

PERSONALITY, DELINQUENCY, AND SUBSTANCE USE IN ADOLESCENCE

A thesis presented to the faculty of the Graduate School of
Western Carolina University in partial fulfillment of the
requirements for the degree of Master of Arts in Clinical Psychology

By

Kayla Elizabeth Byrd

Director: Dr. Nathan Roth

Psychology Department

Committee Members: Dr. David M. McCord, Psychology

Dr. Cathy Grist, Human Services

April 2018

ACKNOWLEDGEMENTS

I would like to extend a sincere thank you to my committee members whom I have had the opportunity to work closely with throughout the duration of this project. Their support has been insurmountable and I would not have been able to do this without their guidance. I would especially like to thank Dr. Nathan Roth. I appreciate your patience, understanding, encouragement, and willingness to go along with all of my ideas. I couldn't have asked for a better director, advisor, or confidant.

I am grateful for the unwavering support from my family. Without you, I would not be where I am today. To my cohort, I couldn't imagine this journey without the love and support I have received from you all. Thank you!

TABLE OF CONTENTS

LIST OF TABLES.....	iv
ABSTRACT.....	v
CHAPTER 1: INTRODUCTION	1
CHAPTER 2: LITERATURE REVIEW	2
Delinquency	2
Substance Use	4
Theoretical Shift.....	6
Research Domain Criteria (RDoC).....	8
The Personality Psychopathology Five (PSY-5)	9
Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition-Section III	9
History of the Minnesota Multiphasic Personality Inventory (MMPI).....	11
Statement of Purpose	13
Hypotheses.....	14
Testable Hypothesis 1:.....	14
Testable Hypothesis 2:.....	14
Testable Hypothesis 3:.....	15
Participants.....	16
Measures	16
Personality.....	16
Substance Use	17
Delinquency	17
Demographics	18
Procedure	18
Analyses.....	19
CHAPTER 4: RESULTS.....	20
CHAPTER 5: DISCUSSION.....	23
REFERENCES	26

LIST OF TABLES

Table 1: Correlations between the MMPI-A-RF Externalizing and related scales with the Delinquency Scale and the Substance Abuse Subtle Screening Inventory (SASSI-A2).....	20
--	----

ABSTRACT

PERSONALITY, DELINQUENCY, AND SUBSTANCE USE IN ADOLESCENCE

Kayla Byrd, M.A.

Western Carolina University (April, 2018)

Director: Dr. Nathan Roth

In 2009, there were 2.1 million juvenile arrests made in the United States (Veltri, Sellbom, Graham, Ben-Porath, Forbey, & White, 2014). According to the National Institute of Drug Abuse (2014), 70% of high school students by their senior year will have tried alcohol, 50% will have tried an illegal drug, almost 40% will have smoked a cigarette, and 20% will have used a prescription drug for a nonmedical reason (Principle of Adolescent Substance Use Disorder Treatment..., 2014). The adolescent population has continued to show engagement with delinquent behavior as well as substance use. In this current study, we will be examining the relationship between two outcome variables, delinquency and substance use, and correlate these to dimensional constructs assessed using the Minnesota Multiphasic Personality Inventory – Adolescent – Restructured Form. Data was collected on an outpatient adolescent sample.

CHAPTER 1: INTRODUCTION

The adolescent population continues to show problematic engagement with negative behaviors, in particular delinquency and substance use (Stein & Graham, 2001). Emerging new models of psychopathology provide different perspectives on the etiology and course of these dysfunctional behavioral patterns. In the current study, we will be examining delinquency and substance use in a community sample and correlate these dimensional constructs assessed by the Minnesota Multiphasic Personality Inventory – Adolescent – Restructured Form. In the following sections, the prevalence and current research on these problematic behaviors will be reviewed followed by a presentation of the emerging models of psychopathology on which the MMPI-A-RF is based.

CHAPTER 2: LITERATURE REVIEW

Delinquency

Within the Diagnostic and Statistical Manual – Fifth Edition (DSM-5), there are diagnoses typically associated with delinquency in the adolescent population, such as: Oppositional Defiance Disorder (Aebi, Barra, Bessler, Steinhausen, Walitza, & Plattner, 2016), Conduct Disorder (Bukstein, 2016), and Antisocial Personality Disorder (Edens, Kellye, Lilienfeld, Skeem, & Douglas, 2015). The criteria for Oppositional Defiance Disorder (ODD) states there must be a pattern of at least four symptoms lasting at least six months from any of the following categories: angry/irritable mood, argumentative/defiant behavior, or vindictiveness (American Psychiatric Association, 2013). A study was conducted to examine the effectiveness of the ODD dimensions and its respective subtypes among detained male adolescent offenders. Often individuals within this population were not diagnosed nor treated for this disorder as it was often overshadowed by their delinquent behaviors. Also, within the DSM – fourth edition (DSM-IV), a diagnosis of ODD could not be given when conduct disorder (CD) was diagnosed. The subtypes for this study were irritable ODD, including items such as temper, angry, and touchy, and deviate/vindictive ODD, including argues, defies, and annoys. The dimensions and subtypes were analyzed on the relationship between suicidality, comorbid psychiatric disorders, and criminal behaviors once released from the detention center. The results confirmed the presence of the subtypes in this particular population. The irritable subtype was the strongest predictor of persistent criminal behavior. Individuals with the irritable subtype were also at risk for suicide (Aebi et al., 2016). These findings suggest immediate intervention for individuals with ODD in

this population, especially those with the irritable subtype, to prevent indices of suicidality as well as prevent future societal harm.

