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## Big Five Personality Traits, Pathological Personality Traits, and Psychological Dysregulation: Predicting Aggression and Antisocial Behaviors in Detained Adolescents

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Big Five Personality Traits, Pathological Personality Traits, and Psychological Dysregulation:  
Predicting Aggression and Antisocial Behaviors in Detained Adolescents

A Dissertation

Submitted to the Graduate Faculty of the  
University of New Orleans  
In partial fulfillment of the  
Requirements for the degree of

Doctor of Philosophy  
in  
Applied Developmental Psychology  
Minor Clinical Psychology

by  
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December 2013

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## Abstract

This study tested the utility of three different models of personality, namely the social and personality model, the pathological personality traits model, and the psychological dysregulation model, in predicting overt aggression, relational aggression, and delinquency in a sample of detained boys (ages 12 to 18;  $M$  age = 15.31;  $SD$  = 1.16). Results indicated that the three personality approaches demonstrated different unique associations with aggression and delinquency. The psychological dysregulation approach, composed of behavioral dysregulation, emotional dysregulation, and cognitive dysregulation, emerged as the overall best predictor of overt aggression, relational aggression, and delinquency. After controlling for the Big Five personality traits, psychological dysregulation accounted for significant variance in overt aggression and delinquency, but not relational aggression. After controlling for callous-unemotional traits and narcissistic traits, psychological dysregulation also accounted for significant variance in overt aggression, relational aggression, and delinquency. The pathological personality traits approach, comprised of callous-unemotional traits, narcissistic traits, and borderline traits performed second best. In particular, within this approach borderline traits accounted for the most unique variance, followed by narcissistic traits, then callous-unemotional traits. Borderline traits accounted for significant variance in overt aggression, relational aggression, and delinquency when controlling for the Big Five traits, but not after controlling for psychological dysregulation. Narcissistic traits only accounted for significant variance in overt aggression and relational aggression after controlling for the Big Five personality traits, but not after controlling for psychological dysregulation. CU traits only accounted for significant variance in overt aggression after controlling for the Big Five personality traits, but not after controlling for psychological dysregulation. The social and personality model, represented by the

Big Five personality traits accounted for the least amount of variance in the prediction of aggression and delinquency, on its own, and when pitted against the other two personality approaches. The exception was that the Big Five personality traits accounted for significant variance in relational aggression beyond narcissistic traits. These findings have implications for assessment and intervention with aggressive and antisocial youth.

Subtypes of aggression, big five personality traits, callous-unemotional traits, borderline personality traits, narcissistic personality traits, behavioral dysregulation, emotional dysregulation, cognitive dysregulation, assessment

## Overview

According to the 2012 United States Census, adolescent males commit significantly more crimes, and are also significantly more likely to be the victims of crimes, compared to their female counterparts (U.S. Census Bureau, 2012). Aggressive and antisocial behaviors in juvenile offenders are a major problem and often involve multiple systems, namely justice, public health, mental health, and education. One major issue impedes the ability to help juvenile offenders: juvenile offenders are not a homogenous group, and umbrella treatments aimed at the general population of offenders are potentially unsuccessful (Frick & Viding, 2009; Moffitt, 1993). In addition, juvenile offenders are at a significantly higher risk than the general population for several health issues, including mental illness, substance use disorders, and risky sexual behaviors (Aalsma, Tong, Wiehe, & Tu, 2010; Fazel, Doll, & Langstrom, 2008; Forrest, Tambor, Riley, Ensminger, & Starfield, 2000; Teplin et al., 2005). Due to these issues, efforts to delineate subgroups of antisocial youth to aid with treatment and prevention have used classification systems focused on the behavioral (e.g., subtypes of aggression), personality, and familial risk factors, just to name a few (Card, Stucky, Sawalani, & Little, 2008; Loeber et al., 2001; Pulkkinen, 1996).

The purpose of this study is to examine particular personality approaches that have been used to identify antisocial youth. Personality approaches describe a youth's personal characteristics that are considered relatively stable across time and situations, and include regulatory abilities, such as cognitions, emotions, and behaviors that serve as primary targets of intervention programs. Understanding personality functioning is important because it is often difficult to engage the parents or primary caregivers of detained youth in participating in the treatment process. Therefore, understanding individual internal factors that motivate or underlie

aggressive and antisocial behaviors may aid treatment planning and help juvenile offenders strengthen their ability to modulate and cope with those very factors.

Many antisocial youth show increased levels of aggressive behavior (Dodge, Coie, & Lynam, 2006). Aggression is the intent to harm or injure another person, whether through overt means, such as physically kicking or verbally assaulting another individual's physical well-being, or through relational means, such as rumor spreading and group exclusion to damage a person's social status and relations (Lau & Marsee, 2013). More broadly, antisocial behavior includes aggression, but also encompasses other behaviors, such as disobedience, theft, lying, destruction of property, and violence, behaviors not necessarily intended to harm another individual's well-being (Patterson, 1982). In children and adolescents, aggression and antisocial behavior are associated with peer rejection, poor academic performance and increased risk for school dropout, and psychological problems (e.g., Crick, Ostrov, & Werner, 2006; Kokko, Tremblay, Lacourse, Nagin, & Vitaro, 2006; Trentacosta & Shaw, 2009). Furthermore, aggression predicts future marital problems, criminal behavior, substance abuse, and unemployment (e.g., Coie & Dodge, 1998; Moffitt, Caspi, Harrington, & Milne, 2002; Pulkkinen, 1996). Research has attempted to understand the different personality factors associated with antisocial and aggressive behaviors in youth. Several personality approaches have been used, including the social and personality, pathological personality traits, and psychological dysregulation approaches.

Over the past several years, conflict has surrounded the issue of how to best conceptualize personality functioning and its prediction of maladaptive outcomes, particularly aggressive and antisocial behaviors (e.g., Costa & Widiger, 2001; Miller & Lynam, 2006; Miller, Lynam, & Jones, 2008; Seibert, Miller, Pryor, Reidy, & Zeichner, 2010). The social and

personality approach focuses on personality as consisting of broad normal traits that are dimensional in nature, and it is at the extreme ends of these normal traits where maladaptive problems arise (Widiger & Trull, 2007). Personality traits are defined as relatively enduring and stable dispositions that affect the way a person thinks, feels, and behaves across time and situations (McCrae & Costa, 2003). In contrast to the dimensional (trait) approach, the pathological personality traits approach designates certain categories or “types” of personalities highly associated with maladaptive functioning (American Psychiatric Association [APA], 2000). A third approach concentrates on the psychological regulation of the developing individual, and how impairments or abnormalities in regulation (dysregulation) are associated with personality development and maladaptive outcomes (e.g., De Caluwé, Decuyper, De Clercq, 2013; Dawes et al., 2000; Nigg 2000; Shields & Cicchetti, 1998; Tarter et al., 2003). Lastly, the etiological approach focuses on identifying the risk and protective factors associated with the development of maladaptive outcomes across time (e.g., Cicchetti & Rogosch, 1996; Cicchetti, Toth, & Maughan, 2000; Sroufe, 1997).

Which of these approaches is best at predicting maladaptive outcomes such as aggression and antisocial behaviors, and does one approach add unique information beyond that of another approach? The importance of this question is based on the conceptualization of the driving factors behind a person’s maladaptive behaviors. This conceptualization influences assessment, diagnosis, and treatment of problem behavior. Clarifying which personality approach provides the best prediction of maladaptive outcomes such as aggression and antisocial behavior is especially important when assessing personality functioning in “at-risk” groups of youth such as juvenile offenders. Detained youth are a heterogeneous group experiencing a host of various difficulties (e.g., anxiety, depression, attention-deficit/hyperactivity, impulse control; Teplin et

al., 2006); however, they are often treated similarly, and consequently, ineffectively. In order to optimize the assessment process, researchers and clinicians should examine which personality approach provides the information most strongly associated with aggressive and antisocial behaviors. Should we focus on broad general personality traits for a whole picture of the youth, or should we focus our attention directly on the regulatory abilities of the juvenile offender and make these the primary targets of intervention? Perhaps a combination of the methods provides better statistical prediction.

For the purposes of this study, the social and personality, pathological personality traits, and psychological dysregulation approaches will be discussed and examined in terms of their association with aggression and antisocial behaviors. The ultimate goal of this study is to test which approach best predicts aggression and antisocial behaviors, and whether the separate approaches account for significant variance beyond other approaches. For example, does knowledge about an individual's regulatory abilities predict significant variance in aggressive behaviors beyond that which is already accounted for by the Big Five personality traits? The associations between the social and personality approach, the pathological personality traits approach, and maladaptive outcomes has been supported in previous research on adults and youth (e.g., Krueger & Tackett, 2003; Widiger & Costa, 2002). However, few studies (e.g., De Caluwé et al., 2013) have examined the psychological dysregulation, social and personality, and pathological personality traits approaches and their associations with aggression and delinquency simultaneously. The results of this study will contribute to the understanding of assessing individual differences in youth, specifically individual difference factors of normal personality traits, pathological personality traits, and psychological dysregulation that have been associated with maladaptive outcomes such as aggression and antisocial behaviors. This is especially

important in the assessment of youths in juvenile detention centers that are exhibiting various maladaptive behaviors and cognitions severe enough to warrant the attention of the law.

However, because of their similar externalizing presentations, the underlying motives or causes of their behaviors may be overlooked or obscured, and subsequently the youths may not be receiving the appropriate or optimal care that would be indicated by thorough assessment procedures and diagnostic information. If the three approaches are found to independently predict aggression and antisocial behaviors, the additional information that they provide about the youth's functioning may help contribute to the understanding of what underlying factors are driving the youth's aggressive and antisocial behaviors. The contributing information may then serve as additional guidelines in tailoring individualized treatments for detained juveniles in the hopes of reducing the probability of recidivism.

## **Social and Personality Approach**

The field of social and personality psychology views general personality traits as bipolar and dimensional constructs rather than qualitatively distinct categories (Cain, Pincus, & Ansell, 2008; Widiger & Trull, 2007). Personality traits show both mean-level increases and decreases over time, and increasing rank-order stability from childhood to adulthood (Caspi, Roberts, & Shiner, 2005; Roberts & DelVecchio, 2000). Conceptually, traits are useful in describing individual differences between people and within personality disorders because of the assumption that they are normally continuously distributed across the population (Livesley, 2001). Traits are generally assumed to be dimensional in nature, demonstrate adaptive and maladaptive functioning, and it is at the extremes of these general personality traits, when they become inflexible, where we see maladaptive problems arise (Clark, 2007; Widiger, 2005).

Extensive research effort has been expended on examining how maladaptive behaviors are best captured by normal personality traits, and the traits that have been studied repeatedly over time and have the most empirical support are those known as the Big Five personality traits, also known as the Five-Factor Model of normal personality (Costa & Widiger, 2001; Mervielde, De Clercq, De Fruyt, & Van Leeuwen, 2005; Young, 2008).

### **Big Five Personality Traits**

Extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience are the broad higher order personality traits that comprise the Big Five. The Big Five model of personality began as a lexical approach to capture how people describe themselves and others (John & Srivastava, 1999), and now has been identified in adults across 50 different cultures (Livesley, 2001; McCrae, Terracciano, & Personality Profiles of Cultures Project, 2005). The Big Five personality traits are orthogonal and bipolar in nature; from individual to individual,

profiles on the Big Five can be unique. With the exception of openness to experience which appears to emerge later in adolescence, cross-cultural investigations have found the Big Five to appear as early as three years of age, show relatively moderate stability throughout childhood and adolescence (e.g., Caspi & Shiner, 2006; Halverson et al., 2003; Shiner & Caspi, 2003; Shiner, 2009; Tackett, 2006), and increase in stability with increasing age (Roberts & DelVecchio, 2000). Some researchers further argue that the Big Five traits are inborn genetic dispositions that are unchanging over time (McCrae & Costa, 2003). However, it is more likely that a transactional relationship exists between personality and social-contextual factors (e.g., Wood & Roberts, 2006). The assumption that traits are more flexible at younger ages and increase in stability with age underlines the importance of the study of personality traits earlier in development. The Big Five traits have demonstrated utility in predicting problematic behaviors (e.g., delinquency, conduct disorder, externalizing problems) and discriminating between groups (e.g., delinquents versus non-delinquents, externalizing versus non-externalizing) in at-risk and clinic-referred children and adolescents (John, Caspi, Robins, Moffitt, & Stouthamer-Loeber, 1994), even outperforming competing personality models, such as the ego-control and ego-resiliency model (Huey & Weisz, 1997).

What exactly are the Big Five traits? Conscientiousness, also known as constraint, is the tendency to be goal-directed, dutiful, and planful, and further describes the ability to follow socially prescribed norms and rules, delay gratification, and control impulses (John & Srivastava, 1999). Conscientiousness reflects characteristics of organization and self-discipline and may indicate a child's maturing attentional skills and abilities to focus on long-term goals over immediate impulses that are related to self-regulation (Shiner, 2009). At the pathological extremes, high conscientiousness can be expressed as compulsivity, rigidity, and perfectionism,

whereas low levels can be expressed as recklessness and excessive risk-taking, impulsivity, and irresponsibility. In children, low conscientiousness is associated with externalizing behaviors (Prinz et al., 2003), and similarly longitudinal studies have shown that childhood impulsivity is associated with increased antisocial behaviors later in childhood and adolescence (e.g., Henry, Caspi, Moffitt, Harrington, & Silva, 1999; Lynam et al., 2000; Moffitt & Caspi, 2001). In a high-risk sample of boys (12 to 13 years of age), those classified as delinquents were significantly lower on conscientiousness compared to those classified as non-delinquents, as measured by the Self-Report Delinquency scale (Elliot, Huizinga, & Ageton, 1985) and the Self-reported Antisocial Behavior Scale (Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1989) (John et al., 1994). In addition, John et al. (1994) found that boys classified as externalizers versus non-externalizers, as measured by teacher-reports on the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983), were significantly lower on conscientiousness. In another study, youths (13 to 18 years of age) diagnosed with conduct disorder as well as substance use disorder were found to have low levels of conscientiousness (Anderson, Tapert, Moadab, Crowley, & Brown, 2007). Closely related to low conscientiousness, studies have found poor self-control in childhood (Sanson & Prior, 1999), late childhood (Rubin, Burgess, Dwyer, & Hastings, 2003), and adolescence (Olson, Schilling, & Bates, 1999) predicted conduct disorder. Furthermore, impulsivity or disinhibition is more strongly related to life-course persistent antisocial delinquency than adolescence-limited delinquency (Moffitt & Caspi, 2001).

Neuroticism refers to the susceptibility to experience negative emotions and affect, like anxiety, angry-hostility, irritability, depression, self-consciousness, impulsivity, and vulnerability to stress (John & Srivastava, 1999). Highly neurotic children and adolescents are often described as anxious, vulnerable, tense, easily frightened, guilt prone, moody, low in frustration tolerance,

insecure in their relationships with others, and disposed to easily “fall apart” under stress (Shiner, 2009). In contrast, emotional stability suggests the tendency to be relatively calm, relaxed, and secure (Miller & Pilkonis, 2006). At the extreme pathological end, neuroticism can be expressed by severe affective lability, emotional distress, insecure attachment, depression, low frustration tolerance and poor or maladaptive coping strategies (e.g., substance abuse). At the extremely low end the person may lack fear (e.g., low harm avoidance) and anxiety, experience very little emotional distress, and may even appear emotionally flat in stressful situations.

Early in life, neuroticism in toddlers predicted greater mother reports of proximity seeking towards mothers at 5 years of age, and higher anxiety and psychosomatic problems in adolescence (Abe, 2005). Further, adolescents high in neuroticism reported lower levels of social acceptance and popularity, physical attractiveness, and global self-esteem (Abe, 2005; van der Linden, Scholte, Cillessen, Nijenhuis, & Segers, 2010), as well as poorer life satisfaction, more internalizing problems (McKnight, Huebner, & Suldo, 2002), and poorer relationships with parents (Belsky, Jaffee, Caspi, Moffitt, & Silva, 2003). Additionally, studies consistently reported that neuroticism is associated with experiencing more negative and adverse life events, emotion-focused coping (e.g., rumination), and greater psychological distress (Ellenbogen & Hodgins, 2004; Poulton & Andrews, 1992). Longitudinally, neuroticism predicted later depression, anxiety, occupational impairment, and lower global assessment of functioning in in- and outpatients (Miller & Pilkonis, 2006). In adolescents, neuroticism has also been positively associated with delinquency (ter Laak et al., 2003) and diagnoses of conduct disorder and substance use disorders (Anderson et al., 2007).

Extraversion is characterized by an approach to the social and material world with energy and activity, and includes such traits as warmth, expressiveness, gregariousness, assertiveness,

excitement seeking, positive emotionality, and being person-oriented (John & Srivastava, 1999). In the opposite direction, low extraversion describes a person who tends to be quiet, reserved, aloof, and task oriented (John & Srivastava, 1999). Extraversion, in part, is an interpersonal construct that drives the need for social stimulation and predicted verbal interactions in childhood and adolescence (Abe, 2005), suggesting that unlike conscientiousness, those high in extraversion may value socializing and play more than doing homework and chores. At the pathological extremes, extraversion can be expressed as risky and intense sensation-seeking or reward seeking behavior on one end and on the other end can be manifested in extreme withdrawal, excessive shyness, detachment, impairment in the ability to experience positive emotions, low interpersonal warmth, and overly cautious inhibited behaviors. In children and adolescents, high extraversion is associated with externalizing behaviors, particularly conduct disorder symptoms (Malouff, Thorsteinsson, & Schutte, 2005), delinquency, and aggression (John et al., 1994).

Agreeableness, like extraversion, is an interpersonal disposition, and is the tendency to be prosocial, warm, forgiving, empathic, straightforward, and communal towards others, and includes such traits as good nature, cooperativeness, trustfulness, modesty, and tender-mindedness (John & Srivastava, 1999). Low levels of agreeableness suggest the tendency to be manipulative, cynical, rude, uncooperative, and suspicious. At the pathologically low extreme, agreeableness can be expressed as aggressiveness, vengefulness, callousness, mistrust, and entitlement (Shiner, 2009). At the high end, it can be expressed as submissiveness, dependency, over-compliance, sensitivity to rejection, and indecisiveness.

In adolescence, one study showed that agreeableness predicted fewer maternal reports of conduct problems and impulsivity (Abe, 2005). Conversely, low agreeableness was characteristic

of children and adolescents diagnosed with conduct disorder and substance use disorder (Anderson et al., 2007), delinquency, and externalizing behavior problems (John et al., 1994). In young adults, high agreeableness is associated with less conflict across social interactions (Barrett & Pietromonaco, 1997), and more conflict resolution, emotional support, and more loving behaviors (Frisbie, Fitzpatrick, Feng, & Crawford, 2000). Low agreeableness is related to more infidelity (Schmitt & Shackelford, 2008), conflict, relationship dissatisfaction, and abuse (Karney & Bradbury, 1995). When faced with marital conflict, high agreeableness is associated with more empathic responding, support seeking, less self-blame, and less confrontation (Lee-Baggley, Preece, & DeLongis, 2005).

Finally, openness to experience (openness) captures the individual's intellectual curiosity, originality, creativity, and appreciation of aesthetics and novelty (John & Srivastava, 1999). Based on characteristics such as openness to feelings, new ideas, flexibility of thought, values, and readiness to indulge in fantasy, McCrae and Costa (2003) describe openness to experience as proactive seeking and appreciation of experience for its own sake. Scoring low on openness to experience suggests the tendency to be conservative, traditional, and practical. As mentioned earlier, the construct of openness is not consistently found in children, and appears to emerge later in adolescence (Caspi & Shiner, 2006; Lamb, Chuang, Wessels, Broberg, & Hwang, 2002; Shiner & Caspi, 2003). However, studies that have examined openness in children suggest that it taps perceptual sensitivity, imagination, originality, creativity, and quickness and eagerness of learning, intellect, and curiosity about the world (Halverson et al., 2003; Herzoff & Tackett, 2012; Shiner, 2009). At the pathologically high end, openness may be expressed in peculiar and delusional beliefs and perceptions about the world, whereas on the low end it could be expressed as very black and white narrow thinking. Previous research found the broad domain of openness

in children not associated with externalizing or internalizing problems as measured by the CBCL (Achenbach & Rescorla, 2001), however, the intellect facet negatively predicted total problems, externalizing behaviors, and internalizing behaviors (Herzoff & Tackett, 2012; Prinzie et al., 2003).

As a whole, the Big Five personality profile of aggressive and antisocial youth and adults tend to be characterized by low agreeableness, low conscientiousness, high neuroticism, and high extraversion with spurious associations with openness to experience (e.g., Carvalho & Nobre, 2013; Egan, 2009; John et al., 1994; Krueger, Caspi, Moffitt, Silva, & McGee, 1996; Malouff et al., 2005; Miller & Lynam, 2001; Miller et al., 2008; Miller, Zeichner, & Wilson, 2012; Prinzie et al., 2003). For example, Miller and Lynam (2001) conducted a meta-analysis examining the associations between the Big Five personality traits, aggression, and antisocial behavior collected via self-reports, other-reports, and official records (e.g., arrest history, institutional infractions). Miller and Lynam found the strongest associations between low agreeableness, low conscientiousness, and high neuroticism with aggression and antisocial behavior. Specifically, within these Big Five traits, the facets that appeared to drive the correlations were antagonism, callousness, poor impulse control/deliberation, and impulsivity related to negative affectivity.

