations, determining how and what assessments are effective with juvenile delinquents is of paramount importance. In turn, research that is designated towards assessment and juvenile offenders will help inform best assessment practices and further ensure that the detection of mental disorders among juvenile offender youth will be met with adequate sensitivity and specificity.

Statement of the Problem

The Minnesota Multiphasic Personality Inventory – Adolescent (MMPI-A; Butcher et al., 1992) is among many standardized instruments currently used to detect and assess mental health difficulties within the juvenile offender population both in clinical and research capacities. Several studies have specifically focused on profile elevation trends that are typically found in

juvenile offender populations (e.g., Pena, Megargee, & Brody, 1996; Espelage et al., 2003; Archer, Bolinsky, Morton, & Farris, 2003).

A relatively new set of scales of the MMPI-A, the Personality Psychopathology Five (PSY-5; McNulty, Harkness, Ben-Porath, & Williams, 1997) have also been established for use with adolescents. Though no studies have been conducted to demonstrate the applicability of the PSY-5 with the juvenile offender population, other research with adult populations have demonstrated the ability of the PSY-5 scales in prediction of personality disorders (Bagby, Sellbom, Costa, & Widiger, 2008; Trull, Useda, Costa, & McCrae, 1995). More recently, facet scales have also been created for the MMPI-A PSY-5 scales (Bolinsky, Arnau, Archer, & Handel, 2004). Research has begun to address the utility of the MMPI-A PSY-5 facet subscales with special populations (see Stokes, Pogge, Sarnicola, & McGrath, 2009); however, no known study has determined if the PSY-5 facet scales are applicable with a juvenile offender population. The present study is aimed to determine if the facet scales of the PSY-5 of the Bolinsky et al. (2004) study are also applicable to the juvenile offender population.

Research Questions

Question 1: Are the facet subscales of the PSY-5 as determined by Bolinsky et al. (2004) valid when used with a juvenile offender population?

Question 2: How do mean juvenile offender PSY-5 parent scales compare to the other normative and inpatient samples that have been established in the MMPI-A PSY-5 literature?

Question 3: How do the mean juvenile offender PSY-5 facet scales compare to the other normative and inpatient samples that have been established in the MMPI-A PSY-5 literature?

Question 4: When applied to a juvenile offender population, do the MMPI-A PSY-5 facet scales perform with internal consistency similar to other populations?

Definitions of Terms

Adolescent – Individuals ages 13 to 17

Adjudication – A court process that ascertains whether a youth committed an illegal act (Office of Juvenile Justice and Delinquency Prevention, 2010).

Department of Juvenile Justice – A state government agency that works in collaboration with third party entities in the treatment, education, and detainment of youths that come into contact with the Juvenile Court system (Georgia Department of Juvenile Justice, 2010).

Juvenile Offender – An individual younger than 18 years old, under jurisdiction of the juvenile court, who has been adjudicated on one or more offenses.

Reliability – Refers to the ability of a test to demonstrate consistency.

Status offense – An offense that is illegal for children to commit, but is not considered illegal act when committed by an adult (Office of Juvenile Justice and Delinquency Prevention, 2010).

Validity – Refers to the ability of a test to be accurate in measuring what it is designed to assess.

CHAPTER 2

REVIEW OF LITERATURE

Government Policies and Trends in Public Responses to Juvenile Offenders

Public perception of how to respond to the juvenile offender has undergone several shifts in the last few hundred years. As late as the 18th century, juvenile offenders as young as seven years old were tried as adults, and were also subjected to death penalties (Office of Juvenile Justice and Delinquency Prevention, 1999). As the need to differentiate juvenile and adult offenders was identified, the public response to juvenile offending began to change in the early 19th century. Gradually, separate facilities and court proceedings were given to juvenile offenders (Office of Juvenile Justice and Delinquency Prevention, 1999).

By 1920, 21 different states had established juvenile courts to address juvenile delinquency (Bartollas, 1996). It was the original intent of the first juvenile courts to maintain jurisdiction over juvenile offenders until they were either rehabilitated or were no longer juveniles (Bartollas, 1996). Though juvenile court systems grew in popularity, critics claimed the restructured court systems were unsuccessful in rehabilitating juvenile offenders and additional concerns were raised regarding the rights of the juvenile offender (Bartollas, 1996). During this time, criticisms of the juvenile court system stemmed several U.S. Supreme Court decisions, granting due process rights to juvenile offenders (Bartollas, 1996).

While government policies and juvenile offender rights have improved since colonial times, public perception of the juvenile offender has fluctuated several times in the last century (Howell, 2009). The most recent of these shifts originated in the 1970s that was fueled by moral panic and fear of increased juvenile offending, bringing with it an emphasis of punishment and accountability over rehabilitation (Howell, 2009). By the end of the 1970s, all states had enacted

policies to provide more punitive responses to juvenile offending and/or make it easier to transfer juvenile offenders to the criminal justice system (Howell, 2009).

More recently, a series of serious acts of juvenile violence in the late 1980s led to the revision of policies in the vast majority of states in the 1990s (Grisso, 2008). These policy changes mandated legal responses for certain charges, regardless of the context in which offenses occurred, effectively removing court discretion in determining alternative placements based on the needs of the individual youth (Grisso, 2008).

Present Patterns of Juvenile Delinquency

Much like the public perception of juvenile delinquency, the patterns of juvenile offending have also gone through shifts within the history of the US. Currently, the three most common methods of measuring delinquency include police arrest data, victimization surveys, and delinquency self-report surveys (Howell, 2009).

National arrest data indicates that from 1994 to 2003 there existed an 18% decline in arrests for violent crime for adolescents (Snyder & Sickmund, 2006). Though overall patterns in juvenile arrest rates declined for rape, murder, robbery, assault, property crime, and burglary, arrests involving simple assault increased and drug arrest rates are still above levels prior to the mid 90s. In 2003, there were approximately 2.2 million arrests for persons under age 18 (Snyder & Sickmund, 2006).

Arrest data trends suggest that the proportion of females in the juvenile justice system is increasing (Snyder & Sickmund, 2006). In 2003, females comprised approximately 29% of all juvenile arrests, while just 23 years prior, females comprised 20% of juvenile arrests (Snyder, 1997).

Police arrest data are the most commonly used means of measuring juvenile delinquency but are criticized due to major confounds (see Howell, 2009; Snyder & Sickmund, 2006). For instance, police arrest data are confounded by society's response to delinquency; therefore, arrest statistics may not be representative of the actual prevalence of delinquency (Howell, 2009). Also, arrest data are only reported by agencies that volunteer arrest data to FBI; thus, these data are not scientifically derived and may not be an accurate reflection of the actual juvenile delinquency patterns (Snyder & Sickmund, 2006).

Juvenile victimization statistics are also often used as a measure of juvenile delinquency. Research has found that victimization rates are greater for the age group of 12 to 24-year-olds when compared to adults over 25 (Klaus & Rennison, 2002). It has been estimated that approximately 750,000 teen victims of violent crime are reported each year (Finkelhor, Paschall, & Hashima, 2001). One comprehensive study analyzed data from 1973 to 2005 using the National Crime Survey (NCS) and National Crime Victimization Survey (NCVS) to discover trends in juvenile victimizations (Baumer & Lauritsen, 2010). Baumer and Lauritsen discovered an increase in police notification of sexual assault, other assault, and property victimization. Based on the current literature, reporting of juvenile victimization appears to be increasing.

Self-reported delinquency has also been a commonly used means of measuring the prevalence of juvenile delinquency. The most comprehensive self-report data for juvenile delinquency is the Centers for Disease Control and Prevention's Youth Risk Behavior Survey (Howell, 2009). Findings have been mixed but trend towards a decrease in self-reported delinquency across the span of 1991 to 2005 (Howell, 2009). However, inherent problems exist with self-reported delinquency data, such as youth not disclosing all law-breaking behavior and

difficulty in gathering large participant samples (Snyder, 2006). It is therefore assumed that self-report data underrepresent actual rates of juvenile delinquency (Snyder & Sickmund, 2006).

Based on the trends and current patterns of arrest statistics, juvenile victimization, and self-reported delinquency, it appears that juvenile offending continues to be a salient societal issue. Though data is mixed in terms of the prevalence of juvenile delinquency, rates of juvenile offending and victimization remain areas of concern.

Mental Health and Juvenile Delinquents

Over the last few decades, mental health has become of increasing concern in the juvenile offender population. Research indicates that mental health difficulties are overrepresented in the juvenile offender population. Currently, an estimated 5% to 9% of children within the general population have significant emotional difficulties (President's New Freedom Commission on Mental Health, 2003). Current research of mental health difficulties within the juvenile offender population are somewhat varied, ranging from approximately 70% to over 90% (Drerup et al., 2008; Colins et al., 2010). Current statistics indicate that the prevalence of mental health difficulties in the juvenile offender population is much higher in proportion when compared to the general population.

A recent meta-analysis, conducted by Colins and colleagues (2010) focused on prevalence studies on mental health in juvenile offender populations from 1955 to 2008. Across 15 different studies and 3,401 unique individuals, they found that prevalence of having one or more mental disorders was 69.9%, with conduct disorder and substance abuse disorder being the most prevalent mental disorders among juvenile offenders (Colins et al.). One study found that approximately 60% of male and 70% of female juvenile offenders had a diagnosable psychological condition, after excluding conduct disorder from analysis (Teplin, Abram,

McClelland, Dulcan, & Mericle, 2002). Another study, conducted by Atkins and colleagues (Atkins et al., 1999) discovered levels of symptomatology in incarcerated youth that were similar to those found in a community mental health sample. Presently, research conducted on the prevalence of mental health difficulties in juvenile offenders reflects that significant pathology affects the majority of juvenile offenders.

Along with the pervasive mental health problems that have been identified in the juvenile offender population, concern has also been raised about the lack of research on mental health services and juvenile offenders (Burns et al., 2003). Of the research that has been conducted, the deliverance of mental health services appears to be lacking. One study found that only 23% of incarcerated youth with a diagnosable condition received any treatment (Shelton, 2005). An additional study found that mental health placements are rarely utilized in proportion to other placements (Herz, 2001). In addition to the lack of mental health services provided to juvenile offenders, there appears to be racial and gender differences in the allocation of mental health services among juvenile offenders (Herz; Shelton). Race was found to be a significant predictor in receiving services. Specifically, African American juveniles have been found to receive less mental health services when compared to their White counterparts (Herz; Shelton). Also females have been found to receive more mental health services (Herz). Though juvenile offenders may be in dire need of mental health services, systematic barriers are preventing juveniles from receiving services to address their mental health needs.

Assessment and Juvenile Delinquents

The juvenile justice system has assumed a major responsibility in addressing mental health difficulties of youth that come into contact with the juvenile justice system. Grisso (2005) identified three obligations of the juvenile justice system to provide mental health services

including custodial, due process, and public safety obligations. In light of the juvenile justice system's obligations in providing mental health services, there is a need to effectively assess for mental health disorders among juvenile offenders.