The criteria for Conduct Disorder (CD) states there must be repetitive and persistent behavior outside of societal norms or basic rights of others are violated. Three behaviors within the following categories must be exhibited within the last twelve months: aggression to people and animals, destruction to property, deceitfulness or theft, or serious violation of rules (American Psychiatric Association, 2013). A study was conducted to examine the usefulness of the Limited Prosocial Emotions (LPE) specifier for (CD) in a group of detained boys. They found the LPE specifier was not significant on the variables in question; however, a diagnosis of CD by itself was a strong predictor of increased psychiatric problems, rule-breaking behavior, aggression, and had reported more violent and non-violent offenses than individuals without the CD diagnosis (Colins, 2016). This suggests a diagnosis of CD is useful in a clinical setting. The criteria for antisocial personality disorder (ASPD) states there needs to be a pervasive pattern of disregard or violation of the rights of others. Three or more of the following must be exhibited since the age of fifteen: a failure to conform to societal norms manifesting in continuous behaviors that are grounds for arrest, deceitfulness indicated by lying, conning others, or the use of aliases, impulsivity and inability to plan for the future, recklessness and little regard to safety of oneself or others, consistent irresponsibility manifested by a failure to consistently maintain work behaviors or financial obligations, and a lack of remorse (American Psychiatric Association, 2013). A study was conducted to examine the relationship between psychopathic personality traits and delinquency trajectories in adolescents. The results concluded that the grandiose-manipulative interpersonal style and the impulsive-irresponsible behavior facets under ASPD predict the high and relatively stable trajectories of delinquent behavior. However, the

callous and unemotional traits associated with ASPD was not a statistically significant predictor in elevated delinquent behavior trajectories (Salihovic & Stattin, 2017). This suggests individuals with ASPD should be assessed for specific dimensions of the disorder to better distinguish psychopathic traits which could influence delinquent behavior trajectories as well as inform the therapist of potential treatment options.

Substance Use

According to the National Institute of Drug Abuse (2014), 70% of high school students by their senior year will have tried alcohol, 50% will have tried an illegal drug, almost 40% will have smoked a cigarette, and 20% will have used a prescription drug for a nonmedical reason (Principle of Adolescent Substance Use Disorder Treatment., 2014). Given the high indices of substance use amongst adolescents, mental health professionals need a uniform diagnostic criteria in order to diagnose and treat substance use and abuse. The ‘Substance-Related and Addictive Disorders’ section of the DSM-5 includes ten different categories of substances, including: alcohol; cannabis; tobacco; caffeine; inhalants; hallucinogens; opioids; sedatives, hypnotics, and anxiolytics; stimulants; and other or unknown substances. Marijuana, tobacco, and alcohol are some of the most common substances for adolescents (Principle of Adolescent Substance Use Disorder Treatment., 2014). For Cannabis-Related Disorders, Tobacco-Related Disorders, and for Alcohol-Related Disorders, criteria states the substance is often taken in larger amounts or over longer periods than intended, there is a persistent desire or the inability to control use, a substantial amount of time is placed in activities surrounding the substance, use interferes with major obligations such as school, work, or social activities, repeated use in potential physically hazardous situations, continued use despite knowing of a physical or

psychological problem that is likely exacerbated by use, tolerance, and withdrawal symptoms (American Psychiatric Association, 2013).

Within the ten categories of the aforementioned substances, specifiers are included, such as: use, intoxication, and withdrawal. The use specifier is given when the individual displays a problematic pattern of substance use which is causing clinically significant distress as listed in the criteria for the substance-related disorders in the past twelve months. The intoxication specifier is given when the individual recently used the substance and are displaying clinically significant problematic psychological and physical behaviors. The withdrawal specifier is given when the individual experiences a variety of physical symptoms after ceasing or reducing use of the substance. Additional specifiers are utilized, such as: “in early remission,” “in sustained remission,” “on maintenance therapy,” and “in a controlled environment.” The “in early remission” specifier is given when the individual has not met the criteria for the substance use disorder for at least three months but for less than twelve months after meeting the full criteria for the substance use disorder. The “in sustained remission” specifier is given when the individual has not met criteria for the substance use disorder for twelve months or longer after meeting all of the criteria for the substance use disorder. The “on maintenance therapy” specifier is given with a diagnosis of either opioid use disorder or tobacco use disorder. If paired with an opioid use disorder, the individual has been prescribed an agonist medication that does not meet the criteria for an opioid use disorder for that class of medication. If paired with a tobacco use disorder, the individual is taking a long-term maintenance medication, such as nicotine replacement, and the criteria for tobacco use disorder has not been met with that class of medication. The “in a controlled environment” specifier is given when the individual is in an environment where the substance is restricted (American Psychiatric Association, 2013). These

specifiers are important as it provides information to the therapist in how to provide treatment for the client.

Early substance use is associated with a variety of negative outcomes. Research shows individuals whom are exposed to illicit drugs prior to age fifteen predicts substance use disorders in adulthood, low educational attainment, risky sexual behavior and sexually transmitted diseases, early pregnancy, and crime (Odgers, Caspi, Nagin, Piquero, Slutske, Milne, Dickson, Poulton, & Moffitt, 2008). A longitudinal study addressed two questions: is early exposure to illicit drugs a causal factor in adolescents' future outcomes or whether adolescents with a history of conduct issues are more likely, as opposed to other adolescents, to be exposed to illicit drugs and alcohol and experience negative adult outcomes. The results concluded that early substance use had a causal effect among individuals with no conduct problem history. These individuals were almost twice as likely to develop a substance dependency, test positive for herpes, early pregnancy, and be convicted for a crime as compared to individuals without early exposure to illicit substances (Odegers et al., 2008). Because of the negative outcomes associated with substance use and the propensity for adolescents to experiment with illicit drugs, intervention is necessary for these individuals to combat and prevent these trajectories.

Theoretical Shift

There is currently a shift occurring in the psychological field regarding the diagnoses of mental disorders. The Diagnostic Statistical Manual of Mental Disorders (DSM) is formerly the leading instrument in the field of psychology to provide uniformity and specific criteria for diagnosing mental disorders (Waldon, 2014). The manual is currently in its fifth edition, the DSM-5, and it encompasses current research when making decisions regarding changes from edition to edition (Waldon, 2014). Special committees are formed by the American Psychiatric

Association made up with members whom are considered experts on a particular mental disorder or category of mental disorders (Kendler, 2013). These individuals meet together to review the current literature on the particular disorder they specialize in and evaluate if criteria for that disorder should or should not be revised in the next edition of the DSM (Kendler, 2013). The DSM uses a categorical approach for diagnosis. However, there are limitations to this approach such as the failure to identify individual differences in regard to severity of the disorder as well as the failure to recognize and respond appropriately to clinically significant symptoms of a subsequent disorder that is overshadowed by the primary diagnosis (Brown & Barlow, 2005). The DSM-5 lists other limitations as the inability to definitively identify differences in distinct mental disorders by natural borders, continual diagnoses of not-otherwise-specified (NOS), the need for intermediate diagnoses such as schizoaffective disorder, and increasing rates of comorbidity (American Psychiatric Association, 2013).