In summary, research has shown that the Big Five personality traits are broad dimensions that are differentially associated with aggression and antisocial behavior. Overall, the strongest associations with aggression and antisocial behavior in descending order are low agreeableness, low conscientiousness, high neuroticism, and high extraversion. The associations between aggression, antisocial behavior, and openness tended to be mixed, due to the differing conceptualizing of the dimension (e.g., intellect, creativity) in younger populations. In addition to the associations with antisocial and aggressive behaviors, the Big Five traits are purported to

adequately capture the personality disorders in the DSM-IV-TR and their associated pathology (e.g., Widiger & Costa, 2002).

## **Pathological Personality Traits Approach**

Psychopathology occurring at the extremes of general personality traits is particularly relevant for the field of personality disorders. The personality disorder approach is a categorical approach, and frequently competes with the dimensional social and personality approach in capturing personality pathology and maladaptive outcomes. For example, researchers have argued that the Big Five personality traits adequately capture existing personality disorders, and posit that the Big Five predict maladaptive functioning at a comparable degree to personality disorders (e.g., Clark, 2007; Miller et al., 2010; Widiger & Costa, 2002). This line of reasoning has led to the debate for eliminating categorical personality disorders from the DSM-IV-TR and instead implement a dimensional model of personality, that would be based largely on the Big Five personality traits (e.g., Widiger & Costa, 2002; Widiger & Trull, 2007).

The DSM-IV-TR (APA, 2000) states that personality disorders are comprised of a constellation of personality traits manifested in at least two of the following four areas: cognition (e.g., ways of perceiving and interpreting self and other people and events), affectivity (e.g., the range, intensity, lability, and appropriateness of emotional response), interpersonal functioning (e.g., agency and communion), or impulse control (e.g., overly constrained or being reckless and irresponsible). Three personality disorders of special interest in detained samples are antisocial (psychopathic) personality disorder, narcissistic personality disorder, and borderline personality disorder (APA, 2000) because they are characterized by higher levels of impulsivity, aggression, and hostility compared to the other personality disorders listed in the DSM-IV-TR (Brieger, Sommer, Blöink, & Marneros, 2000; Looper & Paris, 2000). These three personality disorders

generally show the strongest associations with impairment in functioning (i.e., occupational, social, distress to others) across the personality disorders in the DSM-IV-TR (Miller et al., 2010). In addition, in adult and juvenile offender populations, these three personality disorders are often present and co-occurring, due to frequent similarities in behavioral symptoms (e.g. Coid, 2003; McMurran & Howard, 2009; Newhill, Eack, & Mulvey, 2009; Robison, 1993; Skeem, Johansson, Andershed, Kerr, & Louden, 2007; Teplin et al., 2006). Moreover, in research across adults and youth, psychopathic personality disorder, borderline personality disorder, and narcissistic personality disorder have been strongly associated with various maladaptive behaviors that include aggression and violence, substance abuse, emotional lability and suicidal gestures (Brent et al., 1994; Duberstein & Conwell, 1997; Johnson, Smailes, Cohen, Brown, & Bernstein, 2000; Links, Gould, & Ratnayake, 2003; Paris, 1993; Russ, Shedler, Bradley, & Westen, 2008; Soloff, Lynch, Kelly, Malone, & Mann, 2000). However, although their behavioral presentations may be similar, it is suggested that the motivations, cognitions, and emotions underlying the behaviors are different, such that a psychopathic individual may engage in behavior to gain profit, power, or some other material gratification, whereas a borderline individual engages in deviant behavior to gain the concern and attention of others (APA, 2000).

Associations between serious maladaptive behaviors and psychopathic, narcissistic, and borderline personality traits has spurred research on identifying the characteristics and correlates of these personality disorders in younger individuals in efforts to target them before they become inflexible and problematic (Belsky et al., 2012; Crick, Murray-Close, & Woods, 2005; Frick & Viding, 2009; Lau & Marsee, 2013; Lau, Marsee, Kunimatsu, & Fassnacht, 2011; Westen, Dutra, & Shedler, 2005). Further, due to common behavioral criteria that lead to frequent co-occurrence in diagnoses (APA, 2000; Coid, 2003; McMurran & Howard, 2009; Holdwick,

Hilsenroth, Castlebury, & Blais, 1998; Newhill et al., 2009; Skeem et al., 2007) it is important to examine them simultaneously in order to determine their unique contributions to maladaptive behavior, especially in detention center youth who are at high-risk for other psychiatric disorders and problems (e.g., Teplin et al., 2006).

## **Psychopathic Personality Traits**

Psychopathic personality is assumed to fall under the heading of antisocial personality disorder (APD) in the DSM-IV-TR (APA, 2000). Although the two personalities overlap; they are not synonymous (Hare, 1991, 2003; Lilienfeld, 1994). Psychopathic personality is characterized as the tendency to be callous and unemotional, remorseless, guiltless, and lacking in empathy (affective factor), and to be superficially charming, glib, and manipulative (interpersonal factor). Furthermore, people high in psychopathic traits are prone to be thrill and sensation-seekers, are impulsive and irresponsible, and often engage in reckless and antisocial behaviors (behavioral factor; Cleckley, 1976; Cooke & Michie, 2001; Hare, 2003). The behavioral factor closely resembles the behaviors exhibited by individuals diagnosed as APD, but the causes of the behaviors between those with psychopathic personality and those with APD may be different.

Consistent with the classic concept of psychopathy (Cleckley, 1976), the key feature considered to separate psychopathic from other antisocial individuals best is the affective factor, especially callous-unemotionality (Hare, 2003). Studies show that within offender populations, callous and unemotional (CU) traits reliably identifies subgroups of adult and youth offenders who exhibited a greater history of police contact, and had more chronic, varied and severe patterns of antisocial and aggressive behaviors (Frick & White, 2008; Hemphill, 2007; Serin, 1996). Consistent with the idea individuals high in psychopathic traits tend to be chronic and

lifelong offenders, psychopathic traits have evidenced moderate stability over time (Burke, Loeber, & Lahey, 2007; Frick, Kimonis, Dandreaux, & Farrell, 2003; Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007; Pardini & Loeber, 2008). For example, in a sample of non-referred community children followed over 4 years, Frick, Kimonis, et al. (2003) found high parent (.80) and cross-informant (.53) stability for psychopathy, measured by the Antisocial Process Screening Device (APSD; Frick & Hare, 2001). In another study by Lynam et al. (2007), modest stability (.31) was found between childhood psychopathy at age 13, measured by the Childhood Psychopathy Scale (CPS; Lynam, 1997) and adult psychopathy at age 24, measured by the Psychopathy Checklist: Screening Version (PCL-SV; Hart, Cox, & Hare, 1995).

**Psychopathy in youth.** CU traits are thought to be similar in construct to the affective factor of adult psychopathy, and corresponding results have been shown (e.g., Frick & Viding, 2009). The separate focus on CU traits is due to the fact that the behavioral factor of psychopathy (e.g., antisocial behavior, impulsivity, and irresponsibility) can be overly inclusive and does not discriminate well between psychopathic youth and antisocial youth, which may have implications for different treatment approaches (Frick & White, 2008). For example, compared to conduct disordered (CD) children low in CU traits, CD children high in CU traits are more risk-taking, novelty-seeking, physically daring, less emotionally reactive, show lower levels of anxiety and neuroticism, show higher levels of proactive and reactive aggression, are less responsive to treatment and are more likely to persist in their deviant behavior, especially violent behavior towards others (Frick & Dickens, 2006; Frick & White, 2008). In addition, impulsive CD children low in CU traits show intellectual impairment, difficulty regulating emotions (more emotionally reactive), have higher levels of trait anxiety, and are prone to reactively, but not proactively, aggress against others (Frick & Dickens, 2006; Frick & White, 2008).

Youth high in CU traits are cognitively less reactive to threatening and punishing cues in the presence of a reward, and exhibit reduced physiological reactivity and deficits in the processing of emotionally distressing stimuli, especially to signs of fear and distress in others (Blair, 1999; Loney, Frick, Clements, Ellis, & Kerlin, 2003; Wootton, Frick, Shelton, & Silverthorn, 1997). Children and adolescents high in CU traits are more behaviorally uninhibited, show more fearless and thrill-seeking behaviors, and less trait anxiety or neuroticism (e.g., Cornell & Frick, 2007). Low anxiety, fearlessness, and poor behavioral control may underlie the association between CU traits and aggressive behavior. For example, high CU traits predicted higher rates of proactive and reactive aggression, and lower levels of emotional reactivity to provocation (e.g., Muñoz, Frick, Kimonis, & Aucoin, 2008), whereas aggressive youth without CU traits, primarily engage in reactive aggression (Frick, Kimonis, et al., 2003; Kruh, Frick, & Clements, 2005). Another study on community boys and girls (11 – 17 year-olds) found CU traits, beyond the effects of narcissistic and Machiavellian traits, uniquely and positively predicted overt aggression, relational aggression, delinquency, and behavioral dysregulation, but not emotional dysregulation (Lau & Marsee, 2013). Further, in a detained sample of boys and girls, high CU traits was associated with the tendency to have positive expectations and focus on the rewarding aspects of aggression, to value the importance of being dominant in aggressive interactions, and to minimize the potential punishment of being aggressive (Pardini, Lochman, & Frick, 2003).

Several meta-analytic studies have supported the utility of CU traits as a predisposing factor to antisocial and aggressive behavior in community, clinical, and forensic individuals aged 4 to 20 years (e.g., Edens, Campbell, & Weir, 2007; Frick & Dickens, 2006). For example, Frick, Stickle, Dandreaux, Farrell, and Kimonis (2005) conducted a 4-year longitudinal study on

children (grades 3 to 7), and found children with conduct problems and high CU traits had the greatest frequency of conduct problems, self-reported delinquency, and police contacts; this group accounted for more than 50% of the police contacts reported in this study across the time points. In non-referred adolescents, high CU traits in youth are associated with higher levels of aggressive and antisocial behavior, conduct disorder, externalizing problems, and psychosocial impairment (Essau, Sasagawa, & Frick, 2006; Lau & Marsee, 2013).

### **Narcissistic Personality Traits**

Narcissistic personality is often associated with psychopathic personality; many of the features of psychopathic personality overlap with those of narcissistic personality, such as superficial or narcissistic charm, shallow affect, and lack of empathy (APA, 2000; Hare, 2003). Further, the DSM-IV-TR (APA, 2000) criteria for narcissistic personality disorder primarily focuses on the overt grandiose aspects of the disorder, and the hypersensitive and vulnerable aspects – often associated with malfunction that brings an individual to treatment – may go overlooked, contributing to the low prevalence of diagnoses of the disorder in clinical populations (Cain et al., 2008). In fact, studies on narcissism have supported the vulnerability dimension, individuals high in narcissistic traits have unrealistic and inflated views of themselves, but this view is unstable and they are often vulnerable to the criticisms of others, also known as a fragile high self-esteem (Baumeister, Smart, & Boden, 1996; Zeigler-Hill, 2006). Due to an unstable self-image and vulnerability, individuals high in narcissistic traits are then preoccupied with the regulation and maintenance of their unrealistically high self-esteem and superiority over others (Morf, Horvath, & Torchetti, 2010; Raskin, Novacek, & Hogan, 1991). Consistent with a vulnerable conceptualization, individuals diagnosed with narcissistic personality disorder are frequently diagnosed with co-occurring depression and mood disorders

(Bocklan, 2006; Shahr, Scotti, Rudd, & Joiner, 2008; Watson, Sawrie, Greene, & Arrendondo, 2002). Furthermore, adults high in narcissistic traits are interpersonally vulnerable, have significant emotional distress, and experience more affect dysregulation than those low in narcissistic traits (Russ et al., 2008). Coupled with the tendency to be impulsive (Vazire & Funder, 2006), adults high in narcissistic traits may thus maladaptively engage in more aggressive behaviors as a result of poor impulse control, and emotional dysregulation, in response to situations that threaten their unrealistically high and grandiose egos.

**Narcissism in youth.** Similar to adults (Holtzman & Strube, 2010; Paulhus, 1998; Vazire, Naumann, Rentfrow, & Gosling, 2008), parents rate narcissistic youth as more self-reliant, and as having strong interpersonal and social skills (Barry & Wallace, 2010). Despite these positive characteristics, across community and at-risk children and adolescents, narcissistic personality traits (after controlling for CU traits) are associated with increased levels of proactive and reactive aggression (Barry, Thompson, et al., 2007; Salmivalli, 2001), overt and relational aggression (Barry, Grafeman, Adler, & Pickard, 2007; Golmaryami & Barry, 2010; Lau & Marsee, 2013; Lau et al., 2011), conduct problems (Barry, Frick, & Killian, 2003; Barry & Wallace, 2010; Ha, Petersen, & Sharp, 2008), and delinquency (Barry, Grafeman et al., 2007; Thomaes, Bushman, Stegge, & Olthof, 2008). For example, in a sample of community youth (11 to 17 years of age), narcissistic traits independently predicted overt aggression, relational aggression, and delinquency beyond the variance accounted for by CU traits and Machiavellian traits (Lau & Marsee, 2013). In another study by Barry, Thompson, et al. (2007), narcissistic traits in at-risk youth uniquely and positively predicted proactive aggression, reactive aggression, and conduct problems beyond CU traits and impulsivity. Furthermore, Lau and Marsee (2013) found narcissistic traits positively associated with emotional dysregulation and behavioral

dysregulation, which may contribute to the narcissistic youth's tendency to engage in antisocial and aggressive behaviors due to poor control. Consistent with being emotionally dysregulated, youth high in narcissistic traits experience more internalizing problems than those low in narcissistic traits (Barry & Malkin, 2010; Washburn, McMahon, King, Reinecke, & Silver, 2004).

Narcissism discriminates between aggressive and non-aggressive youth (Ang & Yusof, 2005), and predicts delinquency and future externalizing behaviors in children (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005). The association between narcissism and aggression is especially strong when in combination with high self-esteem (Lau et al., 2011; Thomaes et al., 2008). For example, under experimental conditions, children (10 to 13 years of age) high in narcissistic traits and high self-esteem, compared to those only high in narcissism, showed significantly higher incidents of reactive physical aggression (i.e., blasting a loud noise at an opponent), when they were informed that they had lost to the worst player in a computer game and shown their name at the bottom of a rankings page (Thomaes et al., 2008).

Characteristic features of narcissism have been identified as early as preschool (Carlson & Gjerde, 2009) and show a significant increase from ages 14 to 18 and a slight decline from age 18 to 23. It is often thought that narcissism is a characteristic feature of adolescence, however, Barry and Wallace (2010) have shown that instead of a negatively skewed distribution in adolescent years, narcissistic traits showed a normal distribution, and narcissistic youth considered to be maladaptive were at the extremes of the distribution. As a separate construct from psychopathy, narcissism warrants its own attention. The narcissistic youth is purported to be invulnerable (Barry, Pickard, & Ansel, 2009), but they are also hypersensitive to criticism and threats to their ego (Thomaes et al., 2008). They are prone to develop and experience

internalizing problems (Barry & Malkin, 2010; Lau et al., 2011; Washburn et al., 2004), and they experience significant emotional dysregulation, and tend to be behaviorally impulsive (Lau & Marsee, 2013). Lastly, and to the consequence of others, youth high in narcissistic traits are consistently found to engage in proactive and reactive aggression (Barry, Thompson et al., 2007), relational and overt aggression (Barry, Grafeman et al., 2007; Lau & Marsee, 2013; Lau et al., 2011), delinquency (Barry, Grafeman et al., 2007; Lau & Marsee, 2013; Thomaes et al., 2008) and conduct problems (Barry et al., 2003; Ha et al., 2008) beyond the effects of CU traits.

### **Borderline Personality Traits**

In contrast to the physiologically under-aroused psychopath and the overly-confident narcissist, borderline personality is conceptualized as a disorder of chronic and severe emotional dysregulation (intensity, reactivity, and control), an unstable self-image that is often dependent on others, and insecure intense interpersonal relations with typical onset being in adolescence or young adulthood (APA, 2000; Linehan, 1993; Livesley, 2008; Skodol et al., 2005). The individual diagnosed with borderline personality is best described as being ‘stable’ in their instability, a description that seems contradictory to the definition of personality disorder as being stable and inflexible enduring patterns of thoughts, affects, and behaviors exhibited across time and situations. Although borderline personality disorder shows instability over short periods of time, impairment of functioning is more enduring (Skodol et al., 2005). For example, the stability of borderline personality traits from age 14 to 24 years in a sample of female twins from the community found mean-level increases in borderline traits from age 14 to 17, but showed decreases from 17 to 24; borderline traits however showed moderate rank-order stability from 14 to 24 years of age (Bornoalova, Hicks, Iacono, & McGue, 2009). These results suggest that

although there tends to be some fluctuation in the mean-level of borderline traits, the specific traits themselves show relatively moderate stability over time.

Emotional dysregulation is the feature long considered to be the hallmark of borderline personality disorder, and is defined as the poor ability to modulate positive and negative emotions, and intensity of mood states – often described as having extreme affective lability (e.g., maladaptive mood swings) due to marked reactivity in mood (e.g., dysphoria, anxiety, anger) and poor tolerance for frustration, often engaging in ineffective or dysfunctional stress coping (APA, 2000; Fox & Calkins, 2003; Linehan, 1993; Paris, 2003; Putnam & Silk, 2005; Shedler & Westen, 2004). Compared to controls, individuals high in borderline personality traits are prone to experience frequent extreme and intense emotions, rapid escalations of emotions, experience longer-lasting aversive states, and have a severe fear of rejection and abandonment (Stiglmayr et al., 2005). Forty-one to 83% of borderline personality disordered patients also have a diagnosis of major depression, and individuals high in borderline traits report more symptoms of anxiety and anxiety disorders, and anxiety sensitivity (Gratz, Tull, & Gunderson, 2008; Lilienfeld & Penna, 2001; McGlashan, Grilo, & Skodol, 2000). Similar to individuals high in psychopathic and narcissistic traits (Masui & Nomura, 2011; Vazire & Funder, 2006), and independent of emotionally dependent behaviors, individuals high in borderline traits are also hypothesized to be behaviorally and cognitively dysregulated (Crowell, Beauchaine, & Linehan, 2009; Paris, 2005). Studies support these hypotheses and indicate that adults diagnosed with borderline personality disorder report higher levels of impulsivity (Bornovalova et al., 2009; Henry et al., 1999; Hochhausen, Lorenz, & Newman, 2002), novelty seeking (Pukrop, 2002), sensation seeking (Aluja, Cuevas, Garcia, & Garcia, 2007; Reist, Haier, DeMet, & Chiczy-DeMet, 1990), and risk taking (Dowson et al., 2004).

Overall, borderline personality traits in adults are associated with various maladaptive behaviors and significant interpersonal difficulties. Even at younger ages, borderline personality disorder not only affects the individual, but also affects others close to the individual. For example, a study by Goodman et al. (2010) found that being a parent of a daughter diagnosed with borderline personality disorder was associated with great stress on parental emotional health, social life, physical health, and marriage. Thus it is important to examine borderline personality traits and features in younger ages to determine whether they are expressed in similar ways to adults and are associated with similar outcomes.

**Borderline personality in youth.** Borderline personality traits in youth are often used to describe the overly dramatic and emotional teenage girl. However, the typical problems experienced by a teenager are intensified, extreme, and affects all aspects of life in adolescents high on borderline traits. Similar to adults, youth high in borderline traits are severely emotionally dysregulated, experience frequent internalizing pathology, have great interpersonal difficulties and, an unstable self-image, and often engage in impulsive and maladaptive behaviors (e.g., Bradley, Conklin, & Westen, 2005; Gratz et al., 2009).

Difficulties for people who exhibit borderline personality disorder symptoms begin early in life. In a predominantly male sample of psychiatric patients aged 6 to 12 years, higher levels of anxiety and depression were found among patients diagnosed with borderline personality disorder compared to those without borderline personality disorder (Greenman, Gunderson, Cane, & Saltzman, 1986; Guzder, Paris, Zelkowitz, & Feldman, 1999). In the same sample, (Paris, Zelkowitz, Guzder, Joseph, & Feldman, 1999) patients diagnosed with borderline personality disorder exhibited higher levels of impulsive, aggressive, and delinquent behavior. Furthermore, in a sample of community children (9 to 13 years of age) (Gratz et al., 2009),

affective dysfunction (i.e., anxiousness, affective lability, emotional intensity, and emotional reactivity) and sensation seeking were positively associated with borderline personality symptoms, even after controlling for the effects of depression, anxiety, and delinquency. Overall, borderline youth are impulsive, have difficulty inhibiting urges and desires, and experience great negative emotionality. Not only are they emotionally reactive, they experience greater intensity of emotions with a poor ability to regulate their emotions, they are also poor at identifying the emotions that they are feeling.

Youth high in borderline traits also have problems with aggression and antisocial behavior. For example, Bradley et al. (2005) randomly selected 294 doctoral-level clinicians and asked them to rate the last adolescent boy or girl they had a session with, and were diagnosed with borderline personality disorder according to the DSM-IV-TR criteria using the Shedler-Westen Assessment Procedure – 200 for Adolescents (Westen, Shedler, Durrett, Glass, & Martens, 2003). Bradley et al. (2005) found adolescent girls diagnosed with borderline personality more internalizing and emotionally dramatic, experienced intense emotional dysregulation without the ability to self-soothe, evidenced identity disturbance, fear of rejection and abandonment, felt misunderstood, mistreated, or victimized, and tended to feel unhappy, depressed, or despondent. Boys diagnosed with borderline personality disorder presented with more externalizing problems (i.e., aggressive, disruptive, and antisocial behavior), gained pleasure or satisfaction by being sadistic, aggressive, or bullies, have exaggerated senses of self-importance, dominated others, got into power struggles with adults, tended to be angry, rebellious and defiant towards authority, and blamed others for their own failures or problems.