Standardized assessments have been widely used in the juvenile justice system. Hoge (2001) identified several arguments for the use of standardized assessments with the juvenile offender population. Specifically, several assessments have been found to be relevant for many applications in forensic decision-making processes, standardized assessments are reliable and valid, and the use of standardized assessments leads to consistency of decision-making (Hoge).

Quickly and effectively screening for mental health problems has become a focus of the juvenile justice system. Recently, many well-validated screening assessments have been established and are used to assess potential harm to self and others and also identify juveniles who may be experiencing mental health difficulties (Grisso, 2008). In addition to mental health screening, some youth also require assessments by clinical professionals in order to help determine youth with mental disorders that might benefit from placements that include mental health treatment services that are available in more secure facilities (Grisso, 2008).

Within the standardized assessment domain, personality instruments continue to make significant contributions to decision-making processes within the juvenile justice system (Hoge, 2001). Personality instruments, such as the Minnesota Multiphasic Personality Inventory – Adolescent (MMPI-A; Butcher et al., 1992), are often used in pre and post disposition decisions related to placement, sentencing, and competency to stand trial evaluations (Hoge, 2001).

MMPI and use with Adolescents

The original Minnesota Multiphasic Personality Inventory (MMPI) was created in 1943 by Starke Hathaway and J. Charnley McKinley and was designed as a paper-and-pencil

personality inventory to efficiently diagnose clients (Graham, 2006). Though the MMPI was originally intended to be administered with adults, the MMPI was also used with adolescents in both clinical and research capacities (Archer, 2005).

Dora Capwell (1945) conducted the first published study that used the MMPI with an adolescent population that focused on analyzing and predicting juvenile delinquency utilizing the MMPI (Capwell, 1945). Another early study by Hathaway and Monachesi (1963) used over 15,000 9th grade students in a series of studies to determine the utility of the MMPI with adolescents. Though several studies addressed the use of the MMPI with adolescents, the body of research was significantly lagging behind that of other studies that were conducted with adult populations and the MMPI. Only 100 articles were published in a 40-year period that based findings on adolescents and the MMPI (Archer, 1987).

In addition to the lack of research, norming, and interpretation issues became a concern when applying the MMPI to adolescent populations. Though comprehensive norms were established for the MMPI (Marks, Seeman, & Haller, 1974), there was no consensus on if and how to use adolescent norm set in the interpretation of profiles (Hathaway & Monachesi, 1963; Archer, 1984).

Eventually, many contributing factors led to the need for an updated version of the MMPI. Concerns surrounding language and wording, item contribution to scales, and shifts in normative endorsement patterns were rationale to create a new version of the MMPI (Archer, 1987). Based on the identified problems associated with the MMPI, the MMPI was restandardized into adult and adolescent versions (Archer, 2005). The adolescent version, the MMPI-A, was developed specifically for use with adolescents.

In contrast with the scarcity of research studies including adolescent populations and the original MMPI, the literature database of adolescent populations and the MMPI-A appears to be far more prevalent. A review of the current literature prior to 2009 yielded 343 articles utilizing the MMPI-A (Baum, Archer, Forbey, & Handel, 2009). The MMPI-A has been deemed as the most widely researched personality assessment used with adolescents (Baum et al.). The MMPI-A is also commonly used with in forensic and correctional capacities. A survey of 152 forensic psychologists indicated that the MMPI-A was the most frequently used instrument used with adolescents (Archer, Buffington-Vollum, Stredny, & Handel, 2006).

Many studies have explored between-group differences of MMPI-A profile differences in juvenile populations and overall MMPI-A profile patterns. Authors discovered profile differences across males in a detention setting, a psychiatric inpatient facility, and a psychiatric/substance abuse inpatient program. Specifically, F2, ACK, IMM, R, Hy3, and Si2 were found to have discriminative utility between groups (Archer, Bolinsky, Morton, & Farris, 2003). One study found that the most common elevations in male delinquent adolescents were scales Pd, Pa, & Ma (Pena et al., 1996; Baum et al., 2009). Also, high elevations have been found on MAC-R (MacAndrew Alcoholism Scale – Revised), A-Con (Adolescent Conduct Problems), A-Sch (Adolescent School Problems), Pd (Psychopathic Deviate), and IMM (Adolescent Immaturity) (Toyer & Weed, 1998).

MMPI-A codetypes have also been identified in the juvenile offender literature. Scales 4 and 9 have been well documented in the research literature on juvenile offenders since the original MMPI (see Hathaway & Monachesi, 1953). The 4-9/9-4 codetype has also been identified as a prominent two-point code in the juvenile population in the current MMPI-A (Pena

et al., 1996; Baum et al., 2009). One study also found the 6-4 codetype to be the most frequent two-point elevation in a sample of male juvenile offenders (Archer et al., 2003).

In addition to between-group studies of the MMPI-A, research has also been conducted with focus on within-group differences of MMPI-A profiles. One notable study was a cluster analysis conducted by Espelage and colleagues (2003) using 141 male and female juvenile offenders. Two distinct profiles were found for both males and females. Accordingly, the two distinct male clusters were Normative (no elevations) and Disorganized (with elevations on Sc, Pa, Pd, & Pt). The authors also identified two female profiles, an Impulsive-Antisocial profile (with a single elevation on scale Pd) and an Irritable-Isolated profile (with elevations on Pd, Sc, Pa, & Pt). The work by Espelage et al. suggests qualitative differences in the manifestation of pathology between male and female juvenile delinquents. Glaser, Calhoun, and Petrocelli (2002) found that the MMPI-A was able to differentiate individuals across three offense types (i.e., crimes against persons, crimes against property, and drug/alcohol offenses). The MMPI-A has also been used to detect personality differences between sex and non-sex juvenile offenders (Losada-Paisey, 1998).

The MMPI-A has also been used in predictive studies (e.g., Peterson & Robbins, 2008; Benda, Corwyn, & Toombs, 2001). Some predictive utility has been found in A-Con in the prediction of recidivism (Peterson & Robbins). Performance has been variable at best in the Pd scales performance to predict recidivism (Peterson & Robbins; Benda et al.).

Though MMPI-A research with the juvenile offender population has been prevalent, gaps continue to exist in the MMPI-A literature regarding methodological and psychometric issues and research regarding specific offender populations. Standard administration procedures, scale reliability, and standard error of measurement studies are in need of further attention with the

juvenile offender population and the MMPI-A (Baum et al., 2009). Also, female juvenile offenders, psychopaths, and sexual offenders have been identified sub-groups that are underrepresented in the MMPI-A literature (Baum et al.). Juvenile offenders have received adequate focus in the MMPI-A research; however, there exists a need for further research regarding the MMPI-A and its use with the juvenile population and further effort to ensure certain sub-groups are better represented in study samples.

Development of the Personality Psychopathology Five (PSY-5) Scales

Harkness and McNulty first discussed the creation of the Personality Psychopathology Five in a 1994 publication. Harkness and McNulty outlined their concerns about the use of normative five factor models with clinical populations and proposed a five-factor model based on a diagnostic manual as opposed to a dictionary (Harkness & McNulty). They argued that normative five factor models were not capable of describing pathology without losing information vital to client conceptualization (Harkness & McNulty).

The initial publication of the PSY-5 also outlined the interpretations of each PSY-5 construct. Harkness and McNulty identified Aggressiveness, Psychoticism, Constraint (later known as Disconstraint), Negative Emotionality/Neuroticism, and Positive Emotionality/Extraversion (later labeled as Introversion) as the initial PSY-5 constructs (Harkness & McNulty, 1994). Brief summaries of each of Harkness and McNulty's PSY-5 initial constructs are as follows: (1) The Aggressiveness construct primarily pertains to offensive aggression and levels of inhibition or disinhibition regarding aggression, power, and influence. (2) The Psychoticism construct is concerned with a person's perceived representation of the environment and social interactions and the ability to use these representations in ways that can correctly mirror and predict other events. (3) The Constraint construct includes adherence to

rules and criminality as primary features of the construct, with low constraint exhibiting an amplifying affect on other constructs. (4) The Negative Emotionality/Neuroticism Construct is a propensity to experience negative emotions, which result in internal suffering, and is composed of attributes associated with certain personality disorder features. (5) Positive Emotionality/Extraversion is a proclivity to experience positive emotions, prefer social interactions, and ample energy for goal-achieving behavior (Harkness & McNulty).

Harkness, McNulty, and Ben-Porath (1995) developed the first measurement scales utilizing the PSY-5 constructs with the MMPI-2. In order to create the scales, 114 university undergraduate volunteers were trained in the five aspects of the PSY-5 constructs and were designated as PSY-5 item selectors. The primary scales were formed by assessing items selected by at least 51% of item selectors trained for one of the constructs of interest. Initially, 242 items of the MMPI-2 met criteria, with 35 items deleted due to poor psychometric performance (Harkness et al.). Internal consistency, intercorrelation, and construct validity were determined for the resulting MMPI-2 PSY-5 scales. Results indicated that score variations of the MMPI-2 PSY-5 scales across psychiatric, college, and normative samples yielded alpha coefficients spanning .65 to .88, indicating strong internal consistency (Harkness et al.). Harkness and colleagues found the intercorrelation among the PSY-5 scores was consistent with the Revised NEO Personality Inventory (NEO PI-R; Costa & McCrea, 1992), an established five-factor personality inventory. Patterns of the MMPI-2 PSY-5, other MMPI-2 scales, and Tellegen's Multidimensional Personality Questionnaire (MGQ; Tellegen, 1982) support the construct validity of the MMPI-2 PSY-5 scales (Harkness et al.).

Development of the MMPI-A PSY-5 Scales

Subsequent to the creation of the PSY-5 scales of the MMPI-2, McNulty Harkness, Ben-Porath, and Williams (1997) sought to create the PSY-5 scales for the MMPI-A. The authors combined the 104 MMPI-2 based PSY-5 items that were also included on the MMPI-A and 25 additional items that were derived from undergraduate raters, similar to the methodology used to identify the MMPI-2 PSY-5 items (Harkness et al., 1995). In addition, McNulty et al. utilized item, reliability, and factor analyses to further refine items included in the MMPI-A PSY-5 (McNulty et al., 1997). The resulting item overlaps with the original MMPI-2 PSY-5 scales ranged from 45% for the AGGR scale to 86% on the PSYCH scale, indicating some variation when compared to the original scales (McNulty et al., 1997).

Similar to the Harkness et al. study (Harkness et al., 1995), MMPI-A PSY-5 scales were compared to other MMPI-A scales and additional measures. Specifically, the Record Review Form (RRF; Williams, 1992), the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983), and the Devereux Adolescent Behavior Rating Scale (Spivack, Spotts, & Haimes, 1967). Correlates with the other MMPI-A scales and external measures were found to support the external validity of the MMPI-A PSY-5 scales.