Because of the increasing limitations and inherent fundamental flaws of the DSM, there is now support in the field of shifting to a more ‘hierarchical structure of dimensional constructs’ approach rather than a discrete, categorical approach for diagnoses (McCord, 2017). This hierarchical structure of dimensional constructs is seen in the Minnesota Multiphasic Personality Inventory – Second Edition – Restructured Form (MMPI-2-RF). The MMPI-2-RF has three broad domains; Emotional/Internalizing Dysfunction (EID), Thought Dysfunction (THD), and Behavioral, Externalizing Dysfunction (BXD). Under each of the three broad domains are mid-level, Restructured Clinical scales, nine in total. Lastly, under the mid-level, Restructured Clinical scales are narrow, Specific Problems Scales. The symptoms range from relatively broad to relatively narrow. The individual is not given a specific diagnoses; however, it is evident which symptoms the individual is currently suffering from. This provides the ability to treat all

of their individual symptoms rather than the symptoms associated with a blanket diagnosis (Ben-Porath, 2012). This paradigm shift in diagnoses is also evident within the Research Domain Criteria for projects funded by the National Institute of Mental Health (NIMH), the Personality Psychopathology Five (PSY-5), and in Section III, Personality Disorders, of the DSM-5.

Research Domain Criteria (RDoC)

The Research Domain Criteria (RDoC) is a framework designed for research projects funded by the National Institute of Mental Health (NIMH) that identifies new ways of studying mental disorders. This framework places an emphasis on examining the underlying principles associated with human behavior (“Research Domain Criteria (RDoC)”). The RDoC initiative began in 2009 as a way to transform the way mental disorders are classified by relying on dimensions of behavior as well as neurobiological measures. This was in response to increasing findings of the limitations of the various versions of the DSM. Most notably, the categories are in misalignment with current research in the neuroscientific and genetic realms, the categories do not predict responsiveness to treatments, and the categories do little to identify the underlying, fundamental principles of dysfunction (Insel, Cuthbert, Garvey, Heinssen, Pine, Quinn, & Wang, 2010). Because of this, the RDoC research has moved away from funding projects that include DSM criteria (Insel, 2013). Thomas Insel, former director of NIMH, stated there is a need to think about mental disorders from a different perspective as the current way of thinking about disorders has produced no fewer deaths by suicide as the result of a mental disorder nor has the rates of a large proportion of psychological issues decreased in the past thirty years (Insel, 2013). Thus, the current classification system does little for prevention of these outcomes.

The Personality Psychopathology Five (PSY-5)

The Personality Psychopathology Five – Restructured Form (PSY-5) is a set of scales that measure individual differences in personality dimensions that contribute to pathology (Harkness, Finn, McNulty, & Shields, 2012). There are five scales: Aggressiveness (AGGR-r), Psychoticism (PSYC-r), Disconstraint (DISC-r), Negative Emotionality/Neuroticism (NEGE-r), and Introversion/Low Positive Emotionality (INTR-r). These five scales are included in the MMPI-2-RF (Harkness, Finn, McNulty, & Shield, 2012). The scales follow the hierarchical model as the results are shown on a spectrum, rather than a dichotomous outcome. Scoring on the lower end of the spectrum may represent ‘normal’ functioning while scoring on the higher end may represent significant pathology (McCord, 2017). This scale shows further shifting away from the dichotomous outcome of having a disorder or not, known as a categorical approach, and moving to the hierarchical approach in examining where an individual lies on a spectrum.

Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition-Section III

Section III of the Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5) further illustrates the current shift in the field to the hierarchical, dimensional model rather than the categorical approach traditionally seen in the various editions of the DSM. Section III is labeled as ‘Emerging Measures and Models’ which includes an alternative model for diagnosing personality disorders. The primary diagnostic system for personality pathology has been heavily criticized as there are problems with profound diagnostic comorbidity, deficient validity across personality disorders, and the increasing frequency of other specified or unspecified personality disorder diagnoses (American Psychiatric Association, 2013). The Alternative DSM-5 Model for Personality Disorders states a diagnosis of a personality disorder must have functional impairment in regards to self as well as interpersonal functioning as seen in

Criterion A. Secondly, Criterion B dictates maladaptive, pathological personality traits must be exhibited based on five, dimensional personality domains. The five domains include: Negative Affectivity, Detachment, Antagonism, Disinhibition, and Psychoticism which are shown to have strong validity when compared to the PSY-5 and the Five Factor Model of Personality (FFM) (Anderson, Snider, Sellbom, Krueger, & Hopwood, 2014). The FFM is widely used and accepted as a hierarchical model used to assess normal personality traits (McCrae & Costa, 1987). A Specific Personality Disorder could then be diagnosed based on the level of impairment listed under Criterion A and the maladaptive personality traits listed under Criterion B. For example, Narcissistic Personality Disorder is typically associated with acts to gain attention, the need for approval, and either overt or covert grandiosity because of a vulnerable self-esteem (American Psychiatric Association, 2013). However, if an individual meets the criteria for functional impairment though they do not meet trait criteria for a specific personality disorder diagnosis, they are given the diagnosis of Personality Disorder: Trait Specified (Anderson, et al, 2014). In a study conducted by Hopwood (2012), the relationship between the DSM-5 Section III was compared to the Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition – Text Revision (DSM-IV-TR) personality disorders. They found significant associations between the models showing continuity between the personality disorders in the DSM-5 and the DSM-IV-TR. They also found the facets for each personality disorder in the DSM-5 were “genuinely specific” to the intended personality disorder and were the most influential predictors of that disorder (Hopwood, Thomas, Markon, Wright, & Krueger, 2012). This growing body of evidence in support of transitioning to hierarchical, dimensional constructs within the DSM is also evident within the MMPI-2-RF as it is shown to be an effective tool to assess personality

pathology as it aligns closely to the conceptualization of Section III in the DSM-5 (Sellbom, Anderson, & Bagby, 2013).

