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Profiles of the Forms and Functions of Aggression and Psychosocial Outcomes in Two Distinct Juvenile Offender Populations

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Profiles of the Forms and Functions of Aggression and Psychosocial Outcomes in Two Distinct Juvenile Offender Populations

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Abstract

The current study was designed to explore profiles of reactive and proactive aggression in two distinct juvenile offender populations, in a group of juvenile offenders who have been adjudicated for illegal sexual behavior (*n* = 138) and in a group of juvenile offenders adjudicated for general delinquent behavior (*n* = 243). This is the first study of its kind to investigate profiles of aggression in a population of juveniles adjudicated for illegal sexual behavior. Preliminary profile analyses indicated that the two juvenile offender populations had similar profiles of aggression overall. Two step cluster analysis results were generally consistent with previous research (Crapanzano, Frick, & Terranova, 2010; Marsee et al., 2014) with 3 groups emerging for both overt and relational aggression: a combined group high on both reactive and proactive aggression, a group high in reactive aggression alone, and a low overall group. Post hoc comparisons of the clusters revealed that the high combined group consistently demonstrated higher reports of emotional and behavioral dysfunction supporting the hypothesis that the presence of proactive aggression serves more as an indicator of severity rather than as representing a qualitatively distinct group in and of itself. Policy implications regarding sex offender registration and notification laws extended to juveniles are discussed.

Reactive Aggression, Proactive Aggression, Relational Aggression, Overt Aggression, Juvenile Sex Offender, Juvenile Delinquent, Illegal Sexual Behavior

Introduction

Research regarding the development of aggressive behavior has a rich history spanning much of the 20th century (see Tremblay, 2000 for a review). The earliest theories about the development of aggressive behavior were rooted in the psychoanalytic philosophy of Sigmund Freud, which suggested that aggression was inherent and innate in human beings, occurring as a direct result of frustration when pleasure seeking and/or pain avoidance was thwarted (Dollard, Doob, Miller, Mowrer, & Sears, 1939). However, more contemporary developmental models borrowing from social learning theory (Bandura, 1973) have suggested that aggression is learned and maintained through a series of constantly re-occurring environmental experiences (Crick & Dodge, 1994; Dodge, 1986). Despite such a rich history, experts have recently suggested that the field of aggression research suffers from an identity crisis related to definition and measurement.

Aggression researchers suggest that difficulties accurately defining aggression have led to major limitations in the field of study (Tremblay, 2000). For example, the construct of aggression has often been conflated with more general constructs of antisocial behavior, anger, and defiance. One of the most frequently cited aggressive rating scales comes from the Child Behavior Checklist (CBCL; Achenbach & Edelbrook, 1983), which contains 23 items measuring behaviors such as arguing, disobeying, lying, sulking, demanding attention, and having poor peer relations, with only two items that directly measure physical aggression. In addition, previous measures seemed to assess anger rather than aggression per se (e.g., "When this child has been teased or threatened, he or she gets angry easily and strikes back." Dodge & Coie, 1987).

While aggressive behavior has been conceptualized and defined in very broad terms as any action that is intended to hurt or harm (Berkowitz, 1993; Coie & Dodge, 1998), recent advances in the field of aggression research have indicated that it is best conceptualized as a multidimensional construct consisting of both the forms (i.e., overt and relational) and functions (i.e., reactive and proactive) of aggression based on how and why the aggressive action is enacted, respectively (Little, Jones, Henrich, & Hawley, 2003; Marsee, et al., 2011). This important shift in construct specificity has ushered in a new era of aggression research focusing on more accurately measuring aggression and investigating distinct psychosocial outcomes associated with these different types of aggression. A more precise assessment of aggression could lead to new, innovative theories regarding the development of aggression, as well as, new treatment options for individuals exhibiting problems specific to the forms and functions aggressive behavior.

Measuring the Forms and Functions of Aggression

As previously mentioned, the construct of aggression can first be conceptualized based upon what form of aggression is used, either overt or relational. These forms of aggression have gone by many different names in the literature, with overt aggression sometimes being called direct aggression, physical aggression, and even encompassing verbal aggression (see Archer, 2004; Card, Stucky, Sawalani, & Little, 2008 for a review). However, many researchers have settled on the term overt to refer to this form of aggression because it includes both physical and verbal acts that are intended to harm, damage, or threaten the physical well-being of a victim. This includes actions such as hitting, kicking, pushing, insulting or threatening bodily harm (Little et al., 2003). Overt

aggression is a more direct and "in your face" form of aggression (Little et al., 2003) making it easier to view and thus easier to study.

The relational form of aggression likewise has gone by many different names in the literature such as indirect aggression, social aggression, and covert aggression (Card et al., 2008 for a review). While the terminology varies, relational aggression generally refers to actions intended to harm or threaten an individual by damaging their social relationships, and may take the form of gossiping, rumor spreading, social exclusion, or ostracism. Due to the covert nature of relational aggression, it is often difficult to directly observe, measure, and study (Crick & Grotpeter, 1995). Additionally, relational aggression often goes unpunished despite the fact that children and adolescents report that it is just as damaging as overt aggression (Crick, Bigbee, & Howes, 1996).