PSY-5 Research

Since the formulation of the PSY-5 parent scales, several studies have further tested the validity, reliability, and applicability of the individual scales. Bagby, Ryder, Ben-Dat, Bacchiochi, and Parker (2002) found that the PSY-5 scales sufficiently represent the constructs from which they were derived. One study further supported the validity of the PSY-5 scales, finding consistent correlations between PSY-5 scales and the NEO PI-R scales in clinical and normal samples (Trull, Useda, Costa, McCrae, 1995). Other studies have further analyzed the

psychometric properties and reliability of the MMPI-2 PSY-5 scales (Rouse, Finger, & Butcher, 1999; Rouse, 2007). Furthermore, the incremental validity of the PSY-5 scales suggests that the PSY-5 scales contribute information beyond that of the clinical and component scales of the MMPI-2 (Wygant, Sellbom, Graham, & Schenk, 2006).

The PSY-5 parent scales have also demonstrated validity and clinical utility in research regarding specific populations. Egger, De Mey, Derksen, and van der Staak (2003) found strong consistency between the performance of the NEO PI-R and the MMPI-2 PSY-5 parent scales when used with a Dutch psychiatric sample. Two studies have also addressed the use of the MMPI-2 PSY-5 scales in a categorization model to differentiate between externalizing and internalizing features in samples of war veterans with Posttraumatic Stress Disorder (Egger et al.; Forbes, Elhai, Miller, & Creamer, 2010). Though few studies have examined the PSY-5's utility with special populations, present results appear to support applicability of the PSY-5 in personality assessment of specific groups and warrant further research.

Studies have also utilized the PSY-5 in predictive and correlational research. Across studies, the PSY-5 was found to be successful in predicting symptom counts of personality disorders (Bagby et al., 2008; Trull et al., 1995). The PSY-5 scales have also been used in the prediction of aggression in which negative emotionality/neuroticism were found to be the most pertinent to the prediction of aggression (Sharpe & Desai, 2001). Vendrig, Derksen, and De Mey (2000) found that MMPI-2 PSY-5 scales predict treatment outcomes of chronic back pain patients based on personality characteristics. One study also found correlations between select PSY-5 scales and history of juvenile offenses in court-ordered adults in the Midwest (Petroskey, Ben-Porath, & Stafford, 2003). Particularly, the PSY-5 scales of AGGR, PSYC, and DISC each were positively correlated with a history of juvenile offenses (Petroskey et al.).

Despite the growing database of PSY-5 research, the MMPI-2 PSY-5 appears to be overrepresented in the literature when compared to the MMPI-A PSY-5 scales. In fact, in a Web of Science search, only 3 studies (excluding the original 1997 McNulty et al. study) utilized the MMPI-A PSY-5 scales, with more than 30 studies addressing the PSY-5 scales included in the MMPI-2. Accordingly, there is a need for further research utilizing the PSY-5 constructs with adolescent populations.

PSY-5 Facet Subscales

The PSY-5 facet subscales were first introduced by Bolinskey and colleagues (2004), and were derived from the MMPI-A PSY-5. To create the facet subscales, Bolinskey et al. conducted a principal component analysis (PCA) utilizing 565 protocols. Results of the study were yielded two facet subscales per parent scale, with the exception of NEGE, which, according to the authors, is unidimensional (Bolinskey et al.) Across the items comprising the AGGR scale, the PCA produced two facets identified as Hostility and Grandiosity/Indignation. The facet scales identified in the DISC scale were Delinquent Behaviors and Attitudes and Norm Violation. Facet scales of the INTR scale were found to include Low Drive/Expectations and Low Sociability. The PSYCH scale, also comprised of two facets, included Psychotic Beliefs/Experiences and Odd Mentation facets. Bolinskey et al. concluded that the resulting facet subscales from the PCA were consistent with the original constructs as defined by the original Harkness et al. (1994) study (Bolinskey et al.).

Since the creation of the PSY-5 scales by Bolinskey and colleagues (2004), only one known published study has utilized the MMPI-A facet subscales. Stokes and colleagues (Stokes, Pogge, Sarnicola, & McGrath, 2009) conducted a study utilizing 662 adolescents from an inpatient population exploring relationships between the PSY-5 scales and internalizing,

externalizing, and bizarre feature behavioral domains. The facet scales exhibited good to excellent internal consistency, with lower internal consistency performance from scales with fewer items (i.e., Odd Mentation, Norm Violations, & Grandiosity/Indignation) (Stokes et al., 2009). Overall, externalizing problems were found to be closely related to the AGGR and DISC facet scales. Internalizing problems were related to the Neuroticism/Negative Emotionality scale and the INTR facet scales. Bizarre behaviors and psychotic symptoms were most closely related to Psychotic Beliefs/Experiences, Odd Mentation, and Low Drive/Expectations (Stokes et al.). Also, Stokes et al. detected gender differences in responses. Males were found to have greater scores on the DISC scale, particularly the Delinquent Attitudes subscale (Stokes et al.). Females, on the other hand, had greater scores on the Neuroticism/Negative Emotionality facet subscale (Stokes et al.). Overall, the findings of the Stokes et al. study further supports that the MMPI-A PSY-5 facet subscales demonstrate adequate psychometric qualities and validate the clinical utility with an adolescent inpatient population.

An adult version of the PSY-5 facet subscales was also created for the MMPI-2 (Arnau, Handel, & Archer, 2005). Many of the facet subscales that were identified for the MMPI-2 PSY-5 closely mirrored the established MMPI-A PSY-5 facet subscales; however, there were also several discrepancies that were identified. For example, The Physical/Instrumental Aggression and Grandiosity subscales of the MMPI-2 PSY-5 were found to be similar to the MMPI-A PSY-5 Hostility and Grandiosity/Indignation subscales (Arnau et al.). However, the NEGE parent scale, which was found to be unidimensional in the Bolinsky et al. (2004) study, was comprised of two factors, Irritability/Dysphoria and Phobias, in the adult version.

In contrast to findings supporting the MMPI-A PSY-5 facet subscales (e.g., Stokes et al., 2009), criticisms have surfaced regarding psychometric qualities and the applicability of scales

with specific population and the MMPI-2 PSY-5 facet subscales. Particularly, Quilty and Bagby (2007) criticized the internal reliability and discriminative validity of the MMPI-2 PSY-5 facet subscales, also arguing that the facet subscales are not representative of the broader parent scales from which they are derived (Quilty & Bagby). The MMPI-2 PSY-5 facet subscales have also been found to perform poorly with a sample of Chinese adults, with issues surrounding internal consistency, reliability, and validity (Wang, Zhang, Shi, & Zhou, 2010). Though criticisms of the PSY-5 facet subscales originated from studies involving adult samples and the MMPI-2 version of the PSY-5 scales, these concerns may be of some relevance to the MMPI-A PSY-5.

CHAPTER 3

METHOD

Sample

All participants of the current study were referred by the Department of Juvenile Justice for the completion of a psychological evaluation for appropriate placement or treatment purposes from a southeastern city comprising of approximately 85,000 people. Also, individuals included in the study varied in terms of offenses, including varying degrees and counts of felony (e.g., burglary, aggravated assault), misdemeanor (e.g., simple assault, trespassing), and status (e.g., runaway, curfew violation) adjudications. At the time of the evaluation, the participants were either incarcerated at a regional youth detention center or were located within the community.

The sample consisted of 394 male ($n = 327$) and female ($n = 67$) juvenile offenders. The mean age of the sample was 15.72 years ($SD = 0.85$), with individuals ranging from 14.00 years to 18.67 years. Of the individuals included in the study, 218 were African American, 144 were Caucasian, 25 were Hispanic, 6 were Asian American, and 1 identified as Biracial.

Consistent with the Bolinsky et al. (2004) study, the validity scores of the MMPI-A were considered when determining eligibility for inclusion in the study. The following criteria were used in this study: Cannot Say < 25 , Variable Response Inconsistency (*VRIN*) and True Response Inconsistency (*TRIN*) T score < 80 , and the Frequency (*F*) T score < 90 .

Data Collection Procedure

As previously stated, individuals were referred by the Department of Juvenile Justice for a psychological evaluation. The psychological evaluation battery consisted of a clinical interview, intelligence test, behavioral measure, the MMPI-A, and additional batteries, which were all administered by a doctoral-level clinician in a counseling psychology program. The

MMPI-A data were hand-entered twice and compared to ensure accuracy. Data was further spot-checked by a doctoral-level student for errors or inconsistencies.

The MMPI-A and the PSY-5

The Minnesota Multiphasic Personality Inventory-Adolescent (MMPI-A; Butcher et al., 1992) is a structured self-report questionnaire that provides a comprehensive evaluation of general personality functioning and psychopathology in adolescents from ages 14 through 18. Intelligent, mature young adolescents (ages 12 and 13) may exhibit the capacity to understand and respond in a valid manner to MMPI-A items, though caution is advised when interpreting MMPI-A profiles of young adolescents (Butcher et al.). The MMPI-A includes 478 true/false questions and is based on the original MMPI. The MMPI-A has demonstrated levels of test-retest reliability and internal consistency consistent with the MMPI-2. For female adolescents in the original sample, the coefficient alpha spanned from .40 to .89, with a median coefficient alpha at .68 (Butcher et al.).

The normative sample of the MMPI-A consisted of junior high and high school students from eight states from various geographic regions of the United States (Butcher et al., 1992). In total, 1,620 adolescents of varying gender, ethnicity, age, and living situation were included. A clinical sample was also included, comprising 713 adolescents, ages 14 to 18 from a variety of treatment facilities in the Minneapolis area (Butcher et al.).

In addition to the 10 standard and 3 validity scales included on the original MMPI, the MMPI-A contains an additional 4 validity, 15 content, 6 supplementary, 28 Harris-Lingoes, and 3 *Si* subscales (Archer, 2005). The majority of the MMPI-A scales are interpreted using uniform T scores derived from the original MMPI-A normative sample (Butcher et al., 1992). Generally, T-scores equal to or greater than 65 are clinically significant, indicating a high probability that

scale descriptors apply to the individual of interest. T-scores ranging between 60 to 64 are considered to be moderately elevated, and may also be interpreted, though T-scores between 50 and 60 should not be interpreted (Butcher et al.).

The validity scales of the MMPI-A give valuable information about an individual's approach to the test and to the extent responses were distorted (Butcher & Williams, 2000). The Cannot Say (?), Variable Response Inconsistency (VRIN), True Response Inconsistency (TRIN), and the Frequency (F) validity scales were utilized in the present study. The Cannot Say (?) scale is the sum of items that were omitted by the respondent or were answered as both true and false, with higher scores indicating the omission of multiple items which may infer reading difficulties or life experience limitations on the behalf of the respondent (Archer, 2005). Both the VRIN and TRIN validity scales are measures of consistency across an individual's MMPI-A responses (Archer). The VRIN scale consists of 50 item pairs with either analogous or dissimilar content (Archer) and indicates the presence of random responding or confusion (Butcher & Williams). The TRIN scale is comprised of 25 item pairs that assess an individual's tendency to respond in true or false directions independent of item content (Archer). The F scale consists of 60 items that were endorsed by no greater than 20% of the adolescent normative sample, with higher elevations possibly indicating inconsistency, reading difficulties, exaggeration of symptoms, or the presence of serious pathology (Butcher & Williams).