History of the Minnesota Multiphasic Personality Inventory (MMPI)

The Minnesota Multiphasic Personality Inventory (MMPI) is the most widely used and researched self-report personality instrument today and has been since its creation (McCord, 2017). The MMPI was first formally published in 1940 by Hathaway and McKinley and was initially created as a screening device for psychopathology in a medical setting (Ben-Porath, 2012). The 10 Clinical Scales were based on the predominant classification system developed by Kraepelin during the 1930s. The 10 scales included: Hypochondriasis, Depression, Hysteria, Psychopathic Deviate, Paranoia, Psychasthenia, Schizophrenia, Hypomania, Masculinity-Femininity, and Social Introversion. Also included were validity scales to ensure the individuals were reporting accurately to their experiences. Hathaway and McKinley composed over 500 items that included the symptoms associated with the above disorders as well as items included for the validity scales. They administered the survey to 724 visitors who came to the Minnesota Hospital and compared their answers to patients whom were experiencing specific pathological symptoms. The items that differentiated significantly were included in the Clinical Scales (McCord, 2017).

The MMPI remained nearly untouched until almost fifty years later when the MMPI-2 was published in 1989. Because the normative sample was predominately made of homogeneous individuals- Caucasian, rural Minnesotans, with, on average, an eighth grade education- a new norming sample was collected to include heterogeneity. Likewise, because the MMPI was utilized outside of hospital settings, the sample population was no longer adequate. The next revision focused on updating individual items that were no longer relevant or were outdated in

terms of measuring personality. However, the 10 Clinical Scales were left almost unchanged (Ben-Porath, 2012). The MMPI and, subsequently, the MMPI-2 were often given to adolescents to assess psychopathology. However, because the instruments are based on an adult norming sample, it tended to overclassify adolescents with no history of psychological disturbance and under classify individuals that did have a history of psychological disturbance (Cashel, Rogers, Sewell, & Holliman, 1998). The need for an adolescent measure of personality and psychopathology was apparent; therefore, the Minnesota Multiphasic Personality Inventory – Adolescent (MMPI-A) was developed. The MMPI-A was published in 1992 and was intended for individuals between the ages of 14 and 18. The norming and clinical samples were made up of adolescents from across the country. The 10 Clinical Scales from the MMPI-2 were implemented on the MMPI-A. Validity scales, Harris Lingoes subscales, content component scales, the PSY-5 scales, social introversion subscales, and six supplementary scales were also included (Butcher, Williams, Graham, Archer, Tellegen, Ben-Porath, & Kaemmer, 1992).

Researchers soon found considerable psychometric issues arising from the decision to include the 10 Clinical Scales in the MMPI-2 and the MMPI-A. There was significant item overlap and the identification of a common factor, ‘demoralization,’ across scales contributed to an inordinate amount of cross-scale correlations (McCord, 2017). To address these growing concerns, researchers, led by Auke Tellegen, began the process of developing the Restructured Clinical (RC) Scales (Ben-Porath, 2012). The RC Scales included a ‘demoralization’ scale by itself to reduce cross-scale correlations. The scales were substantially shortened and each scale primarily focused on a singular construct labeled as the ‘major distinctive core’ derived from the original scales (McCord, 2017). The RC Scales began the process of shifting from the MMPI-2 to the MMPI-2-RF which was published in 2008. The MMPI-2-RF incorporates many of the

original items seen on the MMPI-2. Those items are included in eight RC Scales that measure the distinctive constructs of the original scales as well as an additional RC Scale for ‘demoralization’ to limit the cross-scale correlations. The MMPI-2-RF is comprised of 51 scales: nine validity scales, three Higher-Order Scales, nine RC Scales, 23 Specific Problems Scale, 2 Interest Scales, and the PSY-5 Scales.

Similar to the structure of the MMPI-2-RF, the MMPI-A-RF was published in 2016. The MMPI-A-RF incorporated many of the items seen on the MMPI-A, but was significantly shortened in order to maintain the attention of adolescents. The MMPI-A-RF is composed of 48 scales: 6 Validity Scales, 2 Higher-Order Scales, 9 RC Scales including the RC scale for ‘demoralization,’ 25 Specific Problems Scales, and PSY-5 Scales that were revised to align with the items included on the instrument. In addition, there are fourteen critical items which include measures of depression/suicidal ideation. The psychometric properties are shown to be strongly valid in reporting personality and pathology in adolescents (Handel, 2016).

Statement of Purpose

Other research has suggested externalizing behavior, especially at a young age, can manifest as delinquency (Walters, 2014). The Substance Abuse Scale in the MMPI-A-RF (Archer, Handel, Ben-Porath, & Tellegen, 2016) is classified under the Behavioral/Externalizing Higher Order Scale. If we can further identify individuals with a propensity for delinquency, we can target those individuals for intervention and, thus, prevent a variety of negative consequences, including indices of substance use which is associated with a variety of negative consequences.

Hypotheses

Testable Hypothesis 1: It is hypothesized the Negative School Attitudes (NSA) Scale, the Antisocial Attitudes (ASA) Scale, the Conduct Problems (CNP) Scale, the Substance Abuse (SUB) Scale, the Negative Peer Influence (NPI) Scale, and the Aggression (AGG) Scale will significantly relate to the delinquency scores. This hypothesis will be tested using a bivariate analysis.

1a. The relationship between delinquency scores and the Negative School Attitudes (NSA) Scale will be significant and positive.

1b. The relationship between delinquency scores and the Antisocial Attitudes (ASA) Scale will be significant and positive.

1c. The relationship between delinquency scores and the Conduct Problems (CNP) Scale will be significant and positive.

1d. The relationship between delinquency scores and the Substance Abuse (SUB) Scale will be significant and positive.

1e. The relationship between delinquency scores and the Negative Peer Influence (NPI) Scale will be significant and positive.

1f. The relationship between delinquency scores and the Aggression (AGG) Scale will be significant and positive.

Testable Hypothesis 2: It is hypothesized the ASA Scale, CNP Scale, SUB Scale, and the NPI Scale will significantly relate to the substance abuse scores. This hypothesis will be tested using a bivariate analysis.

2a. The relationship between substance abuse scores and the ASA Scale will be significant and positive.

2b. The relationship between substance abuse scores and CNP Scale will be significant and positive.

2c. The relationship between substance abuse scores and the SUB Scale will be significant and positive.