The features associated with boys high in borderline personality traits in Bradley et al. (2005) study are very similar to those exhibited by CU, antisocial, and narcissistic youth, and

another study on psychiatric inpatient adolescents, found those diagnosed with borderline personality disorder had co-occurring antisocial personality disorder and narcissistic personality disorder (Becker, Grilo, Edell, & McGlashan, 2000). Focusing exclusively on boys, Chabrol, Van Leeuwen, Rodgers, and Séjourné (2009) found borderline personality disorder significantly positively associated with depressive symptoms, cannabis use, alcohol use, impulsivity, sadistic traits, and delinquent behaviors. However, borderline personality disorder was not associated with psychopathy or narcissism.

Similar to youth high in CU and narcissistic traits, youth high in borderline personality traits show higher levels of delinquency, proactive and reactive aggression, relational and overt aggression (Chabrol et al., 2009; Crick et al., 2005; Ostrov & Houston, 2008; Paris et al., 1999), conduct problems (Guzder et al., 1999), and are more likely to be offenders than their non-borderline personality disordered counterparts (Chabrol et al., 2009). For example, in a short-term longitudinal study of community children in grades 4 to 6 (Crick et al., 2005), emotional sensitivity predicted higher borderline personality features. Physical aggression and relational aggression were also found to predict borderline personality features over time (with changes in relational aggression in particular being uniquely associated with changes in borderline personality features). In another example, given the borderline personality symptoms of intense anger and impulsivity, borderline pathology has been found to be related to relational aggression, particularly reactive relational (Ostrov & Houston, 2008). Ostrov and Houston found both reactive and proactive relational aggression uniquely associated with borderline personality disorder, but not with physical aggression. The lack of an association between reactive physical aggression and borderline personality disorder was explained by the fact that the sample used in

the study was typical in function and likely to have a lower base rate of physical aggression and/or borderline symptoms (Ostrov & Houston, 2008).

## **Psychological Dysregulation Approach**

Regardless of diagnostic label or profile on the Big Five personality traits, an individual's regulatory abilities are essentially the targets of many current cognitive and behavioral based interventions (e.g., DBT; Linehan, 1993). The psychological dysregulation approach is another orientation for conceptualizing psychopathology and problematic behaviors resulting from dysfunction in an individual's behavioral, emotional, and cognitive regulatory abilities.

Psychological dysregulation is very similar to the concept of self-regulation or self-control primarily studied in adults (e.g., DeWall, Baumeister, Stillman, & Gailliot, 2007). Although self-control focuses on the ability to resist temptations and inhibit acting on impulses, the ability for self-control is determined by the current level of mental resources available, and the interplay of intrapsychic forces that may deplete the resource which results in a failure of self-control and subsequently leads to aggression (e.g., Baumeister, 1997). In comparison, psychological dysregulation focuses on the individual's actual behavioral, emotional, and cognitive regulatory abilities together. Examining the psychological dysregulation of an individual should help describe the person's general ability to control their behaviors, emotions, and cognitions. Furthermore, this may be another way to identify personality traits associated with problem behaviors, instead of starting with a specific rubric or "personality type" that immediately narrows the lens of focus to specific symptoms.

How are the regulatory abilities defined? Although behavioral, emotional, and cognitive regulation are complex multidimensional constructs, in this study, behavioral regulation is specifically defined as the individual's ability to inhibit pre-potent responses or impulses (i.e., a

person's immediate response that has been reinforced in the past to certain stimuli), delay responding in favor of a future reward, stopping ongoing responses, and resisting distraction or disruption by competing events (Barkley, 1997). People who have poor behavioral regulation, or who are behaviorally impulsive are easily distracted and bored (e.g., sensation seeking), have difficulty maintaining concentration and attention, are fidgety and unable to sit still, and often act quickly without thinking (Egger & Angold, 2006). Emotional regulation, as discussed previously, is the person's ability to control and modulate their emotional experiences and expressions in response to external and internal demands, as well as control the influence of emotional arousal on the organization and quality of thoughts, actions, and interactions (Cole, Michel, & Teti, 1994). In addition, it includes the individual's ability to initiate, maintain, monitor, evaluate, and modify their emotional reactions in terms of intensity and duration (Cole et al., 1994). Lastly, cognitive regulation is believed to emerge later in development, congruent with the development of the frontal lobes, and also strongly contributes to an individual's ability to control their behaviors and emotions (e.g., Ochsner & Gross, 2005; Perlman & Pelphrey, 2010). Cognitive regulation is conceptualized as an individual's ability to meaningfully and carefully plan ahead, consider the consequences of their behavior and action, and to be cognitively flexible in their thinking and behaviors (i.e., learn from past mistakes) (Fuster, 2002; Mezzich, Tarter, Giancola, Kirisci, & Parks, 2001). Cognitive regulation is also commonly labeled as the person's executive cognitive functioning capacity, that involves "higher order" cognitive abilities such as attention, planning, abstract reasoning, and responding to cues, all involved in initiating and regulating goal-directed behavior (Giancola, Martin, Tarter, Pelham, & Moss, 1996; Giancola & Tarter, 1999; Hoaken, Shaughnessy, & Pihl, 2003).

Psychological dysregulation may to lie at the basic building blocks of personality development and functioning (e.g., De Caluwé et al., 2013). Generally, in personality assessment, the individual personality traits measured imply that a person is predisposed to engage in and experience a specific or stable pattern of behaviors, emotions, and cognitions across time and different situations (McCrae & Costa, 2003). For example, being impulsive, irresponsible, and reckless suggests underlying difficulties in inhibiting immediate behaviors and/or difficulties with thinking and planning ahead. As another example, a reactive aggressive youth who easily flies off the handle when provoked by minor insults may have trouble with controlling his or her anger and emotions. The importance of focusing on regulatory abilities is also highlighted by the definitions for personality traits, criteria for personality disorders, and to a broader extent the criteria of psychopathology, they intuitively (explicitly or implicitly) appreciate a person's ability to regulate their behaviors, emotions, and cognitions. For instance, individuals high in psychopathic traits are behaviorally impulsive; they are easily bored, are adventure seeking, and often act on impulse (e.g., Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999). Additionally, they tend to be inflexible in their cognitive and behavioral strategies when a reward orientation has been primed (e.g., Fisher & Blair, 1998; O'Brien & Frick, 1996; Pardini et al., 2003), and they experience reduced affective blunting or reduced physiological arousal in response to emotionally threatening stimuli (e.g., Loney, Butler, Lima, Counts, & Eckel, 2006; Loney et al., 2003) as well as impairment in fear recognition (e.g., Dadds et al., 2006; Han, Alders, Greening, Neufeld, & Mitchell, 2012).

The connection between regulatory abilities and personality functioning is further demonstrated by De Caluwé et al. (2013) who conducted one of the only studies to examine how dysregulation was associated with pathological personality traits longitudinally in a Flemish

sample of community and clinic-referred children and adolescents (8 to 14 year olds). Using mother-reports on the CBCL (Achenbach & Rescorla, 2001) at time 1, a specific dysregulation profile (CBCL-DP) was created using latent class analysis (LCA) that grouped children together who had similar elevated responses on the aggressive behavior, attention problems, and anxious/depressed scales. The CBCL-DP group was contrasted with the 5 other groups that were identified by the LCA on pathological personality traits measured by mother-reports on the Personality Inventory for DSM-5 (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2012), 4 years later (time 2). De Caluwé et al. found that at time 2, compared to children classified with no symptoms, children classified as CBCL-DP at time 1 scored significantly higher on hostility, impulsivity, emotional lability, deceitfulness, callousness, and grandiosity. Compared to children classified as mildly internalizing, the CBCL-DP group scored significantly higher on impulsivity, deceitfulness, risk-taking, and hostility. The CBCL-DP group also scored significantly higher on callousness and risk-taking than children classified as having moderate attention problems with anxious/depressed and social problems. Compared to children who were classified as severe on the anxious/depressed and thought problems scales, the CBCL-DP children scored significantly higher on risk-taking. Lastly, no significant difference was found between the CBCL-DP group and children classified as moderate externalizing with anxious/depressed and social problems on pathological personality traits outcome, but the CBCL-DP was just slightly more severe. Furthermore, the CBCL-DP class significantly predicted time 2 hostility, risk-taking, deceitfulness, callousness, grandiosity, irresponsibility, impulsivity, and manipulateness (De Caluwé et al., 2013). Interestingly, although not directly examined, the pathological personality profile of the CBCL-DP children closely resembles that of antisocial personality, borderline personality, and to a lesser extent narcissistic personality

disorders listed in the DSM-IV-TR. The findings of the De Caluwé et al. (2013) study support the measurement of regulatory abilities in predicting later personality functioning and demonstrates that high comorbidity between personality disorders may be due to shared problems in dysregulation found in this study that were associated with the CBCL-DP class. It also suggests that early childhood dysregulation may predispose children to develop pathological personality traits that have been previously associated with maladaptive functioning. Therefore, directly identifying difficulties in regulatory abilities may help curb the development of later pathological personality, and reduce the occurrence of aggression and antisocial behaviors.

Essentially, assessment of personality and individual differences tap regulatory abilities, and many of the current cognitive-behavioral therapies target an individual's regulatory abilities. For example, children who are easily angered and have trouble controlling their emotions are taught how to accurately identify what they are feeling, taught relaxation methods to reduce the associated physiological arousal experienced with rising anger, and encouraged to stop and think of solutions and consequences before impulsively acting (e.g., Beck & Fernandez, 1998). In another example, mindfulness training, a core technique in Dialectical Behavior Therapy (DBT) commonly used for borderline personality disorder (Linehan, 1993), has shown usefulness in improving cognitive control, such as improving working memory capacity, verbal performance on the General Record Examination, and reducing the occurrence of distracting thoughts during completion of tasks (Mrazek, Franklin, Phillips, Baird, & Schooler, 2013).

The pathological personality traits and social personality approaches describe specific constellations of personality traits that are frequently associated with problematic behaviors such as aggression and delinquency. These two approaches, and the personality traits measured also highlight the importance of an individual's psychological regulatory abilities, especially in terms

of behavioral, emotional, and cognitive regulation. We now turn our attention to the specific roles that psychological dysregulation has with aggression and antisocial behavior.

## **Psychological Dysregulation, Aggression, and Delinquency**

Cognitive regulation, emotional regulation, and behavioral regulation are often studied together as well as separately because they are tightly interconnected processes that interact with each other (e.g., Eisenberg & Fabes, 1992; Pulkkinen, 1996; Selby, Anestis, & Joiner, 2008; Selby & Joiner, 2009; Tarter et al., 2003). For example, Eisenberg and Fabes (1992) have described children who engage in more reactive aggression and who experience more peer rejection, as children who have intense emotions and poor emotional regulation (e.g., inhibition of negative arousal and negative emotion), poor behavioral regulation (e.g., suppressing impulsive reactions), and show difficulties in cognitive regulation, such as shifting attention away from disturbing stimuli and trouble engaging in planning and problem-focused coping.

**Behavioral regulation.** Independently, poor behavioral regulation is frequently associated with psychopathology, such as disruptive behavior disorders, that include attention-deficit hyperactivity disorder (ADHD), conduct disorder, and oppositional defiant disorder (Dougherty et al., 2003). In a large meta-analysis that reviewed studies using forensic, clinic, and community samples of children, adolescents, and adults, antisocial individuals had poorer executive functioning, specifically on tasks that assess behavioral motor control and inhibition, compared to non-antisocial individuals (Morgan & Lilienfeld, 2000). One explanation behind this association is provided by Zuckerman's stimulation-seeking theory (2007) that posits that children with disruptive behavior problems have lower resting autonomic nervous system (ANS) activity levels; this lower activity is experienced aversively. Due to the aversive experience of low activity levels, the children are motivated to seek out stimulation to raise their ANS activity

to more normal and optimal arousal levels. Another under-arousal theory is that of fearlessness. The fearlessness theory states that the under-arousal experienced by antisocial individuals is a sign of low levels of fear (Raine, 1993). According to the fearlessness theory, antisocial individuals engage in aggressive and delinquent behaviors because they are not deterred by the consequences and are more focused on the rewards to be gained. These two examples also illustrate how it is hard to separate the effects of cognitions and emotions from behaviors.

At times, it appears that the aggressive behaviors exhibited by behaviorally dysregulated youths are due to ADHD symptomatology. However, studies have shown that after controlling for ADHD, there is still a strong association between behavioral dysregulation and aggression. For example, in a study of clinic-referred children, poorer behavioral regulation was associated with reactive but not proactive aggression, after controlling for gender, age, intelligence, and ADHD (White, Jarrett, & Ollendick, 2013). Another study showed reactive aggressive children, compared to proactive aggressive children, to have more hyperactivity/impulsivity problems, after controlling for the attention-deficit component of ADHD (Scarpa, Haden, & Tanaka, 2010). Furthermore, proactive aggressive children showed higher levels of delinquency, and physiologically demonstrated higher baseline levels of heart rate variability, and skin conductance levels (Scarpa et al., 2010). In another study, adolescents diagnosed with disruptive behavior disorders (e.g., conduct disorder, oppositional defiant disorder, ADHD) exhibited poorer inhibition of responses (i.e., more errors on a Go/Stop task) and greater reward-dominant responses (i.e., favoring immediate rewards over future rewards) when compared to age-matched controls, and after controlling for intelligence (Dougherty et al., 2003).

In general, impairment in behavioral regulation is associated with aggression and antisocial behaviors in youth. However, it is difficult to discuss the association between

behavioral regulation and aggression and antisocial behaviors independent of an individual's emotional and cognitive regulation abilities.

**Emotional regulation.** Similar to behavioral regulation, emotional regulation, under certain circumstances, can lead to the development and maintenance of symptoms of psychopathology, such as conduct problems, aggression, and internalizing problems (e.g., Card & Little, 2006; Marsee, 2008; Pope & Bierman, 1999; Shields & Cicchetti, 1998). Emotional dysregulation is the term more commonly used when impairment in awareness and understanding, controlling, and modulation of emotions is associated with psychopathology (Robertson, Daffern, & Bucks, 2012). Evident as early as 2 years of age, aggressive versus non-aggressive boys show more negative affect and emotional regulation difficulties, and physiologically lower respiratory sinus arrhythmia suppression (indication of reduced parasympathetic nervous system functioning (Calkins & Dedmon, 2000). Similarly, compared to children high in proactive aggression, children who exhibit high levels of reactive aggression tend to experience more internalizing problems (i.e., anxiety, depression), attention deficits, lower baseline levels of heart rate variability (i.e., reduced parasympathetic activity), and skin conductance (i.e., reduced sympathetic activity on eccrine glands) (Scarpa et al., 2010). In adolescents, boys who have difficulty regulating anger and sadness are significantly more likely to engage in physical and relational aggression (Sullivan, Helms, Kliewer, & Goodman, 2010). The results of the three studies (Calkins & Dedmon, 2000; Scarpa et al., 2010; Sullivan et al., 2010) suggest one pathway to aggression may be a result of difficulty in controlling distressing emotional states, as well as an impairment in the parasympathetic nervous system to help down-regulate the physiological arousal that the individual is experiencing. This is consistent with Beauchaine's line of research on polyvagal theory (Beauchaine, 2001; Beauchaine, Gatzke-

Kopp, & Mead, 2007) where heart rate variability is considered an indirect measure of vagal tone, and low vagal tone has been associated with internalizing (e.g., depression, anxiety) and externalizing (e.g., aggression, hostility, conduct problems) psychopathology, and may reflect a dysregulated affective style and emotional inflexibility.

In another study that focused on justice-involved boys and girls (12 to 18 years of age), the associations between negative affect, emotion dysregulation, violence, and risky sexual behavior were examined (Miller, Vachon, & Aalsma, 2012). Initial results indicated anger, emotional dysregulation, and the impulse control (e.g., “when I’m upset, I lose control over my behaviors”) factor of emotional dysregulation were correlated with violence (i.e., fighting, sending someone to the hospital, threatening someone with a weapon). Further moderation analyses showed that in adolescents with poor emotional clarity (e.g., “I have difficulty making sense out of my feelings”, “I am confused about how I feel”), negative affect (i.e., anxiety) was significantly associated with violence. Miller et al.’s (2012) study suggests that another possible pathway between emotional dysregulation and aggressive behaviors in adolescents may be due to a poor ability to identify the emotion that is currently being experienced. A poor ability to accurately identify emotions may impede the ability to engage in proper behaviors to help down-regulate the emotion.

The link between emotional dysregulation, aggression, and delinquency has been supported. Furthermore, emotional dysregulation has been shown to predict aggression and psychopathology longitudinally (McLaughlin, Hatzenbuehler, Mennin, & Nolen-Hoeksema, 2011; Pope & Bierman, 1999; Pulkkinen, 1996). The effectiveness of identifying emotional dysregulation and targeting it for possible intervention purposes has also been studied. Orobio de

Castro, Bosch, Veerman, and Koops (2003) found reductions in aggressiveness in highly aggressive boys who were taught to monitor and regulate their own emotions.

**Cognitive regulation.** Cognitive regulation, also studied as executive functioning, refers to the ability to engage in purposeful and planned behavior (Fuster, 2001), and includes the ability to organize, execute, persist, and regulate goal-directed behavior (Fuster, 2002; Mezzich et al., 2001). Cognitive regulation also involves cognitive flexibility, decision-making, working memory, attentional control, and abstract reasoning (Anderson, 2002; Hoaken et al., 2003; Morgan & Lilienfeld, 2000). For example, reactively aggressive adolescent boys are more likely than proactively aggressive boys to show problems in information processing, such as making more inaccurate hostile attribution of others' behaviors (Raine et al., 2006). Cognitive control generally improves with age, and studies employing functional neuroimaging techniques have shown that adolescents exert greater effort when engaging in inhibitory control tasks than adults (Bunge & Wright, 2007; Luna et al., 2001).

Generally, poor cognitive regulation, or cognitive dysregulation has been associated with greater overall levels of aggressive behaviors (Giancola & Zeichner, 1994; Morgan & Lilienfeld, 2000), conduct disorder, and antisocial personality disorder (Gorenstein, 1987; Moffitt, 1993). Furthermore, in children and adolescents, difficulties in executive functioning are associated with problems with aggression, impulsivity, impairments in behavioral inhibition, and poor interpersonal skills (Anderson, Anderson, Northam, Jacobs, & Catroppa, 2001). For example, conduct-disordered adolescents (Giancola & Mezzich, 2000) and violent adult offenders (Valliant, Gristey, Pottier, & Kosmyna, 1999) perform significantly poorer on executive functioning tasks when compared to non-conduct disordered adolescents and non-violent offenders. Longitudinally, deficits in executive function measured at age 10 to 12 years of age

predicted reactive aggression 2 years later in boys at high-risk for substance use disorders, but not in low-risk control boys, even after controlling for IQ and socioeconomic status (Giancola, Moss, Martin, Kirisci, & Tarter, 1996).

Experimental research has also supported the association between cognitive regulation and aggression. In a study by Hoaken et al. (2003), compared to adults designated as high in executive cognitive functioning (ECF), those low in ECF showed significantly more retaliatory aggression under conditions of low provocation, and also showed significantly stronger aggression (i.e., administering greater intensity of electric shock) under conditions of high provocation. Furthermore, Hoaken et al. found that those with low ECF showed significantly slower reaction times (i.e., time to select a shock intensity after provocation), and committed more errors (i.e., failure to inhibit a response to punishing stimuli) on the Go/No-Go task, a measure of behavioral impulsivity. Similarly, children (8 to 13 years) who had difficulty subduing the intensity of their reactive aggression in response to proactively aggressive cues showed poorer performance on tasks of working memory capacity and drawing on existing knowledge for problem-solving, independent of the cardiovascular reactivity experienced by the children (Juujärvi, Kaartinen, Pulkkinen, Vanninen, & Laitinen, 2006).

Experiments have been conducted to test the effectiveness of training modules based on information learned about the effects of cognitive regulation and aggressive behavior (e.g., Meier, Wilkowski, & Robinson, 2008; Penton-Voak et al., 2013). For example, a recent series of experiments by Penton-Voak et al. (2013) examined the effects of a modification training module to improve the identification of emotions in facial expressions and reduce anger and aggressive behavior, in samples of healthy adults and aggressive adolescents at high risk for criminal offending. Focusing exclusively on the high-risk adolescents who were court and

school-referred to a youth program, the results of the study showed that compared the control participants, adolescents who received the training module (i.e., improving the recognition of emotions on facial expressions via feedback), self-reported and were independently-reported (i.e., staff members of the youth program) as experiencing and showing reduced subjective anger and aggressive behaviors. Furthermore, Penton-Voak et al. (2013) found that the reduction in subjective anger and aggressive behaviors appeared to be maintained 2 weeks after the completion of the training module.

The connection between cognitive dysregulation and aggression has been supported by previous research, and attempts at modifying or improving the ability has resulted in a reduction in aggressive behavior. Overall, the studies on cognitive regulation also highlight the interconnectedness between the other two regulatory abilities, namely behavioral regulation and emotional regulation. For example, cognitive dysregulation would impair a person's ability to effectively regulate their emotions by impairing the ability to distract themselves and selectively attend to more positive aspects of their selves, and environment. The experience of strong emotions can also impair a person's abilities to effectively monitor their behaviors, reason, and problem-solve. This is also true for behavioral dysregulation. An individual's impulsive behavior may be due to distractibility, hyperactivity, instantaneous emotional behavior, and poor planning skills.

## Statement of the Problem

Youths in juvenile detention centers are a heterogeneous group of individuals that are at a significantly higher risk than the general population for developing and experiencing a multitude of problems that includes mental illness and substance use (e.g., Teplin et al., 2005). Compared to adolescent females, adolescent males are an especially ‘high-risk’ population that commit significantly more crimes and are also more likely to be victims of crimes (U.S. Census Bureau, 2012). Due to their aggressive and antisocial behaviors, juvenile offenders are often involved with the justice, public health, mental health, and education departments. However, because juvenile offenders are a heterogeneous group, one-size fits all treatments aimed at the general population of offenders are not as successful as they could be (Frick & Viding, 2009; Moffitt, 1993). Previous efforts have focused on examining personality traits to identify subgroups of antisocial youth to help inform treatment planning and prevention strategies.