Interpretive guidelines for the PSY-5 scales were recently published in a supplementary manual for the MMPI-A based on the original constructs of Harkness and McNulty (1994) and construct validity studies (see Harkness et al., 1995; McNulty et al., 1997; Ben-Porath, Graham, Archer, Tellegen, & Kaemmer, 2006). Similar to other MMPI-A scales, the PSY-5 scales with uniform T-scores greater than 65 are considered to be clinically significant, with T-scores from

60 to 64 indicating a moderate elevation (Ben-Porath et al., 2006). Descriptors of each scale are located in Table 1.

Table 1

Interpretations of MMPI-A PSY-5 Scales

PSY-5 Scale	Abbreviation	Description of elevated scores
Aggressiveness	AGGR	High scores denotes assaultive and various externalizing behaviors across genders. Elevations are also associated with past history of sexual acting-out in males and an observed increase in heterosexual interests in females.
Psychoticism	PSYC	High scores are associated with the presence of psychotic features and delusions. Those with high scores were rated by parents as having obsessive behaviors. Males were likely to be described by parents as being withdrawn.
Disconstraint	DISC	High scores are associated with risk-taking and impulsive behavior for both males and females. Drug use, sexual acting-out, and non-violent law-breaking behavior were associated with elevated scores.
Negative Emotionality/ Neuroticism	NEGE	High scores indicate an inclination to experience guilt, worry, and anxiety, and have a history of internalizing behavior. Parents of high scorers were likely to rate their children as being anxious and withdrawn.
Introversion/Low Positive Emotionality	INTR	High scores are associated with histories of internalizing behavior, lower externalizing behavior, and inadequate peer relationships.

Note: Adapted from (Ben-Porath et al., 2006)

Test re-test correlations for the MMPI-A PSY-5 for a 1-year interval were found to be consistent with other MMPI-A scales and ranged from .44 (PSYC) to .68 (DISC) (Stein, McClinton, & Graham, 1998). Bolinsky et al. (2004) found internal consistency of the PSY-5 scales from .78 (NEGE) to .83 (INTR) across both genders. Correlations between the PSY-5 scales, other MMPI-A scales, and established socio-emotional measures have demonstrated the construct validity of the PSY-5 scales.

Data Analyses

Exploratory factor analysis was conducted to determine the underlying factor structure of the MMPI-A PSY-5 scales using the Statistical Package for Social Sciences (SPSS Inc., Chicago). The current variable to subject ratio exceeded that of 1:5, the recommended variable to subject ratio proposed by Kline (1994) for factor extraction. A Principal Component Analysis (PCA) was the method of factor extraction. Furthermore, Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity were used to determine the strength of intercorrelation among items.

Three methods were used to determine the number of retained factors. First, Kaiser's (1960) eigenvalue rule was used, retaining factors with eigenvalues greater than 1.00. Also, the scree plot was examined to determine the appropriate amount of factors to retain (see Catell, 1966). Lastly, Horn's (1965) parallel analysis was used by comparing the eigenvalues of the current data set with those of a randomly generated sample set of identical n size. The current generated eigenvalues were obtained via computer software (see Patil, Singh, Mishra, & Donavan, 2007).

CHAPTER 4

RESULTS

Mean Comparison of Normative, Clinical, and Present Samples

To compare the mean raw scores of the scales PSY-5 between the current study and previous means in the literature, several unpaired Welch t-tests were performed. A Bonferroni correction was conducted by dividing the standard significance level (i.e., $p < .05$) by the number of t-tests conducted ($n = 39$). The new significance value was set at $p < .001$. Table 2 examines group differences between the present sample and normative sample (i.e., Ben-Porath et al., 2006). Group differences were examined for males and females separately due to no combined means being available for the normative sample. No facet subscale scores were available for the normative sample, thus, no between-group differences could be determined. A computer program was used to calculate the unpaired Welch t-tests (GraphPad QuickCalcs: t test calculator [Computer software], 2005)

Table 2

Group Differences for PSY-5 Parent Scales Between the Present Study and Normative Sample

Raw Scores

Scale	Normative Sample		Present Sample		<i>df</i>	<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
	Male					
Aggressiveness	8.78	4.95	8.84	3.55	855	0.22
Hostility/Indignation	--	--	5.50	2.61	--	--
Grandiosity	--	--	8.76	2.98	--	--
Disconstraint	8.93	4.00	11.34	4.06	624	8.93***
Delinquent	--	--	8.72	3.22	--	--

Behavior/Attitudes						
Norm Violation	--	--	2.58	1.74	--	--
Introversion	7.58	4.67	7.70	4.61	640	0.39
Low Drive/Expectations	--	--	3.17	2.38	--	--
Low Sociability	--	--	4.21	2.71	--	--
Psychoticism	4.95	3.52	6.59	4.35	529	5.98***
Psychotic Beliefs/ Experiences	--	--	3.09	2.88	--	--
Odd Mentation	--	--	1.75	1.45	--	--
Neuroticism/Negative Emotionality	9.68	4.08	10.34	4.43	588	2.29
			Female			
Aggressiveness	8.42	3.73	8.96	3.69	79	1.14
Hostility/Indignation	--	--	5.78	2.80	--	--
Grandiosity	--	--	3.18	1.56	--	--
Disconstraint	7.30	3.71	11.64	4.66	74	7.41***
Delinquent Behavior/Attitudes	--	--	8.72	3.22	--	--
Norm Violation	--	--	2.93	1.89	--	--
Introversion	6.05	4.06	8.37	5.16	73	3.58**
Low Drive/Expectations	--	--	3.30	2.75	--	--
Low Sociability	--	--	4.70	3.00	--	--
Psychoticism	5.00	3.36	5.91	3.71	76	1.93
Psychotic Beliefs/ Experiences	--	--	2.66	2.51	--	--
Odd Mentation	--	--	1.54	1.25	--	--
Neuroticism/Negative Emotionality	11.40	4.13	9.78	4.59	76	2.79

Note. **p < .001 ***p<.0001. Normative sample used is from Ben-Porath et al., 2006 (Males = 711; Females 717). The present study was comprised of 327 males and 67 females.

As can be seen in Table 2, significant differences were observed between the normative and present sample for both males and females, with one overlapping difference on the Disconstraint scale which occurred for both males and females. Specifically, there was a statistically significant difference detected on the Disconstraint scale between males in the normative sample ($M = 8.93$, $SD = 4.00$) and males in the present sample ($M = 11.34$, $SD = 4.06$;

$t(624) = 8.93, p = .0001$, two-tailed). A similar difference occurred when comparing females in the normative sample ($M = 7.30, SD = 3.71$) and females in the present sample ($M = 11.64, SD = 4.66; t(74) = 7.41, p < .0001$, two-tailed).

Other significant differences falling below the $p < .001$ threshold occurred separately for males and females. Concerning the males, a significant discrepancy also occurred on the Psychoticism parent scale between the normative sample ($M = 4.95, SD = 3.52$) and the present sample ($M = 6.59, SD = 4.35; t(529) = 5.98, p < .0001$, two-tailed). A discrepancy on the Psychoticism scale was not present between females in the normative and present sample. There was a significant difference detected on the Introversion scale for females in the normative sample ($M = 6.05, SD = 4.06$) and the present sample ($M = 8.37, SD = 5.16; t(73) = 3.58, p = .0006$, two-tailed). A significant discrepancy was not observed for the Introversion scale for males.

Mean scores were also compared with a clinical sample (i.e., Stokes et al., 2009). Unpaired Welch t-tests were performed to calculate group differences between the clinical sample and present sample for all parent and facet subscales of the PSY-5. Combined means (males and females) were used to determine group differences. A computer program was used to calculate the following t-tests (GraphPad QuickCalcs: t test calculator [Computer software], 2005). The results of the t-tests are located in Table 3 below.

Table 3

Group Differences for PSY-5 Facet Subscales Between the Present Study and Clinical Sample

Raw Scores

Scale	Clinical Sample		Present Sample		<i>df</i>	<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Aggressiveness	8.94	4.37	8.86	3.57	954	0.32
Hostility/Indignation	5.90	3.37	5.54	2.64	918	2.02
Grandiosity	3.04	1.57	3.32	1.57	826	2.80
Disconstraint	11.28	5.04	11.39	4.16	948	0.38
Delinquent Behavior/ Attitudes	8.29	3.58	8.75	3.02	936	2.23
Norm Violation	2.93	2.02	2.64	1.77	912	2.44
Introversion	8.01	5.08	7.81	4.71	875	0.65
Low Drive/Expectations	4.38	3.12	3.19	2.45	976	6.88***
Low Sociability	3.63	2.87	4.29	2.76	851	3.70**
Psychoticism	4.17	3.62	6.48	4.25	725	9.02***
Psychotic Beliefs/ Experiences	2.63	2.62	3.02	2.83	582	2.46
Odd Mentation	1.79	1.62	1.71	1.42	912	0.84
Neuroticism/Negative Emotionality	11.28	4.78	10.24	4.46	871	3.57**

Note. ** $p < .001$. *** $p < .0001$. Clinical sample used is from Stokes et al., 2006 ($n = 662$; Males = 304, Females = 358). The present study ($n = 394$) was comprised of 327 males and 67 females.

Group differences were observed for parent and facet subscales when comparing the present sample with a clinical sample. When observing differences among the parent scales, a significant difference was detected on the Psychoticism scale between the clinical sample ($M = 4.17$, $SD = 3.62$) and the present sample ($M = 6.48$, $SD = 4.25$; $t(725) = 9.02$, $p < .0001$, two-tailed). A significant discrepancy also occurred on the Neuroticism/Negative Emotionality parent scale between the clinical sample ($M = 11.28$, $SD = 4.78$) and the present sample ($M = 10.24$, $SD = 4.46$; $t(871) = 3.57$, $p = .004$, two-tailed). Among the facet subscales, two significant differences were detected among both of the facet subscales comprising the Introversion parent

scale. Particularly, a significant difference occurred on the Low Drive/Expectations facet subscale between the clinical sample ($M = 4.38$, $SD = 3.12$) and the present sample ($M = 3.19$, $SD = 2.45$; $t(976) = 6.88$, $p < .0001$, two-tailed). Another significant difference occurred on the Low Sociability facet subscale between the clinical sample ($M = 3.63$, $SD = 2.87$) and the present sample ($M = 3.63$, $SD = 2.76$; $t(851) = 3.70$, $p = .0002$, two-tailed).