2d. The relationship between substance abuse scores and the NPI Scale will be significant and positive.

Testable Hypothesis 3: It is hypothesized the Restructured Clinical 4 Scale (RC4) will significantly relate to the delinquency scores. It is hypothesized the Restructured Clinical 4 (RC4) Scale will significantly relate to the substance abuse scores. These hypotheses will be tested using a Pearson correlation.

3a. The relationship between delinquency scores and the Restructured Clinical 4 Scale (RC4) will be significant and positive.

3b. The relationship between substance abuse score and the Restructured Clinical 4 Scale (RC4) will be significant and positive.

CHAPTER 3: METHODOLOGY

Participants

Data was collected on outpatient adolescents, ages 14 to 17, recruited through Meridian Behavioral Health Services located throughout Western North Carolina (WNC). For the purpose of this study, participants were specifically recruited from three counties in WNC. The sample included 28 adolescents, including: 9 males, 18 females, and 1 non-binary individual. The sample was predominately Caucasian (82%). Other ethnicities included: Native American (11%) and Other (7%). The mean age was 15.8 years. Adolescent participants and their legal guardians voluntarily consented to participate in this study. In return, their therapist at one of the various Meridian Behavioral Health Services locations was given an interpretation of the MMPI-A-RF, a comprehensive personality assessment.

Measures

Personality

The Minnesota Multiphasic Personality Inventory – Adolescent – Restructured Form (MMPI-A-RF). The MMPI-A-RF is a comprehensive personality assessment used specifically for adolescents. The MMPI-A-RF is comprised of 48 scales including 241 items. There are 6 Validity Scales, 2 Higher-order Scales, 9 RC Scales, 25 Specific Problem Scales, the PSY-5 Scales, and 14 critical items used to measure depression and suicidal ideation (Handel, 2016). Individuals respond to the question by listing either true or false. The reliability coefficient was .64 to .85 (Handle, 2016).

Substance Use

The Substance Abuse Subtle Screening Inventory – Adolescent 2 (SASSI-A2). The SASSI-A2 adequately assesses substance use and prior criminal involvement in adolescents, ages 12 to 18, with a 94% accuracy rate. The SASSI-A2 helps to identify individuals whom may have a substance use disorder but are unwilling or unable to see their behaviors that attribute to the disorder (Stein, Lebeau-Craven, Martin, Colby, Barnett, Golembeske, & Penn, 2005). The SASSI-A2 includes 28 items assessing the frequency of alcohol and drug use, 72 items assessing associated symptoms, risks and attitudes, as well as items seemingly unrelated to substance use which is helpful in identifying individuals who do not acknowledge substance use issues, and, lastly, several items assessing history of past substance use and legal issues. The SASSI-A2 has 12 subscales: Face Valid Alcohol (FVA), Face Valid Other Drugs (FVOD), Family-Friends Risk (FRISK), Attitudes (ATT), Symptoms (SYM), Obvious Attributes (OAT), Subtle Attributes (SAT), Defensiveness (DEF), Supplemental Addiction Measure (SAM), Correctional (COR), Validity Check Scale (VAL), and Secondary Classification Scale (SCS). The initial 28 items are responded to on a four-point scale with the responses: never, once or twice, several times, and repeatedly. The following 72 items are on a two-point scale with the responses: true and false (Verhulst & Ende, 2006). The reliability coefficient was .92 (Miller, 2001).

Delinquency

The Delinquency Scale. The Delinquency Scale was created by the author and supervising professor, Dr. Nathan Roth, for the purpose of this study by looking at the criteria stated in the DSM-5. The scale includes 16 items on a likert rating scale from 0 indicating never to 3 indicating always and will include: blames others for mistakes, often has anger outbursts/tantrums, deliberately annoys others, is spiteful/vindictive, bullies, lies, has problems

following rules, argues with adults, feels angry/resentful, has problems with authority, shoplifted/theft, is easily annoyed, elopement risk (runs away), acts aggressively towards others, fire setting, and animal abuse. The reliability coefficient was .896.

Demographics

The Demographic Questionnaire. The Demographic Questionnaire included: age, gender, ethnicity, diagnoses, and the amount of time, measured in months, in treatment.

Procedure

Meridian Behavioral Health Services' adolescent clients and legal guardian(s) of the adolescent clients, new and current, received a flyer giving the option to participate in the current study. The flyer included the purpose of the study as we were looking at personality, delinquency, and substance use, the benefit of them participating in the study as their therapists will receive an interpretation of the results of the MMPI-A-RF to use at their discretion, and the contact information for the research assistants. If the client and client's legal guardian(s) agreed to participate in the study, a time was scheduled with an identified research assistant at one of the three identified outpatient offices. During the scheduled appointment, the adolescent participant and their legal guardian(s) were asked to read the Consent Form stating they would voluntarily participate in a research study and, once they agreed to participate, both the adolescent and the legal guardian(s) signed the Consent Form. The Consent Form included the purpose of the study, a brief explanation of the three assessment forms and the Demographic Questionnaire they were asked to complete, their rights as research participants, and contact information for the researchers. The Consent Form also explicitly stated that the legal guardian(s) will fill out the Delinquency Scale while the adolescent will fill out the MMPI-A-RF and the SASSI-A2. Only the MMPI-A-RF results were provided to the therapist to use at their discretion. The results of

the SASSI-A2 and the Delinquency Scale were not shared with either the therapist, adolescent participant, nor the participant's legal guardian(s) as research assistants were not able to disclose substance use information. The research assistants further iterated the above points prior to signing. After the adolescent participant and the legal guardian(s) signed, the research assistants administered the Demographic Questionnaire which took approximately less than five minutes, the MMPI-A-RF which took approximately 30 to 40 minutes to complete, and administered the SASSI-A2 which took approximately 15 minutes for the adolescent participant to complete. Additionally, the research assistants also administered the Delinquency Scale to the legal guardian(s) which took approximately 10 minutes. The primary researcher accessed the results of the MMPI-A-RF online via the Qualtrics website and interpreted the results of the MMPI-A-RF and produced a 1 page report. The primary researcher provided the MMPI-A-RF interpretation report in an enclosed envelope to the research assistants to distribute to the therapists at the three various sites. All of the participant's therapists were given an interpretation of the individual's MMPI-A-RF results to use at their discretion.