The present study seeks to add to the extant literature by examining the association between three separate personality approaches and overt aggression, relational aggression, and delinquency in male juvenile offenders. The three approaches are: (1) the general social and personality functioning approach, (2) the pathological personality traits approach, and (3) the psychological dysregulation approach (Berkowitz, 1993; De Caluwé et al., 2013; Dawes et al., 2000; Harmon-Jones & Peterson, 2008; Lynam, Leukefeld, & Clayton, 2003; Miller, Flory, Lynam, & Leukfeld, 2003; Nigg, 2000; Smitts & Kuppens, 2005; Tarter et al., 2003). The three approaches provide different types of information pertaining to personality functioning. The social and personality functioning approach is focused on where an individual scores on normal personality traits, such as the Big Five (i.e., extraversion, agreeableness, conscientiousness, neuroticism, openness to experience). The pathological personality traits approach focuses on

maladaptive traits associated with personality disorders such as psychopathic, borderline, and narcissistic. The psychological dysregulation approach does not focus on ‘personality traits’, but rather on an individual’s ability to regulate his or her behaviors, emotions, and cognitions.

In the social and personality approach, individuals who are aggressive and antisocial tend to be characterized by a profile on the Big Five personality traits of low agreeableness, low conscientiousness, and high neuroticism, and inconsistent associations with extraversion and agreeableness (e.g., Miller & Lynam, 2001). In the pathological personality traits approach, CU traits have been useful in identifying a subgroup of juvenile offenders that exhibit more chronic and severe patterns of aggressive and antisocial behaviors (e.g., Frick & White, 2008; Muñoz, Frick, Kimonis, & Aucoin, 2008). Borderline personality traits in non-referred children and adolescent inpatient samples have been strongly associated with physical and relational aggression, as well as delinquency (e.g., Bradley et al., 2005; Crick et al., 2005). In samples of community youth, and at-risk youth, narcissistic personality traits, independent of CU traits, have been associated with overt aggression, relational aggression, and delinquency (e.g., Barry et al. 2003; Lau & Marsee, 2013; Lau et al., 2011). Lastly, behavioral impulsivity, emotional reactivity and intensity, and poor problem-solving skills, lack of premeditation, and cognitive inflexibility have been associated with disruptive behavior disorders such as ADHD, oppositional defiant disorder, conduct disorder, as well as aggression and antisocial behaviors in children and adolescents (e.g., Tarter et al., 2003; Trentacosta & Shaw, 2009; Whiteside & Lynam, 2001).

Although informative about an individual’s current functioning (e.g., CU traits imply a lack of empathy, guilt, and remorse which makes it difficult for youth high in these traits to consider the consequences of their actions against others; Frick & White, 2008), no previous studies have examined the social and personality approach, the pathological personality disorder

approach, and the psychological dysregulation approach simultaneously in order to determine whether one is more strongly associated with aggressive and delinquent behavior than the others. Comparing these approaches to each other could provide important information regarding assessment and treatment planning for antisocial youth. The primary goal of this study is to test which approach best predicts aggression and antisocial behaviors, and whether the separate approaches account for significant variance beyond other approaches. Previous studies on adults and youth have demonstrated associations between the social and personality approach, the pathological personality trait approach, and maladaptive outcomes (e.g., Krueger & Tackett, 2003; Widiger & Costa, 2001). The majority of studies have focused on the associations between the social and personality approach, pathological personality traits approach, aggression, and delinquency. For example, Lynam et al. (2005) found low agreeableness, low conscientiousness, and high neuroticism to be strongly associated with aggression. Further, low agreeableness, low conscientiousness, and high neuroticism are characteristic of adolescent psychopathy that has been shown to be strong predictor of aggression and antisocial behavior (Lynam et al., 2005).

Few studies (e.g., De Caluwé et al., 2013; Ferdinand et al., 2004) have examined the psychological dysregulation approach with the social and personality and pathological personality traits approaches and their associations with aggression and delinquency. In one study, De Caluwe et al. (2013) demonstrated that dysregulated children tended to exhibit pathological personality traits closely resembling that of antisocial personality, borderline personality, and narcissistic personality 4 years later. Additionally, De Caluwe et al. found the dysregulated children to exhibit higher levels of aggression and antisocial behaviors compared to children who were not dysregulated. Conversely, Tackett and Ostrov (2010) suggest that aggression and antisocial behaviors, as well as emotional dysregulation give rise to later

borderline personality disorder and maladaptive outcomes. No study to date has examined the three personality approaches together in a sample of detained adolescents.

The current study aims to test which of these three approaches is best at predicting aggression and delinquency in male juvenile offenders. Does one approach provide valuable information or significant information in the prediction of aggressive and antisocial behaviors beyond that of another approach? For example, does the pathological personality traits approach add significant information beyond the general social and personality functioning approach, in predicting aggressive and antisocial behaviors? This idea was demonstrated well in a conceptually similar study on children (6 to 12 years of age) conducted by Ferdinand et al. (2004). Ferdinand et al. examined if the combination of DSM-IV conduct disorder diagnosis (pathological/clinical diagnosis approach) and high scores on the CBCL delinquent behavior scale (dimensional/quantitative behavioral approach) measured at time one were especially predictive of future antisocial behaviors. Although conduct disorder diagnosis and delinquent behavior scale scores both independently and significantly predicted poor outcomes, neither was superior to the other. The combination of conduct disorder diagnosis and scores on the delinquent behavior scale outperformed the single measures, and provided more accurate estimates of prognosis by significantly predicting antisocial behaviors resulting in police and judicial contacts 3 years later. Ferdinand et al. suggest that a single clinical diagnosis (i.e., yes/no) of conduct disorder gives us limited information about future antisocial behavior, but the dimensional score on the delinquent behavior scale supplements the diagnosis by giving an idea of the severity (i.e., number of problems) of the behavior that the child is exhibiting, which may be more accurate and helpful in predicting future behavior.

Research on the social and personality, pathological personality traits, and psychological dysregulation approaches suggests that they have been useful in capturing maladaptive outcomes in the past (e.g., De Caluwe et al., 2013; Miller & Lynam, 2001; Tackett & Ostrov, 2010). However, focusing on one approach may not be adequate in predicting aggression and delinquency in youth. The results of this study will be helpful in addressing the role of personality functioning in assessment and treatment planning. Specifically, the assessment of personality functioning (i.e., cognitions, emotions, behaviors) may lead to the better understanding of the internal factors driving aggressive and antisocial behaviors in detained youth, and help tailor interventions in regards to those underlying factors. Furthermore, the current study's results may help guide us in deciding which personality assessment will provide the most important information for treatment and recommendation purposes, especially with juvenile offenders, for whom our time with the youth may be limited. Lastly, due to the scarcity of research investigating the associations between psychological dysregulation, social and personality, and pathological personality traits, the present study is largely exploratory in regards to examining the performance of the psychological dysregulation approach in comparison to the social personality and pathological personality traits approaches.

## Hypotheses

1. The three personality models: (1) the Big Five personality traits (extraversion, agreeableness, conscientiousness, neuroticism, openness to experience), (2) the pathological personality traits (callous unemotional, narcissistic, borderline), and (3) the psychological dysregulation variables (behavioral, emotional, cognitive) are hypothesized to moderately to strongly correlate with each other as they are purported to measure the cognitive, emotional, and behavioral aspects of personality functioning.
2. All of the Big Five personality traits are expected to significantly correlate with overt aggression, relational aggression, and delinquency. Specifically, extraversion and neuroticism are expected to positively correlate with overt aggression, relational aggression, and delinquency. Agreeableness, conscientiousness, and openness are expected to negatively correlate with overt aggression, relational aggression, and delinquency.
3. Callous-unemotional (CU) traits, narcissistic traits, and borderline traits are expected to significantly positively correlate with overt aggression, relational aggression, and delinquency.
4. Behavioral dysregulation, emotional dysregulation, and cognitive dysregulation are expected to significantly positively correlate with overt aggression, relational aggression, and delinquency.
5. Each of the personality approaches are expected to significantly predict overt aggression, relational aggression, and delinquency.

- a. Specifically, the Big Five personality traits together are hypothesized to account for significant variance in the prediction of overt aggression, relational aggression, and delinquency.
  - b. The psychological dysregulation model is hypothesized to account for significant variance in the prediction of overt aggression, relational aggression, and delinquency.
  - c. Lastly, for the pathological personality traits approach, CU traits, narcissistic traits, and borderline traits are hypothesized to each independently account to significant variance in the prediction of overt aggression, relational aggression, and delinquency.
6. Big Five personality traits approach versus other approaches:
- a. After controlling for each of CU traits, narcissistic traits, or borderline traits, the Big Five personality traits will not predict significant variance in overt aggression, relational aggression, and delinquency.
  - b. After controlling for the psychological dysregulation variables, the Big Five personality traits will not predict significant variance in overt aggression, relational aggression, and delinquency.
7. Psychological dysregulation approach versus other approaches:
- a. After controlling for the Big Five personality traits, the psychological dysregulation variables will predict significant variance in overt aggression, relational aggression, and delinquency.

- b. After controlling for each of CU, narcissistic, and borderline traits, the psychological dysregulation variables will predict significant variance in overt aggression, relational aggression, and delinquency.
- 8. Pathological personality traits approach versus other approaches:
  - a. After controlling for the Big Five personality traits, CU traits, narcissistic traits, and borderline traits will each predict significant variance in overt aggression, relational aggression, and delinquency.
  - b. After controlling for the psychological dysregulation variables, CU traits, narcissistic traits, and borderline traits will each predict significant variance in overt aggression, relational aggression, and delinquency.

## Methods and Design

### Participants

Participants were recruited from three juvenile detention centers in Louisiana, namely the Terrebonne Parish Juvenile Detention Center ( $n = 9$ ), Jefferson Parish Rivarde Secure Detention Services ( $n = 77$ ), and Orleans Parish Youth Study Center ( $n = 46$ ). Boys 10 to 18 years of age were recruited as part of a larger study on problem behavior in detention center youth. For the purposes of the current study, only youth report was collected. Youth were excluded if parents reported severe psychotic symptoms or mental retardation ( $n = 0$ ). A total of 507 names of boys were provided by the detention centers (Rivarde = 268, Youth Study Center = 179, Terrebonne = 60). Of these names, we were able to contact a total of 273 parents over the phone, 132 at Rivarde (consented = 99, declined = 33), 112 at the Youth Study Center (consented = 85, declined = 27), and 29 at Terrebonne (consented = 24, declined = 5). Of the youth whom we obtained parental consent, we obtained a total of 135 youth assents (Rivarde = 77, Youth Study Center = 49, Terrebonne = 9). A total of 10 youth declined assent (Rivarde = 7, Youth Study Center = 2, Terrebonne = 1). A total of 61 youth were released before we could speak with them (Rivarde = 13, Youth Study Center = 34, Terrebonne = 14). Two participants at Rivarde were age 18 and considered adults (consented = 1; declined = 1). A total of 3 participants dropped out of the study before completing the questionnaire, stating 'boredom' as their reason. A total of 230 (Rivarde = 134, Youth Study Center = 66, Terrebonne = 30) were not contacted due to the following reasons: Bad numbers (Rivarde = 34, Youth Study Center = 26, Terrebonne = 6), No voicemail (Rivarde = 17, Youth Study Center = 2, Terrebonne = 4), Left messages with no return calls (Rivarde = 48, Youth Study Center = 29, Terrebonne = 13), Youth released before we could contact parents (Rivarde = 35, Youth Study Center = 9, Terrebonne = 7). A total sample of 132

participants was collected; however 3 participants were not included in the final analyses because they were missing more than 20% of their data points on two of the main measures of interest. Seven cases were excluded from the final analyses due to inconsistent, random, and acquiescent responding. One case was removed due to being a multivariate outlier.

The final sample consisted of 121 boys between the ages of 12 and 18 ( $M = 15.31$ ;  $SD = 1.16$ ). Of the youth who participated, 84.3% were African American, 14% were Caucasian, .8% were Hispanic, and .8% reported “other” for ethnicity. For the purposes of data analysis, ethnicity was coded as 0 = African American (84.3%), and 1 = Other (15.7%). Based on a review of their institutional records, the majority of participants had at least one prior arrest (79.3%) with an average age of 12.75 years ( $SD = 3.66$ ) at first arrest. In terms of offense history, 66.12% of the boys had committed at least one violent offense (e.g., assault/battery, armed robbery). At least 39.7% of the boys have a current violent offense, and 46.28% of the sample had prior violent offenses. The majority of boys (79.3%) have a current nonviolent offense and 72.72% of the sample had previous arrests for nonviolent offenses (e.g., possession of illegal substances, disorderly conduct).

## Procedures

Before data are collected, the University of New Orleans (UNO) Institutional Review Board (IRB) granted approval for conducting the study. Upon UNO IRB approval, the directors of each of the detention centers were contacted and they also granted approval for conducting the study. To begin recruitment procedures, the detention centers provided a list of the names of current detainees and the contact information for the detainees’ parents. On average, the contact list was provided on a weekly basis. Parents were subsequently contacted via telephone by the graduate research assistants. Informed consent was obtained over the telephone and the parents’

verbal consent was recorded onto a digital voice recorder, which was then transferred over to the computer onto a secure hard drive. All potential participants (parents and youth) were informed that each youth will receive snacks for participation.

Trained graduate and undergraduate research assistants (RAs) made telephone calls to the parents of the detainees regarding their child's opportunity to participate in a study of adolescent problem behavior. Parents were informed that the study does not require any work or time on their part, but their child would complete a series of questionnaires and the child would receive snacks (e.g., bag of chips and bottle of soda) for their participation. The parent was also informed that the researchers would do a chart review of their child's case record at the detention center. In addition, parents were informed that their child's participation in the study would in no way influence his/her treatment at the detention center or his/her legal standing in the adjudication process. Upon obtaining a recorded informed consent from parents, a copy of the informed consent was subsequently mailed to the parent for their records. RAs then visited the respective detention center for where the youth was being detained. RAs reviewed consent/assent forms with the youth. The forms were read aloud to each participant and ample opportunity for questions was provided. The potential participants were informed that they could drop out of the study at any time without any consequences.

After obtaining youth assent, the youth were taken to a separate room (e.g., larger visitation room, empty classroom) either with other youth that assented at the same time ( $n = 86$ ) or alone ( $n = 35$ ) with the RAs and one detention center supervisor per 8 youths. There were several reasons why youth were seen alone instead of in a group. Research assistants had the intention of seeing more than 1 youth, however, upon arriving at the detention center, the other youths had already been released from the facility. In the assent process, only 1 youth assented to

participate in the study. Lastly, occasionally the detention center staff intentionally separated youths as they had been previously fighting in their cells. The questionnaires were read aloud by an RA and youth recorded their answers in their own questionnaire packets. In addition, a graduate/undergraduate assistant was available to help answer participant questions and to ensure that each participant was working independently, completed every item, and was filling out the questionnaire accurately, and not randomly. Assessments were approximately 90 – 120 minutes, and participants were allowed short breaks if necessary. Upon completion of the youth assessments, each child was given a choice of snacks (e.g., soft drinks and potato chip bags) as compensation for their time. During the administration of the questionnaire, another group of RAs collected the chart review data in a separate room.

## Measures

**Demographic Information.** The standard chart review form collected information on the youth's gender, age, ethnicity, and arrest history.

**Big Five Inventory for Children (BFI; John, Naumann, & Soto, 2008).** The BFI for children is a 44-item self-report measure designed to measure the Big Five personality traits of extraversion (e.g., "Is outgoing, sociable"; 8 items), agreeableness (e.g., "Is considerate and kind to almost everyone"; 9 items), conscientiousness (e.g., "Does things carefully and completely"; 9 items), neuroticism (e.g., "Can be moody"; 8 items), and openness to experience (e.g., "Is original, comes up with new ideas"; 10 items), as well as an optional liking dimension (e.g., "People really enjoy spending time with" 2 items). Each item is rated on a five-point scale (1 = *disagree strongly*, 2 = *disagree a little*, 3 = *neither agree nor disagree*, 4 = *agree a little*, and 5 = *agree strongly*). This measure is a modified version of the Big Five Inventory that is normally used with adults (John et al., 2008). Specifically, items with difficult wording for

children have been modified (e.g., “Is ingenious, a deep thinker” to “Is clever, thinks a lot”). Internal consistencies for the BFI scales in past research in adults are generally good (mean Cronbach’s alpha = .83) (John et al., 2008; Measelle, John, Ablow, Cowan, & Cowan, 2005; Soto, John, Gosling, & Potter, 2008). Roose, Bijttebier, Decoene, Claes, and Frick (2010) reported moderate to good reliabilities for each of the BFI for children. Specifically, reported alpha reliabilities were: extraversion (Cronbach’s alpha = .82), agreeableness (Cronbach’s alpha = .73), conscientiousness (Cronbach’s alpha = .80), neuroticism (Cronbach’s alpha = .78), and openness to experience (Cronbach’s alpha = .70) (Roose et al., 2010).

For this study, the five subscales to measure agreeableness (Cronbach’s alpha = .58), extraversion (Cronbach’s alpha = .59), neuroticism (Cronbach’s alpha = .60), conscientiousness (Cronbach’s alpha = .61), and openness to experience (Cronbach’s alpha = .71) were calculated and showed unacceptable to adequate internal consistencies. The Inter-Item Correlation Matrix in SPSS identified several items that were not correlated with the other items, or were negatively correlated with other items within their respective subscales. These same items that were identified in the Inter-Item Correlation Matrix were identified in the Item-Total Statistics that indicated that if these items were removed, the alpha reliabilities of the subscales would improve. Coincidentally, the items identified were the reverse-scored items (these had already been recoded for scoring in the correct direction) on the BFI. After removing the reverse-scored items, totals were recalculated and reliability analyses were conducted. The results of the analyses indicated that the alpha reliabilities of agreeableness ( $M = 11.45$ ,  $SD = 4.60$ , Cronbach’s alpha = .75), extraversion ( $M = 11.48$ ,  $SD = 4.03$ , Cronbach’s alpha = .64), neuroticism ( $M = 9.05$ ,  $SD = 4.39$ , Cronbach’s alpha = .68), conscientiousness ( $M = 12.79$ ,  $SD = 4.78$ , Cronbach’s alpha = .76), and openness to experience ( $M = 19.49$ ,  $SD = 7.01$ , Cronbach’s alpha = .81) were

improved. Reliabilities of the reverse-scored items alone were poor (Cronbach's alphas < .59), with the exception of openness to experience (Cronbach's alpha = .72). For the purposes of the study, the calculated subscales with the reverse-scored items removed, were used for all analyses.

**Inventory of Callous-Unemotional Traits – Youth Self-Report (ICU; Frick, 2004).** CU traits in youth will be assessed using the ICU. It is a 24-item self-report questionnaire that consists of three factors, namely callousness, uncaring, and unemotional. The items of the ICU are scored on a four-point scale (0 = *not at all true*, 1 = *somewhat true*, 3 = *very true*, and 4 = *definitely true*). The ICU was developed from four items of the CU subscale of the APSD (Frick & Hare, 2001), a widely used measure of antisocial behavior in children. In clinic and community samples (Frick, Bodin, & Barry, 2000), the CU subscale (6-items) of the APSD has been shown to be a unique factor. It has also been shown to identify a subgroup of children with more severe conduct problems than other children with conduct disorder (Christian, Frick, Hill, Tyler, & Frazer, 1997). However, likely due to its small number of items, the CU scale has shown only moderate internal consistency in previous studies (e.g., Loney et al., 2003). The ICU was created to overcome these issues. It was developed from the 4 items (“is concerned about the feelings of others,” “feels bad or guilty,” “is concerned about schoolwork,” and “does not show emotions”) from the APSD CU subscale that loaded significantly on the CU factor in both clinic-referred and community samples (Frick et al., 2000). Four negatively and four positively worded items were constructed from each of these four original items of the APSD.

Recent research on two separate samples has supported the reliability and validity of the ICU (Essau et al., 2006; Kimonis et al., 2008). Essau et al. (2006) conducted the first large-scale study to examine the properties of the ICU in a sample of 1,443 (774 boys and 669 girls) non-

referred German adolescents (13 to 18 years old). Exploratory factor analysis revealed three factors, namely callousness, uncaring, and unemotional. Using confirmatory factor analysis indicated that this three-factor model provided the best fit to the data. Acceptable internal consistencies were reported for the total scale (Cronbach's  $\alpha = .77$ ), and callousness (Cronbach's  $\alpha = .77$ ), uncaring subscales (Cronbach's  $\alpha = .73$ ). The unemotional subscale demonstrated marginal internal consistency (Cronbach's  $\alpha = .64$ ). The ICU subscales also demonstrated concurrent validity with measures of externalizing behaviors, such that callousness ( $r = .37, p < .001$ ) and uncaring ( $r = .26, p < .001$ ) correlated positively, while unemotional was negatively correlated ( $r = -.11, p < .001$ ) with the externalizing behavior. In addition the ICU was negatively correlated with agreeableness ( $r = -.57, p < .001$ ) and conscientiousness ( $r = -.49, p < .001$ ), personality factors of the Big Five personality dimensions.