Reliability of PSY-5 Facet Scales

The internal consistency coefficients (Chronbach's coefficient alpha) were calculated for each of the individual sub-scales and the Neuroticism/Negative Emotionality scale. Two prior studies (see Bolinsky et al., 2004; Stokes et al., 2009) reported reliability data for the facet-sub-scales. Chronbach's coefficient alpha for the current study is reported, along with the reliability data from the prior studies in Table 2. The internal consistency of the scales with less than 10 items (i.e., Grandiosity/Indignation, Norm Violation, and Odd Mentation) were further investigated by examining the mean inter-item correlation for the items.

Table 4

Reliability of the PSY-5 Facet Subscales and Neuroticism/Negative Emotionality Across Prior Studies and the Current Sample

Scale	No. of Items	Chronbach's Alpha Coefficient		
		Bolinskey et al. 2004	Stokes et al. 2009	Current sample
Hostility	14	0.76	0.78	0.60
Grandiosity/Indignation	6	0.57	0.50	0.49
Delinquent Behaviors and Attitudes	16	0.77	0.75	0.66
Norm Violation	8	0.57	0.65	0.54
Low Drive/Expectations	14	0.77	0.76	0.68
Low Sociability	14	0.72	0.74	0.68
Psychotic Beliefs/Experiences	13	0.78	0.77	0.78
Odd Mentation	5	0.59	0.50	0.59
Neuroticism/Negative Emotionality	22	0.78	0.81	0.78

Note. The sample size of the Bolinskey et al. study was 545 (351 male, 194 female). The sample size of the Stokes et al. study (an impatient sample) was 662 (304 male, 358 female).

Hostility. The Hostility subscale is one of two facet subscales comprising the Aggressiveness parent scale and consists of a total of 14 items. According to Bolinskey et al. (2004) and Stokes et al. (2009), the Hostility scale has good internal consistency, with a Chronbach alpha coefficient of 0.76 and 0.78, respectively. In the current study the Chronbach alpha coefficient was 0.60, somewhat lower than the prior studies. The item-level correlations (see Appendix A.1) revealed two items (355 and 465) that were negatively correlated with the other items in the scale.

Grandiosity/Indignation. The Grandiosity subscale is the second facet subscale within the Aggressiveness scale and is comprised of six items. Across the Bolinskey et al. and Stokes et al. studies, the reliability of the Grandiosity subscale demonstrated lower internal consistency ($\alpha = 0.57$ and $\alpha = 0.50$, respectively). The author's attributed the lower alpha scores to the low number of items comprising the Grandiosity scale. Similar to the other studies, the current

Chronbach alpha coefficient was also lower ($\alpha = 0.50$). Also, the mean inter-item correlation was 0.14, suggesting a low average correlation among the Grandiosity scale items.

Delinquent Behaviors and Attitudes. The Delinquent Behaviors and Attitudes, one of two subscales comprising the Disconstraint parent scale, has a total of 16 items. Both the Bolinskey et al. and the Stokes et al. studies reported good internal consistency of the Delinquent Behaviors and Attitudes facet subscale ($\alpha = 0.77$ and $\alpha = 0.75$, respectively). The Chronbach alpha coefficient of the current study was 0.66, somewhat lower than prior studies.

Norm Violations. The Norm Violations facet subscale, the second subscale comprising the Disconstraint parent scale, is comprised of eight items. The internal consistency of the Norm Violations subscale was somewhat variable across the two prior studies (i.e., Bolinskey et al., 2004; Stokes et al., 2009). Bolinskey et al. reported a Chronbach's alpha coefficient of 0.57, while the Stokes et al. study reported somewhat higher internal consistency ($\alpha = 0.65$). The internal consistency of the current study was more similar to the original findings of Bolinskey et al., with Chronbach's coefficient alpha at 0.54. The inter-item correlation mean was 0.13, suggesting low correlation among the items comprising the Norm Violations facet subscale.

Low Drive/Expectations. The Low Drive/Expectations subscale is one of two facet subscales comprising the Introversion/Low Positive Emotionality parent scale and consists of 14 items. The internal consistency of the Low Drive/Expectations subscale across the prior studies (i.e., Bolinskey et al., 2004; Stokes et al., 2009) was good ($\alpha = 0.77$ and $\alpha = 0.76$, respectively). The internal consistency of the Low Drive/Expectations subscale in the current study was somewhat lower ($\alpha = 0.68$) than was determined in the prior studies.

Low Sociability. The Low Sociability subscale is the second facet subscale comprising the Introversion/Low Positive Emotionality parent scale and consists of 14 items. Both prior

studies (i.e., Bolinsky et al., 2004; Stokes et al., 2009) determined the Low Sociability scale as having good internal consistency ($\alpha = 0.72$ and $\alpha = 0.74$, respectively). The current study was somewhat lower than the two prior studies with a Chronbach's alpha of 0.68.

Psychotic Beliefs/Experiences. The Psychotic Beliefs/Experiences subscale is one of two facet subscales comprising the Psychoticism parent scale and consists of 13 items. Chronbach's coefficient alpha of the Psychotic Beliefs/Experiences subscale was similar two prior studies (i.e., Bolinsky et al., and Stokes et al.) at 0.78 and 0.77, respectively. The internal consistency of the Psychotic Beliefs/Experiences subscale in the current study ($\alpha = 0.78$) was consistent with that found in the prior studies.

Odd Mentation. The Odd Mentation facet subscale, the second facet subscale comprising the Psychoticism parent scale, is comprised of five items. The two prior studies were somewhat variable concerning the internal consistency of the Odd Mentation facet subscale. The Bolinsky et al. 2004 study reported somewhat higher internal consistency ($\alpha = 0.59$) than the internal consistency found in the Stokes et al. study ($\alpha = 0.50$). The internal consistency of the Odd Mentation scale in the current study ($\alpha = 0.59$) was similar to that of the Bolinsky et al. study. The mean inter-item correlation of the Odd Mentation scale was 0.22, supporting an acceptable level of internal consistency among items.

Neuroticism/Negative Emotionality. The Neuroticism/Negative Emotionality scale is comprised of 22 items. Both the Bolinsky et al. (2004) and the Stokes et al. (2009) reported good internal consistency ($\alpha = 0.78$ and $\alpha = 0.81$, respectively) of the Neuroticism scale. The current study also determined good internal consistency ($\alpha = 0.78$).

The majority of the PSY-5 subscales demonstrated lower internal consistency than the two prior studies that examined inter-item correlations of the PSY-5 subscales. The Hostility

scale in particular had two items that behaved differently than expected, correlating negatively with other items on the scale. Three scales demonstrated comparable or better consistency than the two prior studies (i.e., the Psychotic Beliefs/Experiences, Odd Mentation, and Neuroticism/Negative Emotionality scales). Further examinations of subscales with less than 10 items (Grandiosity/Indignation, Norm Violations, and Odd Mentation) revealed that the Grandiosity/Indignation and Norm Violations subscales had lower inter-item correlation means while Odd Mentation demonstrated an acceptable inter-item correlation mean.

Exploratory Factor Analysis

The KMO measure of sampling adequacy of the current sample was 0.78 and the Bartlett's Test of Sphericity was significant ($p < .0001$), supporting the factorability of the current data set. The PCA indicated the presence of 2 factors across the 11 scales with eigenvalues exceeding 1.00. The first two factors explained 37.71% and 19.89% of the variance, respectively. Further inspection of the scree plot (see Figure 1) identified two possible breaks, one supporting a two-factor model, and the other supporting a three-factor model. The parallel analysis further supported a two-factor structure, as the eigenvalues of the first two factors exceeded those of the randomly generated data ($n = 394$; 11 variables). Overall, the methods used to determine factor inclusion indicated the presence of a two-factor structure of the PSY-5 facet subscales. The eigenvalue of the third factor was 0.97. The variance accounted for by the two-factor structure was 57.61%.

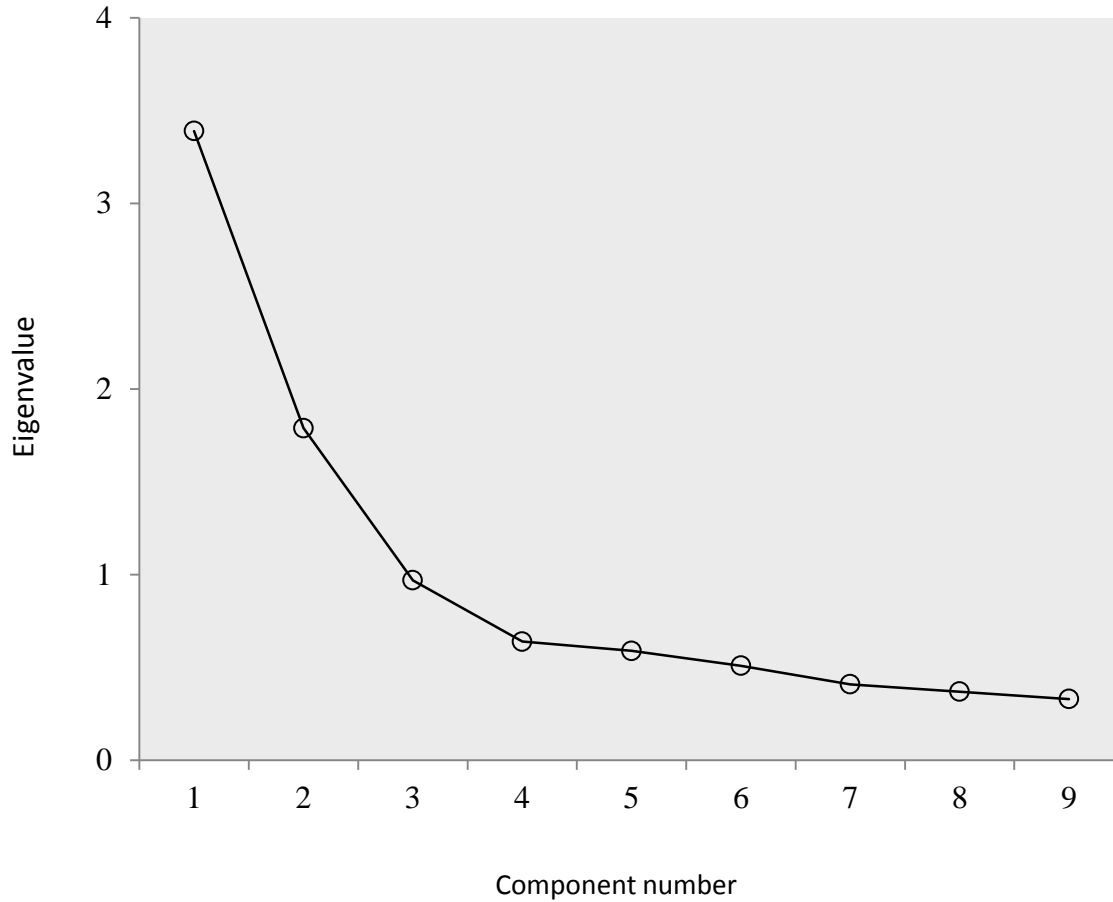


Figure 1

Scree plot for the PSY-5 Facet Subscales

To interpret the two components, an oblimin rotation was performed (see Table 3). The rotated pattern matrix revealed that the first factor was comprised of the majority of the PSY-5 facet subscales. Specifically, the Hostility, Psychotic Beliefs/Experiences, Odd Mentation, Norm Violation, Neuroticism/Negative Emotionality, and Delinquent Behavior and Attitudes loaded exclusively onto factor one. Factor two was comprised of two exclusive factors, Low Sociability and Low Drive/Expectations. Grandiosity double loaded on factor one and factor two (0.48 and -0.52, respectively). Inspection of the structure matrix revealed similar findings.