Analyses

A bivariate analysis was used for both hypothesis 1 and 2 to examine the association between the predictor variables and the outcome variables at the individual scale level. A Pearson correlation was used for hypothesis 3. Because of the limited sample size and the lack of power, a multiple regression was not utilized.

CHAPTER 4: RESULTS

The results were calculated based on the sample size of 9 males, 18 females, and 1 non-binary individual (N=28). The sample was predominately Caucasian (82%) though Native American (11%) and Other (7%) ethnicities were represented.

For descriptive purposes and easy reference, below are all of the MMPI-A-RF scales used in the aforementioned hypotheses, including NSA, ASA, CNP, SUB, NPI, AGG, and RC4, were correlated with all of the outcome variables, including the Delinquency Scale (DLQTotal), the Substance Abuse Attitudes (SATTotal), the Substance Abuse Alcohol Use (SALTotal), and the Substance Abuse Other Drugs Use (SODTotal). The significance levels are 2-tailed.

Table 1: Correlations between the MMPI-A-RF Externalizing and related scales with the Delinquency Scale and the Substance Abuse Subtle Screening Inventory (SASSI-A2)

	Delinquency Total	Attitudes	Alcohol Use	Other Drugs Total
NSA	.392*	-.310	.215	.282
ASA	.159	-.353	.308	.364
CNP	.600	-.352	.519**	.612**
SUB	.324	-.774**	.763**	.800**
NPI	.428*	-.471*	.495**	.657**
AGG	.304	-.176	.121	.226
RC4	.598**	-.671**	.715**	.824**

Note *p≤.05 **p≤.01

A bivariate analysis was run to examine the strength of association of the hypothesized MMPI-A-RF scales to the Delinquency Scale at the individual scale level. It was hypothesized the Negative School Attitudes (NSA) Scale, the Antisocial Attitudes (ASA) Scale, the Conduct Problems (CNP) Scale, the Substance Abuse (SUB) Scale, the Negative Peer Influence (NPI) Scale, and the Aggression (AGG) Scale would be significantly associated with the delinquency scores in a positive directionality. As can be seen in Table 1, this hypothesis was partially supported. The CNP Scale ($r = .600$) was significantly correlated to the delinquency scores ($p < .01$). The NSA Scale ($r = .392$) and the NPI Scale ($r = .482$) were moderately associated to the delinquency scores ($p < .05$). The ASA Scale, SUB Scale, and the AGG Scale were not statistically significantly correlated to the delinquency scores.

It was hypothesized the ASA Scale, the CNP Scale, the SUB Scale, and the NPI Scale would be significantly associated with the substance abuse scores in a positive directionality. The substance abuse scores were divided into three sections: Substance Abuse Attitudes, Alcohol Use, and Other Drugs Use. As can be seen in Table 1, this hypothesis was partially supported. There was a strong, negative correlation between the SUB Scale ($r = -.774$) and the Substance Abuse Attitudes ($p < .000$). The NPI Scale was a moderately, negatively correlated to Substance Abuse Attitudes ($p < .05$). This can be explained by “False” responses being coded as a ‘2.’ Therefore, an individual listing false more often would have a higher Substance Abuse Attitudes score; however, as can be seen, would have lower scores on the MMPI-A-RF Scales used to measure substance use. The SUB Scale ($r = .763$) was a strongly correlated with Alcohol Use ($p < .000$), the CNP Scale ($r = .519$) was moderately correlated with Alcohol Use ($p < .005$), and the NPI Scale ($r = .495$) was also moderately correlated with Alcohol Use ($p < .007$). Lastly, the SUB Scale ($r = .800$) and the NPI Scale ($r = .657$) were strongly correlated with Other Drugs Use

($p < .000$). The CNP Scale ($r = .612$) was strongly correlated with Other Drugs Use, as well ($p < .001$).

It was hypothesized the Restructured Clinical 4 Scale (RC4) would be significantly associated with both the delinquency scores and the substance abuse scores in a positive directionality. As can be seen in Table 1, this hypothesis was supported. The RC4 Scale ($r = .598$, $p < .001$) was moderate correlated with the delinquency scores. The RC4 Scale was strongly, negatively correlated with the Substance Abuse Attitudes ($r = -.671$, $p < .000$) and strongly correlated with both Alcohol Use ($r = .715$, $p < .000$) and for Other Drugs Use ($r = .824$, $p < .000$).

CHAPTER 5: DISCUSSION

The purpose of this study was to assess the relationship between personality, delinquency, and substance use in an adolescent community sample to further identify individuals with a propensity for delinquency and target those individuals for intervention, with the goal to prevent a variety of negative consequences, including instances of substance use which is linked to a variety of negative consequences. Overall, the specified scales from the MMPI-A-RF were strongly correlated with the external variables of interest in regard to delinquency and substance use. The hypotheses were largely supported. Related to hypothesis one, the CNP Scale was strongly correlated to the delinquency scores and the NSA Scale and the NPI Scale were moderately correlated to the delinquency scores. The CNP Scale will be a useful indicator for clinicians working with this population with regard to a variety of delinquent behaviors which was represented in our 16-item Delinquency Scale.

In regards to hypothesis two, the primary findings suggest the multiple regression analysis was significant correlated to substance use scores. The substance use scores were divided into three sections; Substance Abuse Attitudes, Alcohol Use, and Other Drugs Use as seen in the SASSI-A2. Examining the individual MMPI-A-RF scales, the SUB Scale is strongly, negatively correlated with Substance Abuse Attitudes and the NPI Scale was moderately, negatively correlated with Substance Abuse Attitudes. This can be explained by “False” responses being coded as a ‘2.’ Therefore, an individual listing false more often would result in a higher Substance Abuse Attitudes score; however, as can be seen, would have lower scores on the MMPI-A-RF Scales used to measure substance use. The SUB Scale is strongly correlated with Alcohol Use and the CNP Scale and the NPI were moderately correlated with Alcohol Use.

Lastly, the SUB Scale, the NPI Scale, and the CNP Scale were all strongly correlated with Other Drugs Use. The SUB Scale will be a useful indicator for clinicians working with this population with regard to substance use.