Kimonis et al. (2008) conducted a study on a sample of American adolescent offenders ( $n = 248$ ; 188 boys and 60 girls) between the ages of 12 and 20, to explore whether the findings of Essau et al. (2006) extended to a group of juvenile offenders. Using confirmatory factor analysis, three independent factors were found, namely callousness, uncaring, and unemotional. Internal consistencies for the three factors ranged from good to poor, callousness (Cronbach's  $\alpha = .80$ ), uncaring (Cronbach's  $\alpha = .81$ ), and unemotional (Cronbach's  $\alpha = .53$ ). The total ICU score demonstrated good internal consistency (Cronbach's  $\alpha = .81$ ). The construct validity of the total score for the ICU, showed significant associations with delinquency, ranging from  $r = .26$  to  $r = .38$  ( $p < .05$ ), and aggression, ranging from  $r = .27$  to  $r = .44$  ( $p < .05$ ). In addition, the total ICU score was negatively correlated with a self-reported empathy ( $r = -.51, p < .001$ ). For the current study, the total ICU score ( $M = 28.44, SD = 8.17$ ) was calculated to

measure callous and unemotional traits and demonstrated adequate internal consistency (Cronbach's  $\alpha = .69$ ).

**Narcissistic Personality Inventory – Children (NPIC; Barry et al., 2003).** The NPIC is a downward age extension of the NPI that has been used in past research with adults (Raskin & Hall, 1979). The NPIC is a 40-item forced-choice self-report inventory measuring narcissism whose items are derived directly from the NPI. Each item consists of a pair of statements, and the respondent must choose which statement is more like him- or herself (e.g., “I am good at getting other people to do what I want” or “I am not good at getting other people to do what I want”). Additional response points (i.e., asking if the chosen statement is *sort of true* or *really true*) were added for the youth measure. The NPI was developed primarily for use in nonclinical populations of adults (Raskin & Hall, 1979), and its construct validity has been supported in numerous previous studies (e.g., Emmons, 1984; Raskin & Terry, 1988; Watson & Biderman, 1993). Previous studies have supported the notion that the NPIC consists of items that assess both adaptive and maladaptive narcissism (Barry et al., 2003; Barry, Frick, Adler, & Grafeman, 2007), analogous to the way in which adaptive and maladaptive narcissism have been conceptualized among adults (Emmons, 1984; Raskin & Terry, 1988).

Research has supported the reliability and validity of the NPIC, and internal consistency has been shown to be good for the overall scale, ranging from .82 to .87 (Barry et al., 2009; Barry & Wallace, 2010; Lau et al., 2011) with narcissism, particularly, maladaptive narcissism being associated with youth conduct problems (Barry et al., 2003). For the purposes of this study, the total NPIC score ( $M = 61.67$ ,  $SD = 11.05$ ) calculated and showed acceptable internal consistency (Cronbach's  $\alpha = .71$ ).

**Borderline Personality Features Scale for Children (BPFS-C; Crick et al., 2005).** The BPFS-C is the only dimensional self-report questionnaire to date that measures borderline personality features in children aged 9 years and older. The BPFS-C was modified from the borderline personality disorder scale of the PAI (Morey, 1991), a reliable and valid measure that assesses borderline personality features in adults. Consisting of 24 items, children rate on a 5-point Likert scale how often each item described was true of them, with responses ranging from 1 (*not at all true*) to 5 (*always true*). In addition to providing a total score, the BPFS-C also consists of four subscales (6-items each) that are frequently identified as being important facets of borderline personality disorder, namely self-harm (SH; “I get into trouble because I do things without thinking”), affective instability (AI; “My feelings are very strong. For instance, when I get mad, I get really, really mad. When I get happy, I get really, really happy”), negative relationships (NR; “I’ve picked friends who have treated me badly”), and identity problems (IP; “I feel that there is something important missing about me, but I don’t know what it is”). A study on adolescent inpatients (Chang, Sharp, & Ha, 2011) found the BPFS-C to have high accuracy in discriminating adolescents diagnosed with borderline personality disorder as measured the by the Child Interview for DSM-IV Borderline Personality Disorder. Cronbach’s alphas for the total score of the BPFS-C have been reported to be above .76 (Chang et al., 2011; Crick et al., 2005). Cronbach’s alphas for the subscales have also been found to be moderate to good (SH = .86, AI = .72, NR = .65, and IP = .72) (Chang et al., 2011). For the current study, the total BPFS-C scale was calculated and showed good internal consistency (Cronbach’s alpha = .83). Item-Total Statistics indicated that if three items were removed (i.e., “I feel pretty much the same way all the time. My feelings don’t change very often”, “I take good care of things that are mine”, “Once someone is my friend, we stay friends”), the reliability of

the measure would be improved. For the purpose of the study, the BPFS-C scale was recalculated with the 3 items removed ( $M = 33.05$ ,  $SD = 15.71$ ) and showed good internal consistency (Cronbach's  $\alpha = .89$ ).

**Personality Diagnostic Questionnaire – 4th Edition (PDQ-4; Hyler, 1994).** The PDQ-4 is a 99-item self-report true/false questionnaire that assesses for the ten personality disorders of the DSM – IV (APA, 1994). The measure is suggested to be the self-report measure most directly related to DSM-IV criteria (Widiger & Coker, 2002). For the purposes of this study, the narcissistic (9-items; “I have accomplished far more than others give me credit for”, “I expect other people to do favors for me even though I do not usually do favors for them”), antisocial, including conduct-disorder (22-items; “I don’t care if others get hurt so long as I get what I want”, “I do a lot of things without considering the consequences”), and borderline (14-items; “I either love someone or hate them, with nothing in between”, “I have difficulty controlling my anger, or temper”) personality subscales were used in this study to assess the validity of the other measures of childhood personality, such as the BPFS-C (Crick et al., 2005) that was recently developed. The PDQ scales will not be used for any other analyses.

Previous versions of the PDQ have produced high sensitivity but moderate specificity in adult samples (Trull & Larson, 1994; Zimmerman & Coryell, 1990). In a sample of at-risk urban adolescents (Daley, Rizzo, & Gunderson, 2006), the PDQ-4 total score for the Cluster B personality disorders (antisocial, borderline, narcissism, and histrionic) produced acceptable Cronbach's alphas of .76 and .79 at two separate time points. Gardner and Qualter (2009) examined the reliability and validity of three screening measures of borderline personality disorder in a community sample of adults (18 – 79 years). Gardner and Qualter found the PDQ-4 borderline scale (Cronbach's  $\alpha = .81$ ), showed a one-factor structure under principal factor

analysis, and were correlated highly with the Mclean Screening Instrument for BPD ( $r = .84, p < .001$ ) (MSI-BPD; Zanarini et al., 2003) and the Personality Assessment Inventory-Borderline Scale ( $r = .86, p < .001$ ) (PAI-BOR; Morey, 1991). Furthermore, the PDQ-4 was positively correlated with substance abuse ( $r = .43, p < .001$ ) and eating disorder ( $r = .41, p < .001$ ). Gardner and Qualter also found the PDQ-4 to show incremental validity in predicting unique variance in substance abuse ( $\beta = .22, p < .05$ ), beyond the effects of the PAI-BOR and MSI-BPD scales. In the current study, the antisocial (Cronbach's alpha = .82), borderline (Cronbach's alpha = .70), and narcissistic (Cronbach's alpha = .52) scales showed poor to good internal consistencies.

**Abbreviated Dysregulation Inventory (ADI; Mezzich et al., 2001).** The ADI is a 30-item self-report questionnaire used to measure dysregulation in adolescents. The ADI is a shortened version of the original Dysregulation Inventory (DI; Mezzich et al., 2001) and was created using item response theory to include only those items with the highest discriminant coefficients (A. C. Mezzich, personal communication, July 19, 2004). Both the full DI (Mezzich et al., 2001) and the ADI (Pardini et al., 2003) have shown significant correlations with established measures of emotional and behavioral distress in adolescent boys and girls. The ADI is designed to assess 3 aspects of dysregulation (emotional/affective, behavioral, and cognitive). Each aspect of dysregulation is assessed using 10 items each. The emotional/affective dysregulation (ED) subscale measures poorly regulated emotional behavior (e.g., "I have trouble controlling my temper"). The behavioral dysregulation (BD) subscale measures behavioral impulsivity, hyperactivity, aggressivity, and sensation-seeking. The cognitive dysregulation (CD) subscale measures thinking and planning behavior, goal-directedness, task persistence, and the ability to learn from mistakes. Each item on the ADI is rated on a 4-point scale from 0 (never

true) to 3 (always true). Further, the ED subscale of the ADI has been shown to be uniquely associated with reactive aggression in detained adolescent girls while controlling for levels of proactive aggression (Marsee & Frick, 2007). The ED (Cronbach's  $\alpha = .88$ ), and BD (Cronbach's  $\alpha = .80$ ) subscales of the ADI have shown good internal consistency in past research (Marsee, 2008; Mezzich et al., 1997; Pardini et al., 2003). The CD (Cronbach's  $\alpha = .84$ ) subscale of the original DI has also shown good internal consistency (Mezzich et al., 2001). For the purposes of the study, the three ADI subscales to measure emotional ( $M = 13.50$ ,  $SD = 6.99$ , Cronbach's  $\alpha = .85$ ), behavioral ( $M = 13.65$ ,  $SD = 6.90$ , Cronbach's  $\alpha = .86$ ), and cognitive ( $M = 12.43$ ,  $SD = 6.01$ , Cronbach's  $\alpha = .81$ ) dysregulation were calculated and demonstrated good internal consistencies.

**Peer Conflict Scale (PCS; Marsee et al., 2011).** The PCS is a 40-item self-report measure designed to measure aggression. Twenty of the items are designed to assess reactive and proactive forms of overt aggression (reactive overt: "If others make me mad, I hurt them"; proactive overt "I threaten others to get what I want"). The other 20 items are designed to assess the reactive and proactive forms of relational aggression (reactive relational: "If others make me mad, I tell their secrets"; proactive relational: "I gossip about others to become popular"). The items of the PCS are rated on a 4-point scale (0 = *not at all true*, 1 = *somewhat true*, 2 = *very true*, and 3 = *definitely true*) and scores are calculated by summing the items to create either total reactive, total proactive, total overt, or total relational scales (range 0 – 60) or the four subscales (range = 0 – 30). In a study using a community sample of youth (9<sup>th</sup> to 12<sup>th</sup> grade; Marsee, 2008) good internal consistencies were reported for the total proactive and reactive subscales (Cronbach's alphas: proactive = .86; total reactive = .87). In a sample of at-risk adolescents (aged 16 to 18; Barry, Grafeman, et al., 2007) and detained girls (aged 12 to 18 years; Marsee &

Frick, 2007), good internal consistencies were reported for the total overt and relational subscales of the PCS (Cronbach's alphas: overt = .90 - .93; relational = .86 - .87). In addition, the PCS has demonstrated good internal consistency for the four subtypes of aggression (Cronbach's alphas: reactive overt .85 - .87; proactive overt = .82 - .84; reactive relational = .80 - .83; proactive relational = .74 - .76) in studies of detained girls (Marsee & Frick, 2007) and a community sample of youth (aged 6 to 17 years; Marsee, Weems, & Taylor, 2008).

Recent research has also shown that the overt and relational scales of the PCS are associated with CU traits, narcissism, anxiety, and delinquency in adolescents (Barry et al., 2009; Barry, Grafeman et al., 2007; Lau & Marsee, 2013; Lau et al., 2011). For the purposes of the proposed study, the total overt aggression ( $M = 13.43$ ,  $SD = 9.08$ ) and relational aggression ( $M = 5.11$ ,  $SD = 5.52$ ) scales were calculated and demonstrated good and adequate internal consistency (Cronbach's alphas: total overt = .87; total relational = .77).

**Self-Report of Delinquency Scale (SRD; Elliot, Huizinga, & Ageton, 1985).** The SRD is a 46-item structured interview that assesses delinquent behavior (e.g., destroying property, stealing, carrying weapons, selling drugs, hitchhiking, physical fighting, rape, alcohol and drug use) that was committed by the youth in the past 12 months. For each of 36 delinquent acts the youth is asked (a) whether or not he or she has ever engaged in the stated problem behavior, (b) the number of times he or she has engaged in the behavior, (c) the age at which he or she first engaged in the behavior, and (d) whether or not he or she has friends who have engaged in the behavior. The remaining 10 items assess the arrest history of all members of the youth's immediate family (including aunts, uncles, and grandparents). Total delinquency scores were created by summing the number of delinquent acts, with a possible range of 0 to 36. Krueger et al. (1994) found scores on the SRD to demonstrate good internal consistency

(Cronbach's alpha = .88 for boys and .82 for girls). They also reported significant correlations between the SRD and informant report of delinquency (i.e., friends or family who reported on youth's delinquent behavior during the past 12 months) ( $r = .48, p < .01$ ), police contacts ( $r = .42, p < .01$ ), and court convictions ( $r = .36, p < .01$ ). For the purposes of this study, the total SRD score (i.e., the sum of yes ratings for part a) to assess delinquency was calculated and showed good internal consistency ( $M = 11.53, SD = 6.53$ , Cronbach's alpha = .85).

**Table 1***Means, standard deviations, and internal consistency of main study variables*

<b>Variable</b>	<b><i>M</i> (<i>SD</i>)</b>	<b>Min-max</b>	<b>Skewness</b>	<b>Kurtosis</b>	<b>Alpha</b>
<b>Big Five Personality</b>					
Extraversion	11.48 (4.03)	0-20	-.492	.184	.64
Agreeableness	11.45 (4.60)	0-20	-.426	-.026	.75
Conscientiousness	12.79 (4.48)	0-20	-.680	.300	.76
Neuroticism	9.05 (4.39)	0-16	-.332	-.715	.68
Openness to Experience	19.49 (7.01)	0-31	-.439	-.157	.81
<b>Pathological Personality</b>					
Callous-Unemotional Traits	28.44 (8.17)	7-52	.428	.664	.69
Narcissistic Traits	61.67 (11.05)	36-88	.105	-.191	.71
Borderline Traits	33.05 (15.71)	1-78	.076	-.149	.89
<b>Psychological Dysregulation</b>					
Behavioral Dysregulation	13.65 (6.90)	0-30	.269	-.273	.86
Emotional Dysregulation	13.50 (6.99)	0-30	.117	-.470	.85
Cognitive Dysregulation	12.43 (6.02)	0-30	.408	.133	.81
<b>Aggression</b>					
Overt Aggression	13.43 (9.08)	0-38	.680	-.060	.87
Relational Aggression	5.11 (5.52)	0-32.63	2.195	6.338	.77
<b>Delinquency</b>	11.53 (6.53)	1-29	.565	-.578	.85

*Note.* Standard Error of Skewness = .220, Standard Error of Kurtosis = .437

## Plan for Analyses

Personality is composed of cognitions, emotions, and behaviors. The Big Five personality traits are considered to be one model for which we can conceptualize personality, and an individual's unique profile on the Big Five personality traits gives us insight into their patterns of cognitions, emotions, and behaviors. The psychological dysregulation approach is another way to conceptualize personality functioning, and it is explicitly measuring an individual's behavioral, emotional, and cognitive regulatory abilities. These are tightly interwoven processes, and together they give rise to an individual's personality. When considering hypotheses that pertain to the Big Five personality traits or the psychological dysregulation approach, analyses will treat them as complete models, therefore Big Five personality traits includes extraversion, agreeableness, neuroticism, conscientiousness, and openness to experience together, and psychological dysregulation includes behavioral dysregulation, emotional dysregulation, and cognitive dysregulation together. For hypotheses regarding the independent contributions of each personality model to overt aggression, relational aggression, and delinquency, hierarchical regression analyses will be used. For example, to test whether the Big Five personality traits together account for significant variance in overt aggression, demographic variables (e.g., age, ethnicity) will be entered into the first step if they are significantly correlated with any of the predictor variables. In the second step, all of the Big Five personality traits will be entered simultaneously, and overt aggression will be entered as the dependent variable.

When testing the incremental contribution of the Big Five personality traits approach or the psychological dysregulation approach over and above each other in the prediction of overt aggression, relational aggression, and delinquency, hierarchical regression analyses will be used. For example, to test for the incremental contribution of the psychological dysregulation variables

beyond the Big Five personality traits in the prediction of overt aggression, demographic variables will be entered into the first step if there are any significantly correlated with any of the predictor variables. In the second step, all of the Big Five personality traits will be entered. In the third step, all of the psychological dysregulation variables will be entered. Lastly, overt aggression is entered as the dependent variable.

In contrast to the first two approaches, the pathological personality traits approach focuses on specific pathological personalities, in particular, CU traits, narcissistic traits, and borderline traits. Each of the pathological personalities are considered to be separate constructs composed of unique patterns of cognitions, emotions, and behaviors. Therefore, when examining the pathological personality traits approach against the other two approaches, each of the pathological personalities will be tested separately against the other two approaches. However, when examining the contribution of the pathological personality traits approach to overt aggression, relational aggression, and delinquency on its own, CU traits, narcissistic traits, and borderline traits will be examined together so that we may investigate their independent contributions to the outcome variables, while controlling for their shared variance. The rationale is due to previous research (e.g., Becker et al., 2000; Bradley et al., 2005) that has showed CU traits, narcissistic traits and borderline traits to co-occur frequently due to shared characteristics, whether due to underlying emotions or cognitions or outward behaviors. This is especially true for boys high in borderline traits as they can present behaviorally very similarly to those high in antisocial personality traits (Bradley et al., 2005). To test for their unique contributions to aggression and delinquency, hierarchical regression analyses will be conducted where demographic variables correlated with any of the predictor variables are entered into the first step, CU traits are entered into the second step, narcissistic traits are entered into the third step,

and borderline traits are entered into the last step. Overt aggression, relational aggression, and delinquency are entered as the dependent variables. When investigating whether the pathological personality traits approach accounts for variance beyond another personality approach, CU traits, narcissistic traits, and borderline traits will be entered into separate hierarchical regression analyses against the competing personality approach. For example, one regression will have demographics in the first step, Big Five personality traits in the second step, and CU traits in the last step. In another regression, demographics are in the first step, Big Five personality traits are in the second step, and narcissistic traits are in the last step.

## Results

Prior to analyses, CU traits, narcissistic traits, borderline traits, the Big Five personality traits, behavioral dysregulation, emotional dysregulation, cognitive dysregulation, overt aggression, relational aggression, delinquency, and the PDQ-4 personality scales were examined through various SPSS programs for accuracy of data entry, and fit between their distributions and the assumptions of multivariate analysis. The variables were examined for 132 participants. Graduate and undergraduate assistants identified seven participants during data collection responding inconsistently, acquiescing in their responses (e.g., saying yes to all questions or saying no to all questions), or randomly answering questions and not paying attention. Even after prompting and reminding the participants to answer as ‘honestly as possible’, and to listen carefully to each question, the participants continued to respond inconsistently. These participants were deleted from the dataset, leaving 125 participants in the sample. Three participants were missing greater than 20% of their data on the main study variables and were deleted from the dataset, leaving 122 participants in the sample.

Frequencies, histograms, and descriptive analyses of the variables revealed significant negative skew for extraversion, conscientiousness, and openness to experience (openness). Positive skew was revealed for CU traits, overt aggression, and delinquency. Significant positive skew and kurtosis was found for relational aggression. Extreme univariate outliers ( $\pm 3$  SDs) were also identified in CU traits and narcissistic traits. Two cases were univariate outliers because of their high scores on CU traits; setting these cases to the next highest value plus one in their distribution reduced the scores for these two cases. One case was a univariate outlier because of his extremely high score on narcissistic traits; setting this case to the next highest value plus one in his distribution reduced the score for this case (Field, 2005). This decision was

made because analyses comparing the removal and retention of the univariate outliers did not result in any changes in significance to non-significance and vice versa. However, removal of the univariate outliers resulted in lowered Cronbach's alphas for the ICU and NPIC. With the modification of scores on CU traits, skew was no longer significant.

To improve pairwise linearity and to reduce moderate skew, square root transformations with reflection were performed on extraversion, conscientiousness, neuroticism, and openness. All variables were significantly improved, however, because no non-significant associations became significant, and no significant associations became non-significant, the original non-transformed variables were used for analyses in the present study. The significant positive skew shown by overt aggression and relational aggression are expected, as this is the distribution commonly seen across previous studies, and it is reasonable to assume that a larger proportion of the population only engages in a few acts of aggression, and a significantly smaller proportion of the population engages in frequent acts of aggression. To check for multivariate outliers, Mahalanobis distance with  $p < .001$  was used. One case was identified as a multivariate outlier. This multivariate outlier was identified through a standard regression to be significantly predicted by agreeableness, openness, CU traits, narcissistic traits, and cognitive dysregulation. It was decided to delete this multivariate outlier from the sample, leaving 121 participants for the final sample.

Analyses were conducted to examine the validity of the pathological personality traits scales, namely the ICU (CU traits), NPIC (narcissism), and the BPFS-C (borderline) with the PDQ-4. The summed score for PDQ-4 antisocial scale was significantly positively correlated with the ICU ( $r = .267, p < .001$ ), NPIC ( $r = .189, p < .05$ ), and BPFS-C ( $r = .495, p < .001$ ). The summed score for PDQ-4 borderline scale was significantly positively correlated with the BPFS-

C ( $r = .637, p < .001$ ), but not with the ICU ( $r = .146, p = .110$ ) or NPIC ( $r = -.043, p = .637$ ).

The summed score for PDQ-4 narcissistic scale was significantly positively correlated with the BPFS-C ( $r = .480, p < .001$ ), but not with the ICU ( $r = .095, p = .301$ ) or the NPIC ( $r = .02, p = .318$ ). Using the PDQ-4 diagnostic criteria to determine the presence or absence of a personality disorder (present coded 1, absent coded 0), antisocial personality disorder diagnosis was significantly positively correlated with the ICU ( $r = .196, p < .05$ ), NPIC ( $r = .193, p < .05$ ), and BPFS-C ( $r = .312, p < .001$ ). Borderline personality disorder diagnosis was significantly positively correlated with BPFS-C ( $r = .369, p < .001$ ), but not with the ICU ( $r = .090, p = .326$ ), or NPIC ( $r = -.078, p = .398$ ). Narcissistic personality disorder diagnosis was significantly positively correlated with the BPFS-C ( $r = .409, p < .001$ ), but not with the ICU ( $r = .122, p = .182$ ), or NPIC ( $r = .075, p = .413$ ). According to these results, the ICU and BPFS-C do show some concurrent validity, whereas the NPIC may be problematic because it was not correlated with the PDQ-4 narcissistic scale. However, the narcissistic scale of the PDQ-4 did have unacceptable Cronbach's alpha (.52).