Table 5

Pattern and Structure Matrix for PCA with Oblimin Rotation: Two Factor Structure Solution for PSY-5 Facet Subscales

Scale	Pattern coefficients		Structure coefficients		Communalities
	1	2	1	2	
Hostility	0.79	-0.03	0.78	-0.05	0.62
Psychotic Beliefs/Experiences	0.74	0.22	0.73	0.20	0.58
Odd Mentation	0.73	0.08	0.73	0.06	0.54
Norm Violation	0.73	0.16	0.72	0.14	0.55
Neuroticism/Negative Emotionality	0.71	-0.05	0.71	-0.06	0.51
Delinquent Behaviors and Attitudes	0.55	-0.31	0.55	-0.32	0.40
Low Sociability	-0.01	0.86	-0.03	0.86	0.74
Low Drive/Expectations	0.36	0.78	0.35	0.77	0.73
Grandiosity	0.48*	-0.52*	0.49*	-0.53*	0.51

Note. major loadings for each item are in bold font. * Indicates multiple factor loading.

Conceptualizing the 2-factor Based Model

The present results are inconsistent from the established five-factor model, suggesting that the current model does not fit when applied to a sample of juvenile offender. Factor one (consisting of Hostility, Psychotic Beliefs/Experiences, Odd Mentation, Norm Violation, Neuroticism/Negative Emotionality, Delinquent Behavior and Attitudes, and Grandiosity) was comprised of the majority of the scales and was not given a name due to the wide-ranging scope

of the factor. Factor two (consisting of Low Sociability, Low Drive/Expectations, and Grandiosity) was named the Introversion/Low Grandiosity factor.

CHAPTER 5

DISCUSSION

Overview

Mental health issues continue to be an important issue affecting the juvenile offender population. As the mental health field moves towards establishing research-based clinical practices with diverse populations, such as juvenile offenders, there is a continued need for further determining the validity of established psychological assessment instruments when applied to this population.

The MMPI-A, one of the most commonly used personality assessment instruments with adolescents (see Baum et al., 2009), has been widely applied in personality assessment of juvenile offenders. Several studies have focused on common responding patterns of juvenile offenders. Specifically, elevations in scales Pd, Pa, & Ma as common elevations and 4-9/9-4 and 6-4 two-point elevations common in male juvenile offenders have been established (see Pena et al., 1996; Archer et al., 2003; Baum et al., 2009). One study also addressed within-group differences of male and female offenders, discovering two disparate personality profiles for each group (see Espelage et al., 2003). Though studies have addressed global responding patterns of juvenile offender MMPI-A profiles using the more established scales (i.e., validity, clinical, content, supplementary, and Harris-Lingoes), the relatively newer PSY-5 scales are underrepresented in research concerning their application to juvenile offenders.

The PSY-5 scales of the MMPI-A, first established in 1997, were developed as a five-factor model of personality based on a diagnostic model that would be applicable when used with clinical and non-clinical populations. Studies have supported the construct validity (i.e.,

McNulty et al., 1997) and the predictive validity (i.e., Stokes et al., 2009) of the parent PSY-5 scales. Also, studies focusing on the adult-focused instrument (MMPI-2) have supported the external and content validity of the PSY-5 scales (i.e., Trull et al., 1995, Bagby et al., 2002). The majority of available research concerning the PSY-5 scales has largely been focused on the MMPI-2 PSY-5 scales, though the research that does exist with the MMPI-A has supported the validity, reliability, and distinct clinical utility of the scales with normative and clinical samples (i.e., McNulty et al.; Bolinskey et al., 2004; Stokes et al., 2009).

Since the development of the PSY-5, facet subscales were established using a clinical inpatient sample (see Bolinskey et al., 2004) offering further clinical utility of the PSY-5 scales beyond the original parent scales. Each parent scale of the MMPI-A PSY-5 (i.e., AGGR, DISC, INTR, PSYC, and NEGE) were found to be comprised by two subscales with the exception of NEGE, which was unidimensional (Bolinskey et al.). Since the initial study by Bolinskey and colleagues the MMPI-A PSY-5 facet subscales have only been a focus in one other study that also used a clinical inpatient sample (i.e., Stokes et al., 2009). Across both studies, the PSY-5 demonstrated adequate internal consistency and predictive validity. Despite the potential clinical utility of the PSY-5 scales and the facet subscales, the applicability of the PSY-5 has not been widely researched with disparate populations.

Though the reliability and validity of the MMPI-A PSY-5 facet subscales have remained consistent across studies, there has been no study addressing the use of the PSY-5 or the facet subscales with juvenile offender populations. The present study further explored the PSY-5 scales of the MMPI-A and its implications for use with a juvenile offender population. Four specific research questions were proposed: (1) Are the facet subscales as determined by Bolinskey et al. (2004) valid when used with a juvenile offender population? (2) How do mean

juvenile offender PSY-5 parent scales compare to the other normative and inpatient samples that have been established in the MMPI-A PSY-5 literature? (3) How do the mean juvenile offender PSY-5 facet scales compare to the other normative and inpatient samples that have been established in the MMPI-A PSY-5 literature? (4) When applied to a juvenile offender population, do the MMPI-A PSY-5 facet scales perform with internal consistency similar to other populations?

Major Findings

The present study explored group differences of the PSY-5 parent and facet subscales by comparing the present sample with normative (i.e., Ben-Porath et al., 2006) and clinical (i.e., Stokes et al., 2009) samples. Also, the factor structure of the PSY-5 was explored when applied to a juvenile offender population. The current study results failed to support the validity and reliability of the MMPI-A PSY-5 facet subscales scales when applied to a juvenile offender population. The study also implies that the latent factors underlying the original PSY-5 scales may need to be re-conceptualized when used with this population. This finding is in contrast to other studies that have found support for PSY-5 subscales with other populations (see Bolinsky et al., 2004, Stokes et al.).

Between-group differences. When considering between-group differences of the PSY-5 scales with normative and clinical populations, significant differences occurred across both comparisons. When analyzed separately, the Disconstraint raw scores of males and females of the current sample were significantly different than that of the normative population. Specifically, the Disconstraint raw score for both males and females was significantly greater for the current sample when compared to the normative sample. This finding is intuitive due to higher elevations of the Disconstraint scale being associated with more risk-taking and impulsive

behaviors, which would more likely be found in a sample of juvenile offenders as opposed to a normative sample.

There were also some gender-specific differences between the present and normative samples. Particularly, the present sample had higher scores on the Psychoticism scale for males than the normative sample of male individuals. This finding implies that males may experience more psychotic features than their normative counterparts. Also, females in the current sample had significantly higher scores on the Introversion scale, indicating that the current sample may experience more internalizing behaviors or have insufficient peer relationships than normative sample females. This finding is somewhat discrepant from the literature in that no statistically significant difference was found between female offenders and a control group when comparing group differences on a similar construct (Brunelle, Douglas, Pihl, & Stewart, 2009). However, one prior study has found the presence of high rates of internalizing psychopathology in female juvenile offenders though these were not compared directly to normative sample (van Doorn et al., 2012).

When compared to a clinical sample (Stokes et al., 2009), the present sample exhibited higher scores on the Psychoticism scale and lower scores on the Neuroticism/Negative Emotionality scale. If these response patterns are conceptualized under the current clinical interpretation of these scales, it implies that mental health difficulties juvenile offenders may manifest differently than what might be observed in a clinical inpatient population. Specifically, juvenile offenders endorse higher levels of psychotic features and lower levels of worry than individuals of similar age and in a clinical inpatient population. Facet subscales comprising the Introversion parent subscale (i.e., Low Drive/Expectations and Low Sociability) were also found to be significantly different for the present sample when compared to the clinical sample. The

two facet subscales of Introversion appeared to perform distinctly across both groups. Particularly, scores on the Low Drive/Expectations were significantly lower for the present sample while scores on the Low Sociability scale were significantly higher. These findings indicate that juvenile offenders and adolescents in clinical inpatient settings have different patterns of endorsement on the PSY-5 Introversion scale which particularly corresponds to the established facet subscales.

Between-group comparisons of the PSY-5 scales revealed that the present sample of juvenile offenders exhibits a distinct pattern of responding separate from clinical and normative populations. Some of the differences were somewhat intuitive, such as the increased endorsement of male and female juvenile offenders on the Disconstraint scale when compared to their male and female counterparts in the normative sample. However, other differences were more concerning, most notably that juvenile offenders endorsed more items on the Psychoticism scale than the clinical sample in the Stokes et al. (2009) study. When considering the findings of Atkins et al. (1999) in that the rate of symptomatology of incarcerated youth was similar to that of community mental health sample, the current findings suggest a greater prevalence of psychotic features in juvenile offenders when compared to a clinical inpatient population.

Internal consistency. The majority of the PSY-5 subscales in the current study demonstrated lower internal consistency than prior studies. When considering inter-item correlations of the facet subscales, the Hostility, Grandiosity/Indignation, Delinquent Behaviors and Attitudes, Norm Violations, Low Drive/Expectations, and Low Sociability scales were found to have lower Chronbach's alphas than the previously established studies (i.e., Bolinsky et al., 2004; Stokes et al., 2009). Psychotic Beliefs/Experiences, Odd Mentation, and Neuroticism/Negative Emotionality each demonstrated comparable or better internal consistency

with the prior studies. The pattern of lower internal consistency among the facet subscales indicates that reliability of the majority of facet subscales is somewhat problematic when applied to a juvenile offender sample.

The two-factor structure. Overall, exploratory factor analysis revealed the presence of two factors. The two-factor structure revealed a wide-encompassing first factor that included Hostility, Psychotic Beliefs/Experiences, Odd Mentation, Norm Violation, Neuroticism/Negative Emotionality, Delinquent Behaviors and Attitudes, and Grandiosity (double loaded). When findings were conceptualized under the parent factors, factor one comprised four of the original five PSY-5 parent factors (i.e., Aggressiveness, Disconstraint, Negative Emotionality/Neuroticism, and Psychoticism). The second factor (named Introversion/Low Grandiosity) included the two facet subscales of the Introversion parent factor (Low Sociability and Low Drive/Expectations) and also the Grandiosity facet subscale (double loaded), which had an inverse relationship with the Introversion parent subscales.