For the third hypothesis, the primary findings suggest the RC4 Scale is moderately correlated with the delinquency scores and strongly correlated with the substance abuse scores. The RC4 Scale is strongly correlated with Substance Abuse Attitudes, Alcohol Use, and Other Drugs Use. The RC4 Scale will be a useful indicator for clinicians working with this population with regard to substance use as well as a variety of delinquent behaviors.

Preliminary findings suggest significant findings as the hypothesized scales were strongly correlated with the outcome variables. In particular, the data would strongly suggest the MMPI-A-RF be utilized routinely to the extent possible in outpatient, adolescent settings. Elevations on specific scales, including the CNP Scale, the SUB Scale, the NPI Scale, the NSA Scale, and the RC4 Scale, could cue the clinician in to problematic engagement with delinquency and substance use in the adolescent population. The data imply individuals with a propensity for delinquent behaviors, as represented in the 16 item delinquency scale, will have an elevated CNP score as well as an elevated RC4 score which could aid the clinician in providing intervention to these individuals and, thus, prevent negative consequences due to substance use. This could be especially pertinent if an individual is not forthcoming with delinquent behaviors.

One limitation of this study is the number of participants represented. Given the complexity of the population examined in this study, a community sample of adolescents, it was difficult to recruit subjects. Because of the nature of the study, parent involvement was required which proved to be especially difficult as the therapists at Meridian Behavioral Health Services

had access to the adolescents; however, they were unable to elicit legal guardian involvement. This speaks to the reality of clinicians working with this population because though this could have potentially benefited the adolescent at no cost, the legal guardian could not be present and/or failed to see the benefit of the study. Thus, the lack of legal guardian involvement may also be a contributing factor to adolescent engagement in substance use as well as delinquent behavior. It also proved challenging to have therapists collaborate on this project and recommend this study to their clientele. This speaks to the reality of the work load placed on therapists and their limited time designated to each of their clients for insurance and billing purposes, despite the potential benefit that could be afforded to their clients. Lastly, the subjects were from predominantly rural areas, which could explain the predominantly Caucasian sample that was received and contributed to a lack of diversity.

Considerations for future research should include continuing this IRB designed and approved study, with necessary shifts in personnel, to achieve a more generalized sample size. The current study primarily examined externalizing behaviors, delinquency and substance use, as the outcome variables. However, similar studies would be useful in regard to internalizing constructs using the MMPI-A-RF scales to predict outcome variables such as suicide attempts, social withdrawal, or somatic complaints. Longitudinal studies could be important in establishing outcomes associated with elevations on specific item scales of the MMPI-A-RF. Because of the novelty of the MMPI-A-RF, more research should be conducted to assess for validity as well as the practicality of this comprehensive personality assessment for adolescent populations in a clinical setting.

REFERENCES

- Aebi, M., Barra, S., Bessler, C., Steinhausen, H., Walitza, S., & Plattner, B. (2016). Oppositional defiant disorder dimensions and subtypes among detained male adolescent offenders. *Journal Of Child Psychology And Psychiatry*, *57*(6), 729-736.
doi:10.1111/jcpp.12473
- American Psychiatric Association (APA). (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.) Washington, DC: American Psychiatric Association.
- Anderson, J., Snider, S., Sellbom, M., Krueger, R., & Hopwood, C. (2014). A comparison of the DSM-5 Section II and Section III personality disorder structures. *Psychiatry Research*, *216*(3), 363-372. doi:10.1016/j.psychres.2014.01.007
- Archer, R. P., Handel, R. W., Ben-Porath, Y. S., & Tellegen, A. (2016). *Minnesota Multiphasic Personality Inventory-Adolescent-Restructured Form (MMPI-A-RF): Administration, scoring, interpretation, and technical manual*. Minneapolis: University of Minnesota Press.
- BAŞAY, Ö., YÜNCÜ, Z., BAŞAY KABUKÇU, B., ÖZTÜRK, Ö., & AYDIN, C. (2016). Alkol-madde kullanım bozuklukları olan ergenlerin kişilik özellikleri. *Anatolian Journal Of Psychiatry / Anadolu Psikiyatri Dergisi*, *17*(2), 127-135. doi:10.5455/apd.194102
- Ben-Porath, Y. S. (2012). *Interpreting the MMPI-2-RF*. Minneapolis: University of Minnesota Press.
- Brown, T. A., & Barlow, D. H. (2005). *Dimensional Versus Categorical Classification of Mental Disorders in the Fifth Edition of the Diagnostic and Statistical Manual of Mental*

- Disorders and Beyond: Comment on the Special Section. *Journal Of Abnormal Psychology*, 114(4), 551-556. doi:10.1037/0021-843X.114.4.551
- Bukstein, O. G. (2016). Conduct disorder and delinquency and substance use disorders. In Y. Kaminer, Y. Kaminer (Eds.) , *Youth substance abuse and co-occurring disorders* (pp. 81-102). Arlington, VA, US: American Psychiatric Publishing, Inc.
- Butcher, J.N., Williams, C.L., Graham, J.R., Archer, R.P., Tellegen, A., Ben-Porath, Y.S., & Kaemmer, B. (1992). Minnesota Multiphasic Personality Inventory-Adolescent Version(MMPI-A): Manual for administration, scoring and interpretation. Minneapolis, MN: University of Minnesota Press.
- Cashel, M. L., Rogers, R., Sewell, K. W., & Holliman, N. B. (1998). Preliminary Validation of the MMPI--A for a Male Delinquent Sample: An Investigation of Clinical Correlates and Discriminant Validity. *Journal Of Personality Assessment*, 71(1), 49.
- Colins, O. F. (2016). The clinical usefulness of the DSM–5 specifier for conduct disorder outside of a research context. *Law And Human Behavior*, 40(3), 310-318. doi:10.1037/lhb0000173
- Edens, J. F., Kelley, S. E., Lilienfeld, S. O., Skeem, J. L., & Douglas, K. S. (2015). DSM-5 antisocial personality disorder: Predictive validity in a prison sample. *Law And Human Behavior*, 39(2), 123-129. doi:10.1037/lhb0000105
- Handel, R. W. (2016). An introduction to the Minnesota Multiphasic Personality Inventory-Adolescent-Restructured Form (MMPI-A-RF). *Journal Of Clinical Psychology In Medical Settings*, 23(4), 361-373. doi:10.1007/s10880-016-9475-6
- Harkness, A. R., Finn, J. A., McNulty, J. L., & Shields, S. M. (2012). The Personality Psychopathology—Five (PSY–5): Recent constructive replication and assessment literature review. *Psychological Assessment*, 24(2), 432-443. doi:10.1037/a0025830