## Initial Analyses

Table 2 reports the correlations for the demographics and main study variables ( $N = 121$ ). Correlation analyses revealed that age was significantly positively correlated with extraversion ( $r = .20, p < .05$ ), and negatively correlated with CU traits ( $r = -.23, p < .01$ ), suggesting that older youths showed higher levels of extraversion and lower levels of CU traits. Ethnicity was significantly positively correlated with cognitive dysregulation ( $r = .18, p < .05$ ). A  $t$ -test showed that African Americans ( $M = 11.96, SD = 5.91$ ) scored significantly lower than the Other group ( $M = 14.95, SD = 6.15$ ) on cognitive dysregulation ( $t(119) = -2.01, p < .05$ ).

Hypothesis 1 states that the Big Five personality traits, the pathological personality traits, and the psychological dysregulation variables will moderately correlate with each other. To test this hypothesis, zero-order correlations were calculated and are provided in Table 2. As shown in Table 2, CU traits were correlated with low agreeableness, and high behavioral dysregulation, emotional dysregulation and cognitive dysregulation. Borderline traits were correlated with high extraversion, agreeableness, neuroticism, openness, behavioral dysregulation, and emotional dysregulation. Narcissistic traits were not significantly correlated with any of the Big Five personality traits or psychological dysregulation variables; however, narcissistic traits approached significance with high extraversion. Behavioral dysregulation was correlated with high extraversion, neuroticism, and openness. Emotional dysregulation was correlated with high extraversion, neuroticism, and openness. Cognitive dysregulation was correlated low extraversion, agreeableness, conscientiousness, and openness.

Hypothesis 2 states that the Big Five personality traits, with the exception of openness, will significantly correlate with overt aggression, relational aggression, and delinquency. In order to test this hypothesis, zero-order correlations were calculated and are reported in Table 2. These analyses indicated that delinquency was significantly positively correlated with extraversion ( $r = .20, p < .05$ ), and neuroticism ( $r = .24, p < .01$ ). Relational aggression was significantly negatively correlated with openness ( $r = -.20, p < .05$ ).

Hypothesis 3 states that CU traits, narcissistic traits, and borderline traits will significantly correlate with overt aggression, relational aggression, and delinquency. In order to test this hypothesis, zero-order correlations were calculated and are reported in Table 2. These analyses indicated that CU traits were significantly positively correlated with overt aggression ( $r = .25, p < .01$ ), and relational aggression ( $r = .18, p < .05$ ), but were not correlated with

delinquency ( $r = .10, p = .265$ ). Narcissistic traits were significantly positively correlated with overt aggression ( $r = .18, p < .05$ ), but were not correlated with relational aggression ( $r = .15, p = .107$ ), or delinquency ( $r = .04, p = .704$ ). Borderline traits were significantly positively correlated with overt aggression ( $r = .35, p < .001$ ), relational aggression ( $r = .21, p < .05$ ), and delinquency ( $r = .34, p < .001$ ).

Hypothesis 4 states that behavioral dysregulation, emotional dysregulation, and cognitive dysregulation will significantly correlate with overt aggression, relational aggression, and delinquency. In order to test this hypothesis, zero-order correlations were calculated and are reported in Table 2. These analyses indicated that behavioral dysregulation was significantly positively correlated with overt aggression ( $r = .35, p < .001$ ), relational aggression ( $r = .25, p < .01$ ), and delinquency ( $r = .24, p < .01$ ). Emotional dysregulation was significantly positively correlated with overt aggression ( $r = .40, p < .001$ ), relational aggression ( $r = .25, p < .01$ ), and delinquency ( $r = .34, p < .001$ ). Cognitive dysregulation was not significantly correlated with overt aggression ( $r = -.11, p = .251$ ), relational aggression ( $r = .10, p = .266$ ) or delinquency ( $r = .10, p = .301$ ).

**Table 2***Correlations for demographics and main study variables*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
<b>1. E</b>	(.64)														
<b>2. A</b>	<b>.61***</b>	(.75)													
<b>3. C</b>	<b>.53***</b>	<b>.69***</b>	(.76)												
<b>4. N</b>	<b>.39***</b>	<b>.43***</b>	<b>.32***</b>	(.68)											
<b>5. O</b>	<b>.71***</b>	<b>.60***</b>	<b>.57***</b>	<b>.49***</b>	(.81)										
<b>6. CU</b>	-.10	<b>-.25**</b>	-.07	.05	-.12	(.69)									
<b>7. NARC</b>	.17 <sup>†</sup>	-.09	.05	-.13	.05	.13	(.71)								
<b>8. BPD</b>	<b>.32***</b>	<b>.19*</b>	.06	<b>.61***</b>	<b>.29***</b>	<b>.23**</b>	-.01	(.89)							
<b>9. BD</b>	<b>.26**</b>	.02	-.05	<b>.31***</b>	<b>.19*</b>	<b>.27**</b>	.12	<b>.57***</b>	(.86)						
<b>10. ED</b>	<b>.23**</b>	.12	.11	<b>.49***</b>	<b>.26**</b>	<b>.24**</b>	.11	<b>.68***</b>	<b>.76***</b>	(.85)					
<b>11. CD</b>	<b>-.27**</b>	<b>-.39***</b>	<b>-.49***</b>	-.07	<b>-.36***</b>	<b>.19*</b>	-.17	-.10	-.07	<b>-.22*</b>	(.81)				
<b>12. OVT</b>	.02	-.02	.06	.16	-.03	<b>.25**</b>	<b>.18*</b>	<b>.35***</b>	<b>.35***</b>	<b>.40***</b>	-.11	(.87)			
<b>13. REL</b>	-.07	-.14	-.12	.06	<b>-.20*</b>	<b>.18*</b>	.15	<b>.21*</b>	<b>.25**</b>	<b>.25**</b>	.10	<b>.54***</b>	(.77)		
<b>14. DEL</b>	<b>.18*</b>	.06	.06	<b>.24**</b>	.16	.10	.04	<b>.34***</b>	<b>.24**</b>	<b>.34***</b>	.10	<b>.24**</b>	.09	(.85)	
<b>15. Age</b>	<b>.20*</b>	.12	.04	.02	.11	<b>-.23**</b>	.17 <sup>†</sup>	-.07	-.06	-.13	-.01	-.06	-.08	.08	
<b>16. Ethnicity</b>	.03	.02	-.13	.02	-.12	-.10	-.10	-.03	-.11	-.13	<b>.18*</b>	-.12	-.07	.02	.06

*Note.* E = Extraversion; A = Agreeableness; C = Conscientiousness; N = Neuroticism; O = Openness to Experience; CU = Callous and Unemotional Traits; NARC = Narcissistic Traits; BPD = Borderline Traits; BD = Behavioral Dysregulation; ED = Emotional Dysregulation; CD = Cognitive Dysregulation; OVT = Overt Aggression; REL = Relational Aggression; DEL = Delinquency. Ethnicity coded as 0 = African American, 1 = Other. Numbers in parentheses are Cronbach's alphas for the measures.  $N = 121$ .

<sup>†</sup>  $p < .06$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  two-tailed.

## Regression Analyses Testing the Personality Models Individually

Hypothesis 5a states that the Big Five personality traits will account for significant variance in the prediction of overt aggression, relational aggression, and delinquency. In order to test this hypothesis, three separate hierarchical regression analyses were conducted where the Big Five personality traits were entered as the predictors, and overt aggression (Model 1), relational aggression (Model 2), and delinquency (Model 3) were entered as the criterion variables (see Table 3). Age was entered into the regressions at the first step due to correlations with the variables of interest. Due to the large correlations between the predictor variables, possible multicollinearity among the variables was examined for all regression analyses in the study by calculating variance inflation factor (VIF) and tolerance values. Multicollinearity is a problem when variables are correlated highly ( $r > .90$ ) (Tabachnick & Fidell, 2007). Tolerance represents the proportion of variability in an independent variable not explained by other independent variables, whereas VIF indicates whether the proportion of variability in an independent variable has been exaggerated due to multicollinearity (Allison, 1999). For the purpose of the study, testing the prediction of the personality models and the value of  $R^2$  in association with aggression and delinquency, less conservative criteria were adopted, such that tolerance values less than .10, and VIF values greater than 10 would indicate serious problems with multicollinearity (Cohen, Cohen, West, & Aiken, 2003). The collinearity statistics did not indicate problematic levels of multicollinearity, as all VIFs were less than 10 and all tolerance values were greater than .10.

Contrary to hypotheses, the Big Five personality traits together did not account for significant variance in overt aggression ( $R^2 = .062$ ,  $p = .279$ ), relational aggression ( $R^2 = .093$ ,  $p = .077$ ), or delinquency ( $R^2 = .093$ ,  $p = .123$ ). Although the Big Five personality traits together

did not account for significant variance in the outcome variables, it is interesting to note that neuroticism was positively associated with overt aggression ( $\beta = .24, p < .05$ ), relational aggression ( $\beta = .22, p < .05$ ), and delinquency ( $\beta = .24, p < .05$ ), and openness was negatively associated with relational aggression ( $\beta = -.35, p < .05$ ), all controlling for the other Big Five variables (see Table 3).

**Table 3***Hierarchical Regression Analyses for the Big Five Personality Traits in the Prediction of Aggression and Delinquency*

<b>Model 1</b>	<b>Total <math>R^2</math></b>	<b>Criterion Overt Aggression</b>	<b><math>\beta</math></b>	<b><math>t</math></b>	<b><math>p</math></b>
<b>Step 1</b>		Age	-.045	-.487	.627
<b>Step 2</b>		Extraversion	.105	.753	.453
		Agreeableness	-.162	-1.153	.251
		Conscientiousness	.168	1.290	.200
		Neuroticism	.239	2.253	.026
		Openness to Experience	-.218	-1.526	.130
	.062				
<b>Model 2</b>		<b>Criterion Relational Aggression</b>			
<b>Step 1</b>		Age	-.071	-.778	.438
<b>Step 2</b>		Extraversion	.189	1.384	.169
		Agreeableness	-.144	-1.044	.299
		Conscientiousness	.007	.054	.957
		Neuroticism	.218	2.090	.039
		Openness to Experience	-.346	-2.458	.015
	.093				
<b>Model 3</b>		<b>Criterion Delinquency</b>			
<b>Step 1</b>		Age	.055	.600	.550
<b>Step 2</b>		Extraversion	.155	1.129	.261
		Agreeableness	-.145	-1.042	.300
		Conscientiousness	-.012	-.089	.929
		Neuroticism	.239	2.273	.025
		Openness to Experience	.019	.132	.895
	.083				

*Note.*  $N = 121$ .

Hypothesis 5b states that behavioral dysregulation, emotional dysregulation, and cognitive dysregulation together will account for significant variance in the prediction of overt aggression, relational aggression, and delinquency. In order to test this hypothesis, three separate hierarchical regression analyses were conducted where ethnicity was entered in the first step due to correlations with the variables of interest, behavioral dysregulation, emotional dysregulation, and cognitive dysregulation were entered in the second step, and overt aggression (Model 1), relational aggression (Model 2), and delinquency (Model 3) were entered as the criterion variables (see Table 4).

Consistent with hypotheses, behavioral dysregulation, emotional dysregulation, and cognitive dysregulation together accounted for significant variance in overt aggression ( $R^2 = .170, p < .001$ ), relational aggression ( $R^2 = .097, p < .05$ ), and delinquency ( $R^2 = .153, p < .001$ ) (Table 4). Again, interesting to note, but not the main focus of the study, regression analyses revealed that independent of emotional dysregulation and cognitive dysregulation, behavioral dysregulation was not associated with overt aggression ( $\beta = .114, p = .388$ ), relational aggression ( $\beta = .116, p = .398$ ), or delinquency ( $\beta = -.084, p = .530$ ). Independent of behavioral dysregulation and cognitive dysregulation, emotional dysregulation was associated with overt aggression ( $\beta = .299, p < .05$ ) and delinquency ( $\beta = .451, p < .001$ ), but not relational aggression ( $\beta = .189, p = .180$ ). Lastly, after controlling for behavioral dysregulation and emotional dysregulation, cognitive dysregulation was associated with delinquency ( $\beta = .180, p < .05$ ), but not overt aggression ( $\beta = -.019, p = .831$ ) or relational aggression ( $\beta = .162, p = .083$ ) (see Table 4).

**Table 4***Hierarchical Regression Analyses for Psychological Dysregulation in the Prediction of Aggression and Delinquency*

<b>Model 1</b>	<b>Total <math>R^2</math></b>	<b>Criterion Overt Aggression</b>	<b><math>\beta</math></b>	<b><math>t</math></b>	<b><math>p</math></b>
<b>Step 1</b>		Ethnicity	-.070	-.814	.417
<b>Step 2</b>		Behavioral Dysregulation	.114	.866	.388
		Emotional Dysregulation	.299	2.232	.028
		Cognitive Dysregulation	-.019	-.213	.831
	.170***				
<b>Model 2</b>		<b>Criterion Relational Aggression</b>			
<b>Step 1</b>		Ethnicity	-.060	-.662	.509
<b>Step 2</b>		Behavioral Dysregulation	.116	.848	.398
		Emotional Dysregulation	.189	1.348	.180
		Cognitive Dysregulation	.162	1.750	.083
	.097*				
<b>Model 3</b>		<b>Criterion Delinquency</b>			
<b>Step 1</b>		Ethnicity	.039	.449	.654
<b>Step 2</b>		Behavioral Dysregulation	-.084	-.631	.530
		Emotional Dysregulation	.451	3.327	.001
		Cognitive Dysregulation	.180	2.007	.047
	.153***				

*Note.* Ethnicity coded as 0 = African American, 1 = Other.  $N = 121$ .\*  $p < .05$ , \*\*\*  $p < .001$  two-tailed.

Hypothesis 5c states that CU traits, narcissistic traits and borderline traits will each independently account for unique variance in the prediction of overt aggression, relational aggression, and delinquency. In order to test this hypothesis, three separate hierarchical regression analyses were conducted. Age was entered in the first step due to correlations with the variables of interest, CU traits, narcissistic traits, and borderline traits were entered as predictors, and overt aggression (Model 1), relational aggression (Model 2), and delinquency (Model 3) were entered as the criterion variables (see Table 5).

Inconsistent with hypotheses, CU traits did not account for unique variance in overt aggression ( $\beta = .143$ ,  $sr = .134$ ,  $p = .114$ ), relational aggression ( $\beta = .102$ ,  $sr = .095$ ,  $p = .069$ ), or delinquency ( $\beta = .047$ ,  $sr = .044$ ,  $p = .613$ ), after controlling for narcissistic and borderline traits (see Table 5). Consistent with hypotheses, narcissistic traits accounted for unique variance in overt aggression ( $\beta = .172$ ,  $sr = .166$ ,  $p < .050$ ). However, contrary to hypotheses, narcissistic traits did not account for unique variance in relational aggression ( $\beta = .148$ ,  $sr = .143$ ,  $p = .111$ ), or delinquency ( $\beta = .012$ ,  $sr = .012$ ,  $p = .892$ ). Lastly, borderline traits accounted for unique variance in overt aggression ( $\beta = .320$ ,  $sr = .311$ ,  $p < .001$ ), relational aggression ( $\beta = .182$ ,  $sr = .177$ ,  $p < .05$ ), and delinquency ( $\beta = .339$ ,  $sr = .329$ ,  $p < .001$ ) controlling for CU and narcissistic traits. As a group, CU traits, narcissistic traits, and borderline traits accounted for significant variance in overt aggression ( $R^2 = .182$ ,  $p < .001$ ), relational aggression ( $R^2 = .084$ ,  $p < .01$ ), and delinquency ( $R^2 = .129$ ,  $p < .01$ ) (Table 5).

**Table 5***Hierarchical Regression Analyses for Pathological Personality Traits in the Prediction of Aggression and Delinquency*

<b>Model 1</b>	<b>Total <math>R^2</math></b>	<b>Criterion Overt Aggression</b>	<b><math>\beta</math></b>	<b><math>t</math></b>	<b><math>p</math></b>	<b><math>sr</math></b>
<b>Step 1</b>		Age	-.031	-.354	.724	-.030
<b>Step 2</b>		Callous-Unemotional Traits	.143	1.592	.114	.134
		Narcissistic Traits	.172	1.980	.050	.166
		Borderline Traits	.320	3.705	.000	.311
	.182***					
<b>Model 2</b>		<b>Criterion Relational Aggression</b>				
<b>Step 1</b>		Age	-.073	-.784	.435	-.070
<b>Step 2</b>		Callous-Unemotional Traits	.102	1.068	.288	.095
		Narcissistic Traits	.148	1.607	.111	.143
		Borderline Traits	.182	1.994	.048	.177
	.084**					
<b>Model 3</b>		<b>Criterion Delinquency</b>				
<b>Step 1</b>		Age	.107	1.170	.244	.101
<b>Step 2</b>		Callous-Unemotional Traits	.047	.507	.613	.044
		Narcissistic Traits	.012	.136	.892	.012
		Borderline Traits	.339	3.802	.000	.329
	.129**					

*Note.*  $N = 121$ .\*\*  $p < .01$ , \*\*\*  $p < .001$  two-tailed.

## Regression Analyses Comparing the Personality Models

**Big Five Personality Traits versus Pathological Personality Traits.** Hypothesis 6a states that the Big Five personality traits will not account for significant variance in overt aggression, relational aggression, and delinquency after controlling for CU traits, narcissistic traits, or borderline traits. Nine separate hierarchical regression analyses were conducted. Age was entered in the first step due to correlations with the variables of interest, CU traits (Model 1), narcissistic traits (Model 2), or borderline traits (Model 3) were entered in the second step, the Big Five personality traits were entered in the third step, and overt aggression, relational aggression, and delinquency were entered as the criterion variables.

As shown in Table 6, consistent with the hypothesis, after controlling for CU traits, the Big Five personality traits together did not account for significant variance in overt aggression ( $\Delta R^2 = .040, p = .421$ ), relational aggression ( $\Delta R^2 = .070, p = .128$ ) or delinquency ( $\Delta R^2 = .070, p = .129$ ). As predicted, after controlling for narcissistic traits, the Big Five personality traits did not account for significant variance in overt aggression ( $\Delta R^2 = .064, p = .159$ ) or delinquency ( $\Delta R^2 = .077, p = .100$ ). Contrary to hypothesis, after controlling for narcissistic traits, the Big Five personality traits accounted for significant variance in relational aggression ( $\Delta R^2 = .089, p < .05$ ). In line with the hypothesis, after controlling for borderline traits, the Big Five personality traits did not account for significant variance in overt aggression ( $\Delta R^2 = .051, p = .234$ ), relational aggression ( $\Delta R^2 = .078, p = .080$ ) or delinquency ( $\Delta R^2 = .010, p = .939$ ).

**Table 6 (table continued)**

*Hierarchical Regression Analyses Comparing the Big Five Personality Traits to the Pathological Personality Traits Approach*

Personality variables	Aggression and Delinquency Variables											
	Overt				Relational				Delinquency			
Model 1	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$
<b>Step 1</b>	.003				.007				.006			
Age		-.001	-.014	.989		-.048	-.514	.608		.076	.801	.425
<b>Step 2</b>	.058**				.028				.015			
Callous-Unemotional Traits		.214	2.203	.030		.112	1.158	.249		.099	1.011	.314
<b>Step 3</b>	.040				.070				.070			
Extraversion		.076	.553	.581		.174	1.270	.207		.142	1.028	.306
Agreeableness		-.069	-.478	.634		-.095	-.662	.509		-.102	-.702	.484
Conscientiousness		.131	1.008	.316		-.013	-.100	.921		-.029	-.223	.824
Neuroticism		.197	1.859	.066		.196	1.852	.067		.219	2.055	.042
Openness to Experience		-.191	-1.348	.180		-.331	-2.348	.021		.032	.222	.825
<b>Total <math>R^2</math></b>	.101				.104				.091			
<b>Model 2</b>												
<b>Step 1</b>	.003				.007				.006			
Age		-.077	-.833	.407		-.097	-1.064	.289		.053	.563	.574
<b>Step 2</b>	.039*				.027				.000			
Narcissistic Traits		.225	2.343	.021		.186	1.958	.053		.018	.187	.852
<b>Step 3</b>	.064				.089*				.077			
Extraversion		.026	.187	.852		.124	.894	.373		.149	1.047	.297
Agreeableness		-.083	-.585	.559		-.079	-.562	.575		-.138	-.964	.337
Conscientiousness		.134	1.036	.302		-.022	-.172	.864		-.014	-.110	.913
Neuroticism		.275	2.609	.010		.248	2.374	.019		.242	2.267	.025
Openness to Experience		-.215	-1.534	.128		-.343	-2.470	.015		.019	.133	.894
<b>Total <math>R^2</math></b>	.106				.123*				.083			

Note.  $N = 121$ .

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  two-tailed.