The two-factor finding implies that the established facet-to-parent structure of the PSY-5 does not perform as intended when applied to a group of juvenile offenders. This could be due to juvenile offenders have a more rudimentary presentation of personality than the constructs of the PSY-5 measure. Also, it could be inferred that the PSY-5 may not be sensitive enough to detect subtleties in personality among juvenile offenders if these undetected subtleties exist. Despite the current limitations, the current data also support findings in the literature concerning the relationship between externalizing behaviors and mental health difficulties in among juvenile offenders.

The potential clinical utility of the first factor may prove to be less meaningful due to its low specificity and all-encompassing nature. When conceptualizing the parent factors that

comprise the first factor (i.e., Aggressiveness, Disconstraint, Negative Emotionality/Neuroticism, and Psychoticism), they can be further subdivided based on how they might manifest for juvenile offenders. For example, Stokes et al. (2009) found that Aggressiveness and Disconstraint were associated with externalizing symptoms and also found that the Achenbach Youth Self Report (YSR; Achenbach & Edelbrock, 1987) Externalizing scale was associated with high Hostility and Delinquent Attitudes and higher Neuroticism scores. The relationship between Neuroticism and externalizing behaviors have been established in other research (e.g., Miller, Lynam, & Leukefeld, 2003). The current results are consistent with the literature concerning that the first factor consists of both externalizing factors and mental health difficulties (including Psychotic features). In other words, higher levels of acting-out behaviors are likely associated with increased distress and other mental health difficulties within the current sample.

The Introversion/Low Grandiosity factor also highlights a unique presentation of juvenile offender personality patterns, which is somewhat discrepant from the clinical inpatient PSY-5 literature. Implications of internalizing symptoms in juvenile offenders have been mentioned in MMPI and PSY-5 research (i.e., Espelage et al., 2003; Stokes et al., 2009). Notably, Espelage and colleagues found a high presence of internalizing symptoms among male and female juvenile offenders. Specifically regarding the PSY-5 scales, Stokes et al. (2009) found that internalizing symptoms were most highly related to high Neuroticism and the Low Drive/Expectations facet subscale. Furthermore, Neuroticism/Negative Emotionality was found to have the highest association with the presence of depression and anxiety. Both Introversion facet subscales (Low Drive/Expectations and Low Sociability) were found to be related to self-report and chart review of internalizing symptoms in the prior study (Stokes et al.). The Introversion/Low Grandiosity factor of the present study appears to share some similarities with Stokes et al. findings given

that both Low Sociability and Low Drive/Expectations both loaded onto the same factor; however, the present findings of Low Grandiosity were not among the results in the clinical inpatient sample of the Stokes et al. study. Also, Neuroticism did not load with the subscales comprising the Introversion parent scale, which may indicate that Introversion may be a separate factor that is not strongly indicative of mental health difficulties. It appears that the personality trait of introversion may have different indications with juvenile offenders than has been found with clinical inpatient populations.

Another consideration when discussing the present results with the Stokes et al. (2009) study is the racial make-up of the samples. Specifically, the current sample consisted of a majority of African-American youth while the Stokes et al. (2009) was predominately White. The current study had a larger proportion of African American youth (55.3%) as compared to the Stokes et al. (2003) study (14.6%). There were also less White individuals in the current study (36.5%) when compared to Stokes et al. (69.4%). This is significant consideration due to racial differences have been discovered in the manifestation of Internalizing versus Externalizing disorders between Whites and African Americans (Langrehr, 2011). According to Langrehr, Whites were found to have a higher presence of internalizing disorders when compared to their African American counterparts, though the presence of externalizing disorders were relatively similar between the two groups. This racial difference could partly explain why the Neuroticism/Negative Emotionality scale (which was found to be most highly associated with Internalizing disorders such as depression and anxiety) was not highly associated with the Introversion subscales and was more associated with the first factor. In other words, mental health difficulties may be more associated with the externalizing symptoms rather than

internalizing symptoms in the present group due to differences in how mental health issues may manifest in regards to race.

Limitations of Study

The present study used validity scores in selecting valid profiles for analysis; however, there were no measures that were used to further control for factors that may have also influenced responding patterns of individuals (i.e., reading level). Inter-item correlations were also weak among the facet subscales, which have implications of the validity of the current findings. In addition, external measures were not used to further examine the external reliability of the PSY-5 scales with other similar measures which would have provided additional insight on how the PSY-5 scales fared in relation to other variables.

Future Research Implications

The present study generates several potential research directions relating to the PSY-5 parent and facet subscales and juvenile offenders. As the current study demonstrated poor fit of data and significant differences profile differences when compared to other studies, further sophisticated research approaches are needed to determine the applicability of these findings.

One area of potential study would be to focus further on within-group differences of the juvenile offender population to determine factors that may influence how juvenile offenders respond to PSY-5 items. Specifically, demographic variables should be explored in relation to PSY-5 profiles to see if significant differences exist and also to see if there are specific sub-groups within the juvenile offender population that the PSY-5 may demonstrate adequate clinical utility. It is recommended that future studies focus on the following demographic characteristics of juvenile offenders: (1) gender would be an important factor to consider as previous studies (e.g., Espelage et al., 2003) and the current findings have found qualitative differences between

males and females surrounding personality traits; (2) offense type should also be considered as prior research has demonstrated the MMPI-A's ability to differentiate based on the offense type of offenders (Glaser, Calhoun, & Petrocelli, 2002); (3) race/ethnicity would also be important to consider regarding juvenile offender responses to PSY-5 as findings indicate that race may be a contributing factor in how mental health diagnoses manifest (Langrehr, 2011); and (4) mental health diagnosis should also be explored to see if patterns can be seen in how individuals with different mental health diagnoses respond to PSY-5 items.

In further determining the applicability of the PSY-5 with juvenile offenders, it would also be essential to further consider between-group differences in PSY-5 profiles of juvenile offenders versus other groups. The exploratory findings of the present study found some differences of PSY-5 profiles of juvenile offenders when compared to normative and clinical samples. The finding that juvenile offenders endorsed more items on the Psychoticism and Neuroticism/Negative Emotionality parent scales when compared to the previously studied clinical inpatient population (i.e., Stokes et al., 2009) should also be further explored to ascertain if this finding can be replicated in other samples. It would also be useful to explore how elevations on the Neuroticism and/or Psychoticism parent scales may manifest across individuals in juvenile offenders samples when compared to clinical inpatient samples.

Longitudinal studies should also be considered in how juvenile offenders respond to the MMPI-A PSY-5 scales. To date, there have been no known studies that have focused specifically on patterns of responding as related to a youth's progress within the juvenile justice system. Related to the elevations observed between the present and the clinical inpatient sample, it would be useful to explore how the stage of the youth within the system (e.g., comparing MMPI-A profiles of youths immediately following initial incarceration versus several months post

incarceration) and to see how the scales could be affected based on environmental factors of the system.

Also, since the results of the current study revealed that several scales demonstrated lower than expected internal consistency, future studies should focus on individual items load onto parent and facet subscales. The finding that the scales involving psychotic or neurotic features were reliable warrants further study of how this factor can manifest or has implications of juvenile offenders and mental health.

External factors would be important to consider in further validating the PSY-5 scales utility with juvenile offenders. Studying the scales in relation to other scales on the MMPI-A, other validated measures (e.g., other personality instruments or behavioral measures), and qualitative data (e.g., chart review, clinician report, parent report) could further reveal the convergent validity of the MMPI-A PSY-5 scales when applied to juvenile offenders.

Clinical Implications

The PSY-5 parent and facet subscales, when used to a sample of juvenile offenders, do not appear to perform as they were originally intended based on the present findings. Considering these findings, further research is needed to support the use of PSY-5 scales before they can be applied in regular clinical practice with juvenile offenders. Despite the potential clinical limitations of the PSY-5 with juvenile offenders that were discovered in the present study, some general considerations are discussed in working with juvenile offenders and suggestions regarding the development of personality instruments with this population.

The present findings indicate that the Neuroticism and Psychoticism are more associated with factors related to externalizing symptoms (i.e., Disconstraint, Aggressiveness). In other words, there appears to be a direct relationship between mental health and

externalizing/aggressive behaviors. Though the nature of this relationship was not defined in the current study, it can be implied that externalizing behaviors and mental health difficulties are, at the very least, related in juvenile offenders. The present finding could suggest that these externalizing behaviors (i.e. such as the law-breaking behavior) could also be related to or a manifestation of mental health symptoms, which are common among juvenile offenders.

It was also discovered that juvenile offenders rated higher Psychoticism and lower on Negative Emotionality/Neuroticism when compared to those of clinical inpatient populations, which implies that juvenile offenders may experience a different pattern of mental health symptoms than individuals in clinical inpatient populations. Given that juvenile offenders endorsed higher levels of psychotic features when compared to a clinical inpatient sample, it is concerning that juvenile offenders less commonly utilize mental health services (see Hertz, 2001; Shelton, 2005). Given this discrepancy of mental health problems and service delivery, clinicians are recommended to advocate for appropriate mental health services for juvenile offenders that would benefit from treatment. It would also be beneficial for juvenile justice system to help coordinate the transition of youth whom are re-entering the community by ensuring that mental health resources are available to those youth.

Though there were some clinical implications that can be gleaned from the present results, one systemic issue is that the PSY-5 was either not sensitive enough to detect more subtle differences in personality among juvenile offenders, or the current model was sensitive to juvenile personality traits and that the juvenile offender personality could be characterized as being more “simplistic” when described using the language of a five-factor personality model. Even so, assuming that the present findings are applicable with other juvenile offender populations, the current model is deficient. Researchers should consider how the language of

assessment measures are interpreted by juvenile offender populations and consider how to make instrument that include language that is interpreted consistently and that the instruments are designed to measure personality constructs that are multiculturally sensitive.

Conclusion

The present study is the first to further examine the applicability of the PSY-5 subscales with a juvenile offender population. The findings revealed that juvenile offenders may approach the PSY-5 items in a more basic fashion and the PSY-5 may not be sensitive to subtleties of juvenile offender personality. The current study failed to support the validity and reliability of the PSY-5 scales when used with a juvenile offender population, but lends support for further research directions in how the PSY-5 can be further explored concerning its clinical utility with juvenile offenders. When considering the present results of the study with other populations, it is evident that juvenile offenders have elevated mental health symptoms and that these symptoms will most likely present in association with externalizing behaviors.