- Hathaway, S. R., & McKinley J. C. (1942). *Manual for the Minnesota Multiphasic Personality Inventory*. Minneapolis: University of Minnesota Press.
- Hopwood, C. J., Thomas, K. M., Markon, K. E., Wright, A. C., & Krueger, R. F. (2012). 'DSM-5 personality traits and DSM-IV personality disorders': Correction to Hopwood et al. (2012). *Journal Of Abnormal Psychology*, 121(2), 432. doi:10.1037/a0028553
- Insel, T. (2013, April 29). Post by Former NIMH Director Thomas Insel: Transforming Diagnosis. Retrieved March 04, 2017, from <https://www.nimh.nih.gov/about/directors/thomas-insel/blog/2013/transforming-diagnosis.shtml>
- Insel, T. (2013, January). *Thomas Insel: Toward a new understanding of mental illness* [Video file]. Retrieved from http://www.ted.com/talks/thomas_insel_toward_a_new_understanding_of_mental_illness
- Insel, T., Cuthbert, B., Garvey, M., Heinssen, R., Pine, D., Quinn, K., & ... Wang, P. (2010). Research Domain Criteria (RDoC): Toward a New Classification Framework for Research on Mental Disorders. *American Journal Of Psychiatry*, 167(7), 748-751. doi:10.1176/appi.ajp.2010.09091379
- Kendler, K. S. (2013). A history of the DSM-5 scientific review committee. *Psychological Medicine*, 43(9), 1793-1800. doi:10.1017/S0033291713001578
- McCord, M. D. (2017). Assessment Using the MMPI-2-RF.
- McCrae, R. R., & Costa, J. T. (1987). Validation of the Five-Factor Model of Personality Across Instruments and Observers. *Journal Of Personality & Social Psychology*, 52(1), 81-90.

- Miller, G. A. (2001). Adolescent Substance Abuse Subtle Screening Inventory—A2. *Psyctests*, doi:10.1037/t04855-000
- Morton, T. L., Farris, K. L., & Brenowitz, L. H. (2002). MMPI--A Scores and High Points of Male Juvenile Delinquents: Scales 4, 5, and 6 as Markers of Juvenile Delinquency. *Psychological Assessment*, 14(3), 311.
- Odgers, C. L., Caspi, A., Nagin, D. S., Piquero, A. R., Slutske, W. S., Milne, B. J., . . . Moffitt, T. E. (2008). Is It Important to Prevent Early Exposure to Drugs and Alcohol Among Adolescents? *Psychological Science*, 19(10), 1037-1044. doi:10.1111/j.1467-9280.2008.02196.x
- Pena, L. M., & Megargee, E. I. (1996). MMPI-A patterns of male juvenile delinquents. *Psychological Assessment*, 8(4), 388.
- Principles of Adolescent Substance Use Disorder Treatment ... (2014, January). Retrieved July 5, 2017, from https://www.bing.com/cr?IG=6FBC44D01F7543A0B3BE30250789AB56&CID=07DEAD0817DE61591B93A7BE16D86023&rd=1&h=CIWhqKThuM9_XuFbnLkll_o-zLnP4FGlOHbcADdfg5E&v=1&r=https%3a%2f%2fwww.drugabuse.gov%2fpublication%2fprinciples-adolescent-substance-use-disorder-treatment-research-based-guide%2facknowledgements&p=DevEx,5064
- Research Domain Criteria (RDoC). (n.d.). Retrieved March 04, 2017, from <https://www.nimh.nih.gov/research-priorities/rdoc/index.shtml>
- Salihovic, S., & Stattin, H. (2017). Psychopathic Traits and Delinquency Trajectories in Adolescence. *Journal Of Psychopathology & Behavioral Assessment*, 39(1), 15-24. doi:10.1007/s10862-016-9553-y
- Sellbom, M., Anderson, J. L., & Bagby, R. M. (2013). Assessing DSM-5 section III personality traits and disorders with the MMPI-2-RF. *Assessment*, 20(6), 709-722. doi:10.1177/1073191113508808

- Stein, L. R., & Graham, J. R. (2001). Use of the MMPI-A to Detect Substance Abuse in a Juvenile Correctional Setting. *Journal Of Personality Assessment*, 77(3), 508-523.
- Stein, L. R., Lebeau-Craven, R., Martin, R., Colby, S. M., Barnett, N. P., Golembeske, C. J., & Penn, J. V. (2005). Use of the Adolescent SASSI in a Juvenile Correctional Setting. *Assessment*, 12(4), 384-394.
- Veltri, C. C., Sellbom, M., Graham, J. R., Ben-Porath, Y. S., Forbey, J. D., & White, R. S. (2014). Distinguishing Personality Psychopathology Five (PSY-5) characteristics associated with violent and nonviolent juvenile delinquency. *Journal Of Personality Assessment*, 96(2), 158-165. doi:10.1080/00223891.2013.843539
- Verhulst, F. C., & Ende, J. V. (2006). *Assessment scales in child and adolescent psychiatry*. Abingdon: Informa Healthcare.
- Waldon, E. G. (2014). DSM-5: Changes and Controversies. *Music Therapy Perspectives*, 32(1), 78-83. doi:mtp/miu011
- Walfish, S., & Massey, R. (1990). MMPI profiles of adolescent substance abusers in treatment. *Adolescence*, 25(99), 567.
- Walters, G. D. (2014). Pathways to early delinquency: Exploring the individual and collective contributions of difficult temperament, low maternal involvement, and externalizing behavior. *Journal Of Criminal Justice*, 42(4), 321-326. doi:10.1016/j.jcrimjus.2014.04.003
- Weaver, G., & Wootton, R. (1992). The use of the MMPI special scales in the assessment of delinquent personality. *Adolescence*, 27(107), 545.

What is Delinquency? (n.d.). Retrieved March 10, 2017, from

<http://psychologydictionary.org/delinquency/>