Table 6 (table continued)

Personality variables					Aggression and Delinquency Variables							
	Overt				Relational				Delinquency			
Model 3	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$
Step 1	.003				.007				.006			
Age		.005	.051	.959		-.044	-.484	.629		.089	.985	.327
Step 2	.123***				.042*				.121***			
Borderline Traits		.449	3.965	.000		.244	2.091	.039		.308	2.649	.009
Step 3	.051				.078				.010			
Extraversion		-.022	-.161	.872		.120	.869	.387		.069	.498	.619
Agreeableness		-.128	-.967	.336		-.126	-.922	.359		-.122	-.896	.372
Conscientiousness		.260	2.076	.040		.056	.438	.662		.051	.397	.692
Neuroticism		-.038	-.313	.755		.068	.538	.592		.049	.391	.697
Openness to Experience		-.201	-1.488	.140		-.336	-2.423	.017		.031	.224	.823
Total $R^2$	.177**				.127*				.137*			

Note.  $N = 121$ .

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  two-tailed.

### **Big Five Personality Traits versus Psychological Dysregulation.** Hypothesis 6b

states that the Big Five personality traits will not account for significant variance in overt aggression, relational aggression, and delinquency after controlling for behavioral dysregulation, emotional dysregulation, and cognitive dysregulation. Three separate hierarchical regression analyses were conducted, where age and ethnicity were entered in the first step, behavioral dysregulation, emotional dysregulation, and cognitive dysregulation were entered in the second step, the Big Five personality traits were entered in the third step, and overt aggression, relational aggression, and delinquency were entered as the criterion variables (see Table 7).

Consistent with hypotheses, after controlling for behavioral dysregulation, emotional dysregulation, and cognitive dysregulation, the Big Five personality traits did not account for significant variance in overt aggression ( $\Delta R^2 = .044, p = .305$ ), relational aggression ( $\Delta R^2 = .064, p = .142$ ), or delinquency ( $\Delta R^2 = .022, p = .711$ ).

**Table 7**

*Hierarchical Regression Analyses Comparing the Big Five Personality Traits to the Psychological Dysregulation Approach*

Personality variables					Aggression and Delinquency Variables							
	Overt				Relational				Delinquency			
Model	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$
Step 1	.018				.011				.006			
Age		.020	.225	.822		-.027	-.301	.764		.105	1.176	.242
Ethnicity		-.075	-.832	.407		-.085	-.916	.362		.035	.382	.703
Step 2	.152***				.088**				.163***			
Behavioral Dysregulation		.160	1.140	.257		.120	.826	.410		-.110	-.772	.442
Emotional Dysregulation		.284	1.881	.030		.190	1.220	.225		.458	2.989	.003
Cognitive Dysregulation		-.044	-.423	.673		.075	.695	.489		.246	2.314	.023
Step 3	.044				.064				.022			
Extraversion		.017	.119	.905		.122	.854	.395		.093	.665	.507
Agreeableness		-.071	-.527	.599		-.061	-.436	.664		-.054	-.394	.694
Conscientiousness		.179	1.355	.178		.050	.366	.715		.079	.586	.559
Neuroticism		.065	.556	.579		.082	.680	.498		.003	.024	.981
Openness to Experience		-.267	-1.947	.024		-.366	-2.586	.011		.060	.434	.665
Total $R^2$	.213**				.164*				.191**			

Note. Ethnicity coded as 0 = African American, 1 = Other.  $N = 121$ .

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  two-tailed.

### **Psychological Dysregulation versus Big Five Personality Traits.** Hypothesis 7a

states that behavioral dysregulation, emotional dysregulation, and cognitive dysregulation together will account for significant variance in overt aggression, relational aggression, and delinquency after controlling for the Big Five personality traits. In order to test this hypothesis, three separate hierarchical regression analyses were conducted. Age and ethnicity were entered in the first step, the Big Five personality traits were entered into the second step, behavioral dysregulation, emotional dysregulation, and cognitive dysregulation were entered into the third step, and overt aggression, relational aggression, and delinquency were entered as the criterion variables (Table 8).

As predicted, behavioral dysregulation, emotional dysregulation, and cognitive dysregulation together accounted for significant variance in overt aggression ( $\Delta R^2 = .132, p < .001$ ), and delinquency ( $\Delta R^2 = .108, p < .01$ ), after controlling for the Big Five personality traits. Contrary to hypotheses, behavioral dysregulation, emotional dysregulation, and cognitive dysregulation together did not account for significant variance in relational aggression ( $\Delta R^2 = .057, p = .064$ ).

### **Psychological Dysregulation versus Pathological Personality Traits.**

Hypothesis 7b states that behavioral dysregulation, emotional dysregulation, and cognitive dysregulation together will account for significant variance in overt aggression, relational aggression, and delinquency after controlling for CU traits, narcissistic traits, or borderline traits. In order to test this hypothesis, nine separate hierarchical regression analyses were conducted. In Model 1, age and ethnicity was entered in the first step, CU traits were entered into the second step, and behavioral dysregulation, emotional dysregulation, and cognitive dysregulation were entered in the third step, with overt aggression, relational aggression, and delinquency entered as

the criterion variables (Table 9). In Models 2 and 3, ethnicity was entered in the first step, narcissistic traits or borderline traits were entered into the second step, behavioral dysregulation, emotional dysregulation, and cognitive dysregulation were entered into the third step, and overt aggression, relational aggression, and delinquency were entered as the criterion variables (see Table 9).

As predicted, behavioral dysregulation, emotional dysregulation, and cognitive dysregulation together accounted for significant variance in overt aggression ( $\Delta R^2 = .122, p < .001$ ), relational aggression ( $\Delta R^2 = .066, p < .05$ ), and delinquency ( $\Delta R^2 = .148, p < .001$ ), after controlling for CU traits. As predicted, behavioral dysregulation, emotional dysregulation, and cognitive dysregulation together accounted for significant variance in overt aggression ( $\Delta R^2 = .142, p < .001$ ), relational aggression ( $\Delta R^2 = .092, p < .01$ ), and delinquency ( $\Delta R^2 = .152, p < .001$ ), after controlling for narcissistic traits. Contrary to hypothesis, behavioral dysregulation, emotional dysregulation, and cognitive dysregulation together did not account for significant variance in overt aggression ( $\Delta R^2 = .044, p = .108$ ), relational aggression ( $\Delta R^2 = .051, p = .095$ ), and delinquency ( $\Delta R^2 = .055, p = .060$ ), after controlling for borderline traits.

**Table 8**

*Hierarchical Regression Analyses Comparing Psychological Dysregulation Approach to the Big Five Personality Traits*

Personality variables					Aggression and Delinquency Variables							
	Overt				Relational				Delinquency			
Model	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$
Step 1	.018				.011				.006			
Age		.020	.225	.822		-.027	-.301	.764		.105	1.176	.242
Ethnicity		-.075	-.832	.407		-.085	-.916	.362		.035	.382	.703
Step 2	.063				.096*				.077			
Extraversion		.017	.119	.905		.122	.854	.395		.093	.665	.507
Agreeableness		-.071	-.527	.599		-.061	-.436	.664		-.054	-.394	.694
Conscientiousness		.179	1.355	.178		.050	.366	.715		.079	.586	.559
Neuroticism		.065	.556	.579		.082	.680	.498		.003	.024	.981
Openness to Experience		-.267	-1.947	.054		-.366	-2.586	.011		.060	.434	.665
Step 3	.132***				.057				.108**			
Behavioral Dysregulation		.160	1.140	.257		.120	.826	.410		-.110	-.772	.442
Emotional Dysregulation		.284	1.881	.063		.190	1.220	.225		.458	2.989	.003
Cognitive Dysregulation		-.044	-.423	.673		.075	.695	.489		.246	2.314	.023
Total $R^2$	.213**				.164*				.191**			

*Note.* Ethnicity coded as 0 = African American, 1 = Other.  $N = 121$ .

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  two-tailed.

Table 9

*Hierarchical Regression Analyses Comparing Psychological Dysregulation to Pathological Personality Traits*

Personality variables					Aggression and Delinquency Variables							
	Overt				Relational				Delinquency			
Model 1	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$
Step 1	.018				.011				.006			
Age		.027	.311	.756		-.035	-.378	.706		.134	1.510	.134
Ethnicity		-.053	-.615	.540		-.050	-.550	.583		.033	.379	.706
Step 2	.054**				.026				.016			
Callous-Unemotional Traits		.171	1.837	.069		.070	.711	.478		.012	.125	.901
Step 3	.122***				.066*				.148***			
Behavioral Dysregulation		.087	.661	.510		.110	.793	.430		-.099	-.743	.459
Emotional Dysregulation		.274	2.030	.045		.169	1.182	.240		.477	3.479	.001
Cognitive Dysregulation		-.062	-.680	.498		.142	1.470	.144		.185	1.989	.049
Total $R^2$	.194***				.103*				.169***			
Model 2												
Step 1	.015				.004				.001			
Ethnicity		-.062	-.718	.474		-.051	-.565	.574		.041	.470	.639
Step 2	.030 <sup>†</sup>				.020				.001			
Narcissistic Traits		.134	1.561	.121		.141	1.574	.118		.033	.371	.711
Step 3	.142***				.092**				.152***			
Behavioral Dysregulation		.098	.747	.457		.099	.728	.468		-.088	-.655	.514
Emotional Dysregulation		.303	2.272	.025		.192	1.382	.170		.452	3.320	.001
Cognitive Dysregulation		.002	.018	.986		.184	1.974	.051		.185	2.033	.044
Total $R^2$	.187***				.116*				.154**			
Model 3												
Step 1	.015				.004				.001			
Ethnicity		-.079	-.915	.362		-.063	-.694	.489		.028	.323	.747
Step 2	.123***				.043*				.118*			
Borderline Traits		.155	1.336	.184		.057	.470	.639		.198	1.695	.093
Step 3	.044				.051				.055 <sup>†</sup>			
Behavioral Dysregulation		.093	.706	.482		.109	.784	.434		-.110	-.830	.408
Emotional Dysregulation		.208	1.384	.169		.155	.981	.329		.334	2.211	.029
Cognitive Dysregulation		-.023	-.257	.798		.161	1.728	.087		.175	1.986	.051
Total $R^2$	.182***				.099*				.173***			

Note. Ethnicity coded as 0 = African American, 1 = Other.  $N = 121$ .

<sup>†</sup>  $p < .06$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  two-tailed.

### **Pathological Personality Traits versus Big Five Personality Traits.** Hypothesis

8a states that CU traits, narcissistic traits, and borderline traits will each account for significant variance in overt aggression, relational aggression, and delinquency after controlling for the Big Five personality traits. Nine separate hierarchical regression analyses were conducted. In Model 1, age was entered in the first step, the Big Five traits were entered in the second step, CU traits were entered in the third step, and overt aggression, relational aggression, and delinquency were entered as the criterion variables (Table 10). In Models 2 and 3, the Big Five personality traits were entered in the first step, narcissistic traits or borderline traits were entered in the second step, and overt aggression, relational aggression, and delinquency were entered as the criterion variables (see Table 10).

As predicted, after controlling for the Big Five personality traits, CU traits accounted for significant variance in overt aggression ( $\Delta R^2 = .039, p < .05$ ). Contrary to hypothesis, after controlling for the Big Five personality traits, CU traits did not account for significant variance in relational aggression ( $\Delta R^2 = .011, p = .249$ ) or delinquency ( $\Delta R^2 = .008, p = .314$ ). Consistent with hypotheses, after controlling for the Big Five personality traits, narcissistic traits accounted for significant variance in overt aggression ( $\Delta R^2 = .043, p < .05$ ) and relational aggression ( $\Delta R^2 = .030, p < .05$ ). Contrary to hypothesis, narcissistic traits did not account for significant variance in delinquency ( $\Delta R^2 = .000, p = .852$ ), after controlling for the Big Five personality traits. As predicted, after controlling for the Big Five personality traits, borderline traits accounted for significant variance in overt aggression ( $\Delta R^2 = .114, p < .001$ ), relational aggression ( $\Delta R^2 = .034, p < .05$ ), and delinquency ( $\Delta R^2 = .054, p < .01$ ).

**Table 10 (table continued)**

*Hierarchical Regression Analyses testing Pathological Personality Traits Approach against the Big Five Personality Traits*

Personality variables					Aggression and Delinquency Variables							
Overt					Relational				Delinquency			
Model 1	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$
<b>Step 1</b>	.003				.007				.006			
Age		-.001	-.014	.989		-.048	-.514	.608		.076	.801	.425
<b>Step 2</b>	.059				.087				.077			
Extraversion		.076	.553	.581		.174	1.270	.207		.142	1.028	.306
Agreeableness		-.069	-.478	.634		-.095	-.662	.509		-.102	-.702	.484
Conscientiousness		.131	1.008	.316		-.013	-.100	.921		-.029	-.223	.824
Neuroticism		.197	1.859	.066		.196	1.852	.067		.219	2.055	.042
Openness to Experience		-.191	-1.348	.180		-.331	-2.348	.021		.032	.222	.825
<b>Step 3</b>	.039*				.011				.008			
Callous-Unemotional Traits		.214	2.203	.030		.112	1.158	.249		.099	1.011	.314
<b>Total <math>R^2</math></b>	.101				.104				.091			
<b>Model 2</b>												
<b>Step 1</b>	.003				.007				.006			
Age		-.077	-.833	.407		-.097	-1.064	.289		.053	.563	.574
<b>Step 2</b>	.059				.087				.077			
Extraversion		.026	.187	.852		.124	.894	.373		.149	1.047	.297
Agreeableness		-.083	-.585	.559		-.079	-.562	.575		-.136	-.964	.337
Conscientiousness		.134	1.036	.302		-.022	-.172	.864		-.014	-.110	.913
Neuroticism		.275	2.609	.010		.248	2.374	.019		.242	2.267	.025
Openness to Experience		-.215	-1.534	.128		-.343	-2.470	.015		.019	.133	.894
<b>Step 3</b>	.043*				.030*				.000			
Narcissistic Traits		.225	2.343	.021		.186	1.958	.053		.018	.187	.852
<b>Total <math>R^2</math></b>	.106				.123*				.083			

Note.  $N = 121$ .

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  two-tailed.

**Table 10 (table continued)**

Personality variables					Aggression and Delinquency Variables							
	Overt				Relational				Delinquency			
Model 3	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$
Step 1	.003				.007				.006			
Age		.005	.051	.959		-.044	-.484	.629		.089	.985	.327
Step 2	.059				.087				.077			
Extraversion		-.022	-.161	.872		.120	.869	.387		.069	.498	.619
Agreeableness		-.128	-.967	.336		-.126	-.922	.359		-.122	-.896	.372
Conscientiousness		.260	2.076	.040		.056	.438	.662		.051	.397	.692
Neuroticism		-.038	-.313	.755		.068	.538	.592		.049	.391	.697
Openness to Experience		-.201	-1.488	.140		-.336	-2.423	.017		.031	.224	.823
Step 3	.114***				.034*				.054**			
Borderline Traits		.449	3.965	.000		.244	2.091	.039		.308	2.649	.009
Total $R^2$	.177**				.127*				.137*			

Note.  $N = 121$ .

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  two-tailed.

### **Pathological Personality Traits versus Psychological Dysregulation.**

Hypothesis 8b states that CU traits, narcissistic traits, and borderline traits will each account for significant variance in overt aggression, relational aggression, and delinquency after controlling for behavioral dysregulation, emotional dysregulation, and cognitive dysregulation. Nine separate hierarchical regression analyses were conducted. In Model 1, age and ethnicity were entered in the first step due to correlations with the variables of interest, behavioral dysregulation, emotional dysregulation, and cognitive dysregulation were entered in the second step, CU traits were entered in the third step, and overt aggression, relational aggression, and delinquency were entered as the criterion variables (Table 11). In Models 2 and 3, ethnicity was entered in the first step due to correlations with the variables of interest, behavioral dysregulation, emotional dysregulation, and cognitive dysregulation were entered in the second step, narcissistic traits or borderline traits were entered in the third step, and overt aggression, relational aggression, and delinquency were entered as the criterion variables (see Table 11).

Inconsistent with hypotheses, CU traits did not account for significant variance in overt aggression ( $\Delta R^2 = .024, p = .069$ ), relational aggression ( $\Delta R^2 = .004, p = .478$ ), or delinquency ( $\Delta R^2 = .000, p = .901$ ) after controlling for behavioral dysregulation, emotional dysregulation, and cognitive dysregulation. Narcissistic traits did not account for significant variance in overt aggression ( $\Delta R^2 = .018, p = .113$ ), relational aggression ( $\Delta R^2 = .022, p = .091$ ), or delinquency ( $\Delta R^2 = .001, p = .711$ ) after controlling for behavioral dysregulation, emotional dysregulation, and cognitive dysregulation. Lastly, borderline traits did not account for significant variance in overt aggression ( $\Delta R^2 = .013, p = .186$ ), relational aggression ( $\Delta R^2 = .002, p = .632$ ), or delinquency ( $\Delta R^2 = .021, p = .093$ ) after controlling for behavioral dysregulation, emotional dysregulation, and cognitive dysregulation.

Table 11

*Hierarchical Regression Analyses Comparing Pathological Personality Traits to Psychological Dysregulation*

Personality variables					Aggression and Delinquency Variables							
	Overt				Relational				Delinquency			
Model 1	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$	$\Delta R^2$	$\beta$	$t$	$p$
Step 1	.018				.011				.006			
Age		.027	.311	.756		-.035	-.378	.706		.134	1.510	.134
Ethnicity		-.053	-.615	.540		-.050	-.550	.583		.033	.379	.706
Step 2	.152***				.088**				.163***			
Behavioral Dysregulation		.087	.661	.510		.110	.793	.430		-.099	-.743	.459
Emotional Dysregulation		.274	2.030	.045		.169	1.182	.240		.477	3.479	.001
Cognitive Dysregulation		-.062	-.680	.498		.142	1.470	.144		.185	1.989	.049
Step 3	.024				.004				.000			
Callous-Unemotional Traits		.171	1.837	.069		.070	.711	.478		.012	.125	.901
Total $R^2$	.194***				.103*				.169***			
Model 2												
Step 1	.015				.004				.001			
Ethnicity		-.062	-.718	.474		-.051	-.565	.574		.041	.470	.639
Step 2	.154***				.092**				.152***			
Behavioral Dysregulation		.098	.747	.457		.099	.728	.468		-.088	-.655	.514
Emotional Dysregulation		.303	2.272	.025		.192	1.382	.170		.452	3.320	.001
Cognitive Dysregulation		.002	.018	.986		.184	1.974	.051		.185	2.033	.044
Step 3	.017				.019				.001			
Narcissistic Traits		.134	1.561	.121		.141	1.574	.118		.033	.371	.711
Total $R^2$	.187***				.116*				.154**			
Model 3												
Step 1	.015				.004				.001			
Ethnicity		-.079	-.915	.362		-.063	-.694	.489		.028	.323	.747
Step 2	.154***				.092**				.152***			
Behavioral Dysregulation		.093	.706	.482		.109	.784	.434		-.110	-.830	.408
Emotional Dysregulation		.208	1.384	.169		.155	.981	.329		.334	2.211	.029
Cognitive Dysregulation		-.023	-.257	.798		.161	1.728	.087		.175	1.968	.051
Step 3	.013				.002				.021			
Borderline Traits		.155	1.336	.184		.057	.470	.639		.198	1.695	.093
Total $R^2$	.182***				.099*				.173***			

Note. Ethnicity coded as 0 = African American, 1 = Other.  $N = 121$ .

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  two-tailed.

## Discussion

The current study sought to examine the utility of three different personality approaches: 1. Social and personality (i.e., Big Five), 2. Pathological personality (i.e., CU, narcissistic, and borderline traits), and 3. Psychological dysregulation (i.e., behavioral, emotional, and cognitive dysregulation) in the prediction of overt aggression, relational aggression, and delinquency in a sample of detained boys.

According to the results of the study, the psychological dysregulation approach emerged as the strongest predictor of aggressive and antisocial behaviors in this sample. Correlation analyses showed that psychological dysregulation was associated with both normal (Big Five) and pathological personality traits. In contrast, the Big Five personality traits, representing the social and personality approach, were primarily associated with normal personality traits, and the pathological personality approach (i.e., CU, narcissistic, borderline) mainly measured maladaptive personality functioning. The exception however, is that borderline traits were positively associated with all Big Five personality traits except for conscientiousness. The association between borderline traits and Big Five traits may be due to the emotional and behavioral dysregulation underlying borderline personality. This suggests that borderline personality may be a measure of dysregulation in general.

In fact, a major conceptualization of borderline personality is that it is a disorder of severe emotional and cognitive dysregulation (e.g., Crowell, Beauchaine, & Linehan, 2009; Salsman & Linehan, 2012). Other research suggests that the impulsive and dysregulated behaviors of individuals high in borderline traits are the result of an ‘emotional cascade’, an intense aggravating cycle of rumination about upsetting situations and negative emotions that are experienced as extremely painful, aversive, and difficult to tolerate (e.g., Selby & Joiner, 2012).

Selby and Joiner state that individuals high in borderline traits engage in harmful impulsive behaviors because these behaviors help to interrupt the ‘emotional cascade’. Consequently, it is not difficult to see that the aggression and delinquency exhibited by those high in borderline traits may largely be due to their difficulties in emotional and behavioral dysregulation. Further, the measure of borderline traits in this study was based on this prevailing conceptualization (Crick et al., 2005).

The notion that psychological dysregulation may underlie the aspects of normal and maladaptive personality most associated with aggression and antisocial behavior is supported by regression analyses in this study. For example, when psychological dysregulation was added into the regression equations, the Big Five personality traits and the pathological personality traits (with the exception of borderline traits) were no longer associated with significant variance in overt aggression, relational aggression, or delinquency. Perhaps then, the structure of personality in youth may best be viewed as a general factor of psychological dysregulation that is composed of lower order factors of cognitive dysregulation, behavioral dysregulation, and emotional dysregulation. Each one of the psychological dysregulation factors in different combinations may give rise to even lower order factors such as those represented by the Big Five personality traits, and each of the pathological personality traits.