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APPENDICES

Appendix A, Intercorrelations, Means, and Standard Deviations for Facet Subscales and Neuroticism/Negative Emotionality

A.1. Hostility

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	<u>M</u>	<u>SD</u>
1. 24		.22	.25	.28	.04	.14	.17	.15	-.11	.02	.07	.17	.11	-.13	0.38	0.49
2. 34			.38	.39	.15	.26	.25	.30	-.31	.24	.23	.10	.28	-.28	0.49	0.50
3. 81				.36	.10	.24	.32	.26	-.18	.09	.26	.10	.28	-.25	0.35	0.48
4. 128					.18	.23	.21	.42	-.24	.26	.24	.15	.19	-.12	0.40	0.49
5. 201						.34	.03	.19	-.12	.19	.18	-.04	.24	-.16	0.63	0.48
6. 282							.13	.31	-.17	.23	.17	.11	.26	-.21	0.52	0.50
7. 303								.15	-.10	.15	.18	.13	.13	-.22	0.12	0.32
8. 354									-.10	.23	.26	.25	.19	-.16	0.33	0.47
9. 355r										-.12	-.14	-.13	-.18	.26	0.47	0.50
10. 367											.22	.16	.23	-.18	0.41	0.49
11. 453												.14	.19	-.15	0.26	0.44
12. 458													.08	-.14	0.17	0.38
13. 461														-.26	0.45	0.50
14. 465r															0.59	0.49

Note. *n* = 386

A.2. Grandiosity/Indignation Facet Subscale

	1	2	3	4	5	6	<u>M</u>	<u>SD</u>
1. 47		.17	.14	.12	.15	.12	0.57	0.50
2. 200			.07	.16	.08	.06	0.44	0.50
3. 325				.19	.10	.17	0.63	0.48
4. 334					.12	.23	0.56	0.50
5. 378						.20	0.48	0.50
6. 382							0.64	0.48

Note. *n* = 388

A.3. Delinquent Behaviors and Attitudes Facet Subscale

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. 32		.03	.18	.08	.19	.14	.18	.02	.16	.14	.10	.08	.15	.12	.15	.17
2. 80			.07	.46	.05	.02	.13	-.03	.11	.13	.07	.06	.12	.09	.01	.14
3. 96r				.07	.14	.07	.11	.07	-.02	.18	.09	.06	.12	.14	.12	.22
4. 101					.06	.07	.08	.00	.16	.06	.08	.00	.15	.05	.04	.06
5. 144						.17	.15	.01	.06	.08	.16	.10	.20	.16	.09	.34
6. 197							.17	.33	.00	.26	.07	.13	.05	.12	-.01	.24
7. 234								.02	.02	.30	.14	.25	.16	.18	.04	.29
8. 246r									.03	.01	-.03	.00	.13	.03	-.02	.11
9. 249r										-.02	.06	.05	.10	.02	.01	.02
10. 323											.10	.16	.11	.10	.03	.30
11. 338												.14	.18	.14	.09	.20
12. 361													.11	.15	.03	.15
13. 380														.27	.06	.24
14. 440															.19	.18
15. 460r																.12
16. 467																

Note. *n* = 380

Delinquent Behaviors and Attitudes Facet Subscale

	<u>M</u>	<u>SD</u>
1. 32	0.72	0.45
2. 80	0.74	0.44
3. 96r	0.49	0.50
4. 101	0.77	0.42
5. 144	0.24	0.43
6. 197	0.43	0.50
7. 234	0.41	0.49
8. 246r	0.59	0.49
9. 249r	0.86	0.34
10. 323	0.42	0.49
11. 338	0.67	0.47
12. 361	0.64	0.48
13. 380	0.57	0.50
14. 440	0.52	0.50
15. 460r	0.39	0.49
16. 467	0.33	0.47

Note. $n = 380$

A.4. Norm Violation Facet Subscale

	1	2	3	4	5	6	7	8	<u>M</u>	<u>SD</u>
1. 69		.04	.11	.20	.31	.27	.20	.12	0.22	0.41
2. 99			.15	.05	.11	.07	.01	.14	0.48	0.50
3. 117				.20	.06	.09	-.04	.16	0.52	0.50
4. 120r					.08	.24	.16	.06	0.27	0.45
5. 389						.19	.10	.11	0.34	0.48
6. 456							.14	.21	0.17	0.38
7. 457r								.18	0.27	0.45
8. 462									0.35	0.48

Note. $n = 383$

A.5 Low Drive/Expectations Facet Subscale

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	<u>M</u>	<u>SD</u>
1. 9r		.16	.13	.17	.34	.16	.09	.08	.12	.05	.04	.13	.10	.22	0.33	0.47
2. 58r			.19	.13	.27	.16	.12	.14	-.02	.15	.03	.17	.16	.09	0.20	0.40
3. 71r				.17	.21	.13	.09	.19	.16	.08	.01	.12	.09	.13	0.28	0.45
4. 74r					.19	.15	.08	.23	.15	.12	.10	.16	.20	.04	0.12	0.33
5. 91r						.18	.18	.15	.21	.07	.01	.17	.15	.16	0.27	0.45
6. 105r							.11	.09	.09	.18	.10	.21	.20	.08	0.18	0.38
7. 170r								.26	.19	.21	.17	.19	.22	.09	0.29	0.46
8. 179r									.08	.16	.10	.17	.15	.03	0.21	0.41
9. 228r										.10	.06	.12	.13	.02	0.33	0.47
10. 329r											.22	.28	.25	.04	0.29	0.46
11. 436r												.19	.21	.01	0.24	0.43
12. 447r													.17	.03	0.19	0.39
13. 450r														.05	0.16	0.36
14. 473															0.38	0.49

Note. $n = 378$

A.6. Low Sociability Facet Subscale

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	<u>M</u>	<u>SD</u>
1. 46		.11	.06	.07	.02	.07	.05	.15	.06	-.03	.06	.05	-.13	.05	0.42	0.49
2. 82			.09	.26	.08	.09	.31	.02	.21	.02	.19	.18	.02	.10	0.25	0.43
3. 125r				.02	.11	.07	.09	.14	.08	.11	.09	.11	.09	.16	0.39	0.49
4. 180r					.21	.22	.22	.14	.17	.08	.24	.27	.02	.09	0.25	0.44
5. 262r						.21	.28	.09	.08	.16	.24	.24	.12	.14	0.25	0.44
6. 289r							.20	.21	.11	.23	.19	.21	.03	.17	0.22	0.42
7. 292r								.05	.16	.21	.30	.32	.10	.10	0.21	0.41
8. 298r									.08	.07	.18	.06	.03	.13	0.57	0.50
9. 319r										.17	.22	.16	.05	.21	0.36	0.48
10. 322r											.17	.17	.08	.09	0.22	0.42
11. 331r												.34	.11	.18	0.34	0.47
12. 335r													.04	.16	0.32	0.47
13. 463														.26	0.17	0.38
14. 476r															0.28	0.45

Note. $n = 385$

A.7. Psychotic Beliefs/Experiences Facet Subscale

	1	2	3	4	5	6	7	8	9	10	11	12	13	<u>M</u>	<u>SD</u>
1. 12		.18	.28	.30	.30	.25	.16	.20	.19	.15	.28	.28	.21	0.30	0.46
2. 22			.19	.17	.27	.25	.31	.27	.13	.20	.25	.14	.27	0.14	0.35
3. 39				.23	.40	.17	.08	.13	.07	.12	.20	.09	.17	0.29	0.45
4. 95					.41	.19	.20	.19	.15	.14	.21	.13	.22	0.34	0.47
5. 132						.32	.33	.23	.18	.27	.23	.16	.25	0.27	0.44
6. 136							.33	.24	.27	.26	.32	.04	.29	0.12	0.32
7. 250								.31	.26	.37	.25	.13	.31	0.16	0.37
8. 299									.27	.37	.33	.18	.48	0.21	0.41
9. 315										.34	.25	.02	.22	0.12	0.33
10. 332											.31	.09	.33	0.15	0.36
11. 337												.10	.25	0.24	0.43
12. 387r													.15	0.47	0.50
13. 439														0.17	0.38

Note. *n* = 376

A.8. Odd Mentation Facet Subscale

	1	2	3	4	5	<u>M</u>	<u>SD</u>
1. 29		.21	.17	.31	.18	0.47	0.50
2. 45			.19	.27	.22	0.39	0.49
3. 92				.21	.27	0.14	0.34
4. 296					.21	0.40	0.49
5. 417						0.32	0.47

Note. *n* = 391

A. 9. Neuroticism/Negative Emotionality Scale

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. 49		.02	.22	.22	.13	.10	.05	.04	.23	-.01	.23	.12	.27	.22	.19	.18
2. 60r			.09	.01	.15	.15	.29	.04	.21	.09	.02	.10	.15	.12	.13	.10
3. 78				.20	.14	.05	.10	.03	.17	-.05	.05	.19	.15	.17	.09	.21
4. 89					.15	.13	.05	-.05	.16	-.06	.17	.14	.28	.17	.07	.14
5. 111						.08	.23	.10	.19	.02	.11	.13	.16	.37	.16	.17
6. 134r							.17	.07	.32	.23	.18	.14	.12	.12	.07	.11
7. 139								.22	.18	.13	.08	.12	.02	.19	.17	.09
8. 159									.04	.02	.07	.15	-.06	.09	.06	.11
9. 185										.08	.17	.28	.26	.22	.20	.22
10. 209r											.03	.08	.01	.05	.01	-.04
11. 271												.17	.23	.11	.15	.11
12. 281													.17	.20	.08	.16
13. 285														.21	.13	.19
14. 357															.16	.18
15. 364																.19
16. 368																
17. 375r																
18. 383																
19. 392																
20. 394																
21. 412																
22. 424r																

Neuroticism/Negative Emotionality Scale

	17	18	19	20	21	22	<u>M</u>	<u>SD</u>
1. 49	-.06	.23	.08	.12	.22	.17	0.64	0.48
2. 60r	.20	.10	.07	.17	.16	.15	0.41	0.49
3. 78	.04	.20	.05	.22	.18	.09	0.69	0.46
4. 89	-.01	.23	.09	.19	.21	.10	0.64	0.48
5. 111	.18	.20	.04	.18	.22	.07	0.42	0.50
6. 134r	.14	.22	-.02	.11	.25	.28	0.49	0.50
7. 139	.22	.19	.19	.14	.20	.07	0.28	0.45
8. 159	.00	.11	.16	.09	.10	.11	0.21	0.41
9. 185	.07	.38	.07	.19	.34	.19	0.58	0.50
10. 209r	.16	.11	.00	-.01	.06	.22	0.37	0.48
11. 271	.09	.20	.06	.07	.21	.05	0.52	0.50
12. 281	.12	.34	.11	.19	.27	.10	0.35	0.48
13. 285	.05	.26	.13	.19	.28	.13	0.60	0.49
14. 357	.14	.26	.05	.17	.29	.12	0.43	0.50
15. 364	.04	.14	.18	.17	.16	-.01	0.45	0.50
16. 368	.06	.26	.14	.19	.21	.06	0.55	0.50
17. 375r		.07	-.04	.00	.03	.10	0.36	0.48
18. 383			.16	.22	.44	.12	0.39	0.49
19. 392				.22	.09	-.01	0.37	0.48
20. 394					.20	.11	0.56	0.50
21. 412						.15	0.45	0.50
22. 424r							0.53	0.50

Note. $n = 383$