One general factor of maladaptive personality functioning, as represented by psychological dysregulation, is akin to the idea of a general *g* factor in intelligence (Spearman, 1904). The *g* factor accounts for the general associations between cognitive abilities, such as processing speed, verbal skills, visuospatial skills, and working memory. In turn people can score differently on these separate cognitive abilities, and poorer performance on one or more of these cognitive abilities may be reflected in a lower overall *g* factor score (e.g., intelligence

quotient). In addition, these cognitive abilities tend to be associated with each other. For example, poor attention and working memory may affect verbal skills by interfering with learning. Similarly, in the ‘emotional cascade’ theory of borderline personality disorder, cognitions are closely related to emotions, which then result in maladaptive dysregulated or impulsive and irresponsible behavior (Selby & Joiner, 2012). For example, a thought or memory can be provoked by a situation and evoke negative emotions within the individual. The negative emotions further feed into the rumination of negative events until the individual acts impulsively and maladaptively to cope with the negative emotions, to their own detriment. At a more basic level, preconscious emotional reactions can affect the way we perceive and interpret situations, as well as influence how we will behave in reaction to an event (e.g., Crick & Dodge, 1996; Mischel & Shoda, 1995).

A general maladaptive personality functioning factor, represented by psychological dysregulation, may help explain the frequent comorbidity found not only in personality disorders, but across other mental disorders (e.g., depression, anxiety, conduct disorder, oppositional defiant disorder) as well (Newman, Moffitt, Caspi, & Silva, 1998). However, like the general *g* factor of intelligence, knowing a person’s overall intelligence score does not tell us exactly where difficulties are occurring because the overall measure is too broad. To this end, when significant difficulties are occurring, we can look at the factors that make up the larger broader psychological dysregulation factor. Therefore, in terms of psychological dysregulation, it may be useful to look at the pattern of the three factors (i.e., emotional, behavioral, and cognitive dysregulation). For example, a youth exhibits severe aggressive and antisocial behaviors and is found to be psychologically dysregulated. But what does it mean to be psychologically dysregulated? That information would tell us that the youth is experiencing problems in either

emotional dysregulation, cognitive dysregulation, or behavioral dysregulation, or it could be a combination of two of the factors, or all three. From a practical standpoint, information is needed to know *how* the youth is emotionally dysregulated (e.g., extremely reactive and easily angered versus lacking emotions), behaviorally dysregulated (e.g., uninhibited, impulsive, reward-seeking), and cognitively dysregulated (e.g., lack of planning, consideration of consequences, attentional biases) in order to identify primary targets for treatment.

However, despite knowing the general deficits in regulatory abilities, it can still be difficult to separate these three processes, and in the current study, the three dysregulation factors showed differing correlations with each other. Results indicate that emotional and behavioral dysregulation are strongly positively correlated, whereas cognitive dysregulation is moderately negatively correlated with emotional dysregulation, and does not show an association with behavioral dysregulation. In terms of outcome variables, behavioral dysregulation and emotional dysregulation both showed positive correlations with relational aggression, overt aggression, and delinquency, whereas cognitive dysregulation did not. The separate and unique contributions of each factor to the outcome variables becomes less clear in regression analyses. Although overall models showed that psychological dysregulation accounted for significant variance in overt aggression, relational aggression, and delinquency, individually, each variable was not likely to account for unique variance. Specifically, in terms of overt aggression, only emotional dysregulation accounted for unique variance. For relational aggression, none of the dysregulation variables accounted for unique variance. For delinquency, emotional dysregulation and cognitive dysregulation each accounted for unique variance. Even after controlling for the Big Five personality traits and pathological personality traits, psychological dysregulation showed similar

patterns, as a whole model accounting for significant variance, but as separate variables, emotional dysregulation was the only variable accounting for unique variance.

However, these results could be due to the nature of the aggression and the nature of the sample. For example, in a large confirmatory factor analyses of the Peer Conflict Scale (Marsee et al., 2011), compared to community and at-risk children and adolescents, detained youth had the highest levels of reactive overt and reactive relational aggression. Furthermore reactive overt aggression or retaliatory aggression tends to be more common than proactive or instrumental aggression (Fite & Colder, 2007; Fite, Raine, Stouthamer-Loeber, Loeber, & Pardini, 2009). The components that comprise psychological dysregulation are also frequently strongly associated with maladaptive behaviors. For instance, problems in behavioral and response inhibition, controlling anger, sadness and anxiety, and attentional difficulties have frequently been associated with conduct problems, aggression, ADHD, and delinquency (e.g., Bailey & Ostrov, 2008; Hinshaw, 2003; Marsee & Frick, 2007; Marsee et al., 2008; Scarpa et al., 2010; Sullivan et al., 2010; White et al., 2013).

Examining the levels of reported aggression in the current study, rates of overt aggression were significantly higher than relational aggression. This may also explain why psychological dysregulation is a better predictor of overt aggression than CU traits in the current study. Specifically, previous research has demonstrated that reactive aggression (overt and relational) is uniquely associated with anxiety, depression, and impulsivity, whereas proactive aggression (overt and relational) is uniquely associated with psychopathic features in children and adolescents (e.g., Barry, Thompson et al., 2007; Card & Little, 2006; Fite et al., 2009; Marsee & Frick, 2007). In particular, Marsee and Frick (2007) studied the four subtypes of aggression in pre-adjudicated adolescent girls. After controlling for the alternate subtypes of aggression,

Marsee and Frick found reactive overt aggression positively associated with emotional dysregulation and anger to provocation, whereas proactive overt aggression was negatively associated with emotional dysregulation. In addition, proactive overt and proactive relational aggression were positively associated with CU traits, and negatively associated with punishment expectations.

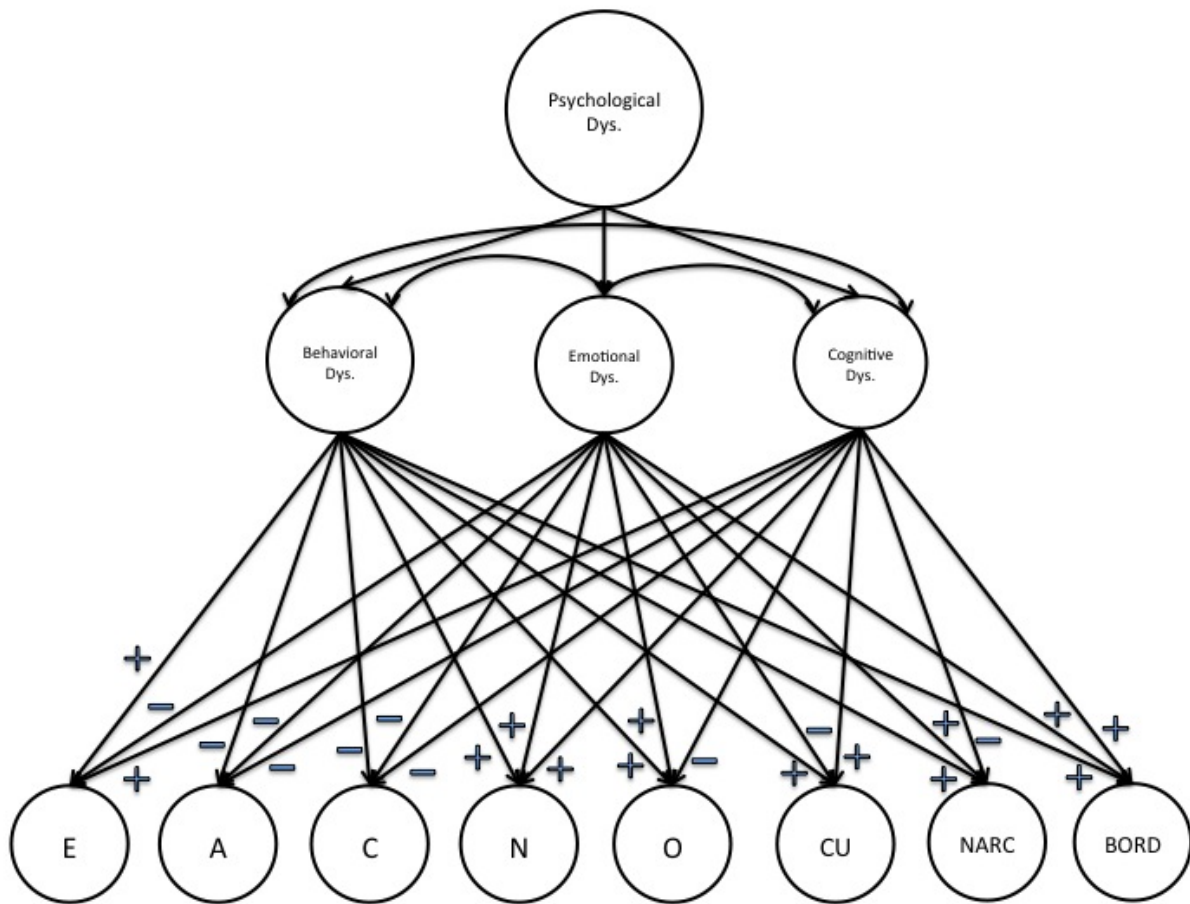
As a model of personality, the psychological dysregulation approach is very similar to previous models of personality. These include Eysenck's (Eysenck & Eysenck, 1975) three-factor model of temperament, consisting of extraversion/introversion, neuroticism/stability, and psychoticism/socialization. Watson and Clark's (1993) big three model that arose from Eysenck's early work on temperament also consists of three broad super factors, namely neuroticism/negative emotionality, extraversion/positive emotionality, and disinhibition versus constraint. Lastly, there is Tellegen's (1985) three-factor model consisting of negative emotionality, positive emotionality, and constraint. These three models have been shown to have strong correlations with each other (Watson & Clark, 1997). In the current study the psychological dysregulation model may match and even support these previous three factor models, in the sense that behavioral dysregulation would likely be correlated with extraversion/positive emotionality, emotional dysregulation would likely be correlated with neuroticism/negative emotionality, and cognitive dysregulation would likely be correlated with disinhibition versus constraint. With these three factor models in mind, it is also easier to see how the Big Five model of personality as well as the pathological personality traits model would be combinations of these three higher order factors of psychological dysregulation (see Figure 1). In the present study, it appears that behavioral dysregulation is associated with higher scores on extraversion, neuroticism, openness to experience, CU traits, and borderline traits. Emotional

dysregulation is associated with higher scores on extraversion, neuroticism, openness to experience, CU traits, and borderline traits. Cognitive dysregulation is associated with low extraversion, low agreeableness, low conscientiousness, low openness to experience, and CU traits.

The current results in terms of the Big Five personality traits are also similar to previous research by Markon, Krueger, and Watson (2005). In a series of factor analyses, Markon et al. (2005) found that personality traits formed a hierarchical structure. At the highest level are two super factors, alpha and beta (ref. Digman, 1997), alpha breaks down into negative emotionality and disinhibition. Beta, negative emotionality, and disinhibition, resemble behavioral dysregulation, emotional dysregulation, and the cognitive dysregulation, respectively. Markon et al.'s (2005) three factors also resemble the earlier big three models mentioned (Eysenck & Eysenck, 1975; Tellegen, 1985; Watson & Clark, 1997). Furthermore, Markon et al. showed that disinhibition breaks down into disagreeable disinhibition and unconscientious disinhibition, and beta breaks down into extraversion and openness. What Markon et al.'s (2005) study demonstrates is that the distribution of personality at the highest possible level is captured by two factors, the next level is best represented by three factors, and then followed by five factors greatly resembling the Big Five model of personality. The pathological personality traits may also be related to these models in the sense that they are composed of these factors or facets of these factors. For example, it is long been argued that psychopathic, narcissistic, and borderline personality traits can be effectively mapped by the Big Five personality traits (Costa & Widiger 2001).

Figure 1

Hypothetical model of personality



*Note.* Dys. = Dysregulation; E = Extraversion; A = Agreeableness; C = Conscientiousness; N = Neuroticism; O = Openness to Experience; CU = Callous and Unemotional Traits; NARC = Narcissistic Traits; BORD = Borderline Traits.

In fact studies have shown that these three personality disorders share the common trait of low agreeableness, low conscientiousness, and varying degrees of extraversion and neuroticism (e.g., McCrae & Costa, 2003; Miller et al., 2009; Samuel & Widiger, 2008). The shared commonalities may contribute to the frequent comorbidity found between these three personality disorders (Costa & Widiger, 2001). Unfortunately, and inconsistent with past research, in the current study, the three pathological personalities did not show similar associations with the Big Five personality traits as found in previous studies. This could be due to several reasons, including slightly different constructs, such as CU traits instead of psychopathy, the structure of these three pathological personality traits may be slightly different in children and adolescents versus adults, the Big Five personality traits in the study initially showed unacceptable to poor reliability, and using the Big Five Inventory (John et al., 2008) instead of the NEO-PI-R (Costa & McCrae, 1992). Instead, CU traits and borderline traits showed similar associations with behavioral, emotional, and cognitive dysregulation. Inconsistent with previous research (Lau & Marsee, 2013; Muñoz, Frick, Kimonis, & Aucoin, 2013), narcissistic traits were not associated with any of the dysregulation variables. One reason why narcissistic traits did not show similar associations with the psychological dysregulation variables may be due to the nature of the items on the measure of narcissistic personality. For example, the items on the Narcissistic Personality Inventory for Children are mainly behavioral and interpersonal in nature and assess how the individual behaves around others and how they prefer to be treated by others. Thus, this measure of narcissism is not necessarily targeting cognitive, emotional, and behavioral patterns. It is also possible that individuals high in narcissistic traits would not explicitly endorse characteristics that indicate internalizing

problems, such as low self-esteem, anxiety, or depression (e.g., Barry & Malkin, 2010; Cain et al., 2008; Lau et al., 2011).

## Implications

In the area of personality assessment, results of the present study may have implications for the measurement of personality in aggressive and antisocial youth. While personality assessment does not necessarily lead to diagnoses, assessment can identify traits that may help paint a picture for the course and prognosis of aggressive and antisocial behaviors, and may even highlight certain ways of thinking, feeling, and behaving, as well as interpersonal styles, that need to be taken into account when planning intervention efforts. This is especially important for youth who exhibit varying levels of similar externalizing behaviors. A simple count of the number of aggressive and antisocial behaviors exhibited would only provide an idea of the severity of the youth's problems, and would not allow for differentiation among them or provide insight into what may be causing or motivating the maladaptive behaviors.

The results of the study suggest that regardless of specific personality traits, or specific pathological trait constellations, understanding the behavioral, emotional, and cognitive regulatory abilities of aggressive and antisocial youth should be one of the primary goals of assessment. Individuals' regulatory abilities are especially relevant in identifying targets for interventions. For example, understanding the ease with which an individual becomes angry, the intensity of the anger, and what coping strategies the individual engages in can help shape how we can be more sensitive to the individual's needs and treatment. Knowing an individual's personality can help us scaffold the learning of skills to better manage the experience of anger (e.g., education of physiological response, relaxation techniques, autogenics, in vivo exposure, role-playing), identify biases towards cues of danger, and later anticipate and control the

situations most likely to lead to anger and resulting aggression (e.g., Larson & Lochmann, 2003; Lochman & Wells, 2004). Knowing an individual's personality is helpful, and it should be noted that in the current study, when more than one personality approach was taken into account in the prediction of aggressive and antisocial behaviors, the models explained on average 10 – 20% of the variance in overt aggression, relational aggression, and delinquency. The amount of unexplained variance also points to the importance of assessments to include measures of the family environment (e.g., parental characteristics, parenting practices, siblings) and school environment (e.g., teacher practices, peer affiliations) and other external environments (e.g., neighborhood friends, neighborhood dangerousness and resources).

The present study also supports previous research on temperament and personality suggesting a three-factor model of personality (Eysenck & Eysenck, 1975; Tellegen, 1985; Watson & Clark, 1997). This does not however disqualify the Big Five personality model or the pathological personality traits because these are most likely subsumed within the broader three factors of behavioral, emotional, and cognitive dysregulation (see Figure 1). In the current study, psychological dysregulation was the strongest predictor of aggressive and antisocial behavior in detained adolescents. In comparison to the Big Five model of personality and the pathological personality traits model, psychological dysregulation may be a better model of personality in younger populations in its aim to directly identify the cognitive, emotional, and behavioral regulation abilities of the individual. Psychological dysregulation may act as a bridge between temperament and personality, or act as the basic building blocks of personality. The broadness of the factors may help its ability to capture the range of normal and maladaptive functioning. Identifying dysregulation earlier may also help curb the later development of maladaptive

personality traits as demonstrated by de Caluwe et al.'s (2013) short-term longitudinal study examining early childhood dysregulation and later aggressive behaviors and personality.

## **Limitations and Future Directions**

In light of these results and recommendations, there are several caveats to be discussed due to several limitations. It should be noted that the results of the present study are correlational and cross-sectional in nature, so causation and directionality cannot be inferred. Future research should examine these personality approaches and their associations with problem behaviors longitudinally in order to test the actual predictive validity of these personality measures and whether the frequency of aggression and delinquency exhibited by the use are contingent upon changes in aspects of personality traits and abilities to regulate behaviors, emotions, and cognitions.

As mentioned previously, very poor and unacceptable internal consistencies were obtained for the Big Five personality traits, therefore calling into question the reliability of the measure and any interpretation made with the measure. The poor internal consistencies may have been a result of participant fatigue, acquiescent responding, not understanding the content of the questions, and/or not paying attention to the questions. To improve the reliability of the scales, items identified through inter-item correlations and item total statistics were removed. This procedure then brings forth an additional problem of the validity of the subscales of the Big Five personality traits, including such problems as content underrepresentation of each of the constructs it is purported to measure.

Another limitation in this study is shared method variance. This study only used self-report methods to assess personality traits, aggression, and delinquency, and this could have resulted in the creation and inflation of associations among our constructs that may not actually

exist. For example, youth who endorse more CU traits may be more inclined self-report more aggressive and antisocial behavior. However, the converse can also be true, due to the nature of the sample, detained boys may respond in ways to minimize the severity of their aggressive and delinquent behaviors to appear "good" to the researchers, even after being assured of anonymity. In addition boys are known to significantly underreport conduct problems (Loeber, Green, & Lahey, 1990). Generalizability is also another limitation of the current study. The current study was conducted on a sample of high-risk detained boys and the findings may not generalize to less severe samples of boys, and may not extend to girls. These issues highlight the need of future studies to collect data on socially desirable responding, and multiple sources, such as parents, teachers, and official records (e.g., arrest history, school behavior reports). In addition, future studies should incorporate less severe samples of youth (e.g., non-forensic, nonclinical), as well as include girls. Future studies should also examine how psychological dysregulation, the Big Five personality traits, and pathological personality traits fit into one general model of personality, and whether a similar hierarchical structure is found as that shown by Markon et al. (2005).

## Conclusions

In summary, the overall results of this study highlight the importance of the assessment of behavioral, emotional, and cognitive dysregulation when attempting to understand the underlying factors of aggressive and antisocial behavior in detained youth. By itself, the psychological dysregulation approach was strongly associated with overt aggression, relational aggression and delinquency. In most instances, the psychological dysregulation approach added unique information and improved the prediction of aggression and delinquency beyond the other

two personality approaches. This reinforces the significance that difficulties in regulation play in aggression and delinquency, and should not be neglected in the treatment planning process.

The present study also demonstrated that the three personality approaches show differential and unique associations with overt aggression, relational aggression, and delinquency. These differential associations draw attention to how these separate approaches provide similar as well as unique information in terms of their association to maladaptive behaviors, and how the different information can contribute to the understanding of the personality mechanisms involved in the development and maintenance of aggressive and delinquent behavior. The unique information may help in the tailoring and formulation of part of a comprehensive and individualized treatment plan for aggressive youth in the justice system.

Lastly, the structure of personality in detained children and youth may best be conceptualized in a hierarchical scheme, where there is one large higher order factor of psychological dysregulation, which breaks down into three second-order factors of behavioral, cognitive, and emotional dysregulation. These three second-order factors may further break down into finer aspects of personality such as the Big Five personality traits and the pathological personality traits. The psychological dysregulation model of personality also closely resembles previous three-factor models of temperament and personality and may act as a structure of personality between childhood temperament and adult personality for detained adolescents.

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## Appendix

## University of New Orleans Institutional Review Board Approval Form

### ***University Committee for the Protection of Human Subjects in Research University of New Orleans***

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#### *Campus Correspondence*

Principal Investigator: Monica Marsee  
Co-Investigator: Katherine Lau  
Date: April 2, 2012  
Protocol Title: "Testing two models of aggression in predicting behavioral, emotional, cognitive, social, and personality factors in a sample of detained youth"  
IRB#: 01Feb12

Your proposal was reviewed by the full IRB. The group voted to approve your proposal pending that you adequately address several issues. Your responses to those issues have been received and you have adequately addressed all of the issues raised by the committee. Your project is now in compliance with UNO and Federal regulations and you may begin conducting your research.

Please remember that approval is only valid for one year from the approval date. Any changes to the procedures or protocols must be reviewed and approved by the IRB prior to implementation. Use the IRB number listed on this letter in all future correspondence regarding this proposal.

If an adverse, unforeseen event occurs (e.g., physical, social, or emotional harm), you are required to inform the IRB as soon as possible after the event.

Best of luck with your project!  
Sincerely,



Robert Laird, Ph.D., Chair  
Committee for the Protection of Human Subjects in Research

## Vita

Katherine Lau was born in Queens, New York. She received her Bachelor of Arts degree in psychology from the University of British Columbia in 2004. She joined the University of New Orleans applied developmental psychology graduate program in 2008. Katherine received her Master of Science degree in applied developmental psychology from the University of New Orleans in 2010.