With regard to the forms of aggression, overt aggression is by far more well-studied and is generally associated with severe psychosocial outcomes and delinquency (Coie, Dodge, & Kupersmidt, 1990; Prinstein, Boergers, & Vernberg, 2001). More specifically, it is strongly and uniquely associated with externalizing problems, low prosocial behavior, and low peer acceptance (see Card et al., 2008 for a review). In contrast, relational forms of aggression are strongly and uniquely associated with internalizing problems and prosocial behaviors (see Card et al., 2008 for a review). Research suggests that relational aggression may not warrant immediate attention from authority figures and thus highly relationally aggressive children are rarely directed to treatment or intervention programs (Crapanzano, Frick, & Terranova, 2010; Crick & Grotpeter, 1995; Marsee et al., 2014).

The construct of aggression can further be subdivided based on the motive for the aggressive action (see Card & Little, 2006 for a review). The reactive type of aggression

generally occurs as an angry response to provocation, threat, or goal blocking. Reactive aggression has also been referred to as defensive aggression, impulsive aggression, and even hot-blooded aggression. Research has repeatedly shown that reactive aggression is associated with internalizing symptoms, peer rejection, victimization, and emotional and behavioral dysregulation such as impulsivity and other ADHD symptoms (see Card & Little, 2006 for a review). Further, reactive aggression has been shown to be uniquely associated with a low frustration tolerance and hostile attribution bias, leading individuals high in reactive aggression to misinterpret social cues as hostile and impulsively respond to the provocation with aggression (Crick & Dodge, 1996; Dodge, Coie, & Lynam, 2006; Munoz, Frick, Kimonis, & Aucoin, 2008; Phillips & Lochman, 2003). This pattern of impulsive and combative behavior appears to draw more attention from law enforcement as both reactive subtypes (i.e., reactive relational and reactive overt) have been shown to be associated with higher rates of self-reported arrest history even after controlling for both proactive subtypes (Marsee et al., 2011).

The proactive subtype of aggression, on the other hand, generally occurs as an unprovoked, premeditated action with a self-serving purpose such as gain or dominance. Proactive aggression is often used to achieve desired goals and it is often learned and reinforced through this successful goal achievement process. Proactive aggression has also been referred to as offensive, instrumental, and even cold-blooded aggression in previous studies. While both reactive and proactive aggression have been shown to be associated with delinquency, criminality, and general antisocial behavior; proactive aggression has been uniquely associated with a more persistent and severe form of antisocial behavior (see Frick & Dickens, 2006 for a review). In contrast to reactive

aggression, proactive subtypes are often associated with lower rates of victimization and reduced emotional responsiveness to negative stimuli (Card & Little, 2006; Frick et al., 2003; Hubbard et al., 2002). One of the most distinguishing features of proactive aggression is its association with callous and unemotional (CU) traits even after controlling for reactive subtypes (Crapanzano, Frick, & Terranova, 2010; Marsee & Frick, 2010; Marsee et al., 2011; Ostrov & Houston, 2008).

The current state of confusion regarding aggression terminology and classification further exemplifies the so-called identity crisis that the field of aggression research struggles to overcome (Tremblay, 2000). Generally, the forms and functions of aggression have been measured and studied in isolation, where the focus was either the forms of aggression alone or the functions alone. Several lines of research regarding the relational and overt forms of aggression have shown that these two types of aggression are distinct and independent from one another despite showing a consistently moderate positive correlation, with *r*s ranging from .5 to .7 (Crick & Grotpeter, 1995; Loeber & Stouthamer-Loeber, 1998). The same pattern of independence despite high correlations (e.g., *r*s ranging from .75 to .80) has been demonstrated in research with the reactive and proactive functions of aggression (Dodge & Coie, 1987; Price & Dodge, 1989; Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Vitaro, Gendreau, Tremblay, & Oligny, 1998). Attempts to integrate the forms and functions together into a single self-report measure have recently been conducted and validated (Little et al., 2003; Marsee et al., 2011; Ostrov & Houston, 2008). For example, Marsee and colleagues (2011) used confirmatory factor analysis to validate a four-factor model of aggression that comprehensively addressed the forms and functions together. This scale included items that loaded independently on one of four

distinct domains of aggression: proactive overt (e.g., I am deliberately cruel to others, even if they haven't done anything to me), proactive relational (e.g., I gossip about others to become popular), reactive overt (e.g., I have gotten into fights, even over small insults from others), and reactive relational (e.g., If others make me mad, I tell their secrets). Results indicated that this four-factor solution fit the data better when compared to a one-factor model (overall aggression) and a two-factor model (overt vs. relational aggression). Additionally, the four distinct subtypes of aggression were differentially associated with variables of psychosocial adjustment in a variety of juvenile populations (i.e., a detained sample, a community sample, and a residential treatment sample; Marsee et al., 2014). Overall, results indicated that assessing all four domains simultaneously paints a clearer picture of exactly how and why youth use aggression, further illustrating the importance of measuring the forms and functions together.

Profiles of Aggression Using the Forms and Functions

Several lines of research have emerged demonstrating distinct groups of aggressive youth based on the forms and functions of aggression discussed above. Dodge and Coie (1987) first demonstrated four groups of socially rejected youth that could be reliably distinguished from one another based on ratings of reactive and proactive aggression (i.e., reactive only, proactive only, proactive-reactive combined, and non-aggressive rejected). They found that the proactive only group was rated as the most bothersome and disruptive according to peer-nominated ratings. Interestingly, the proactive only group was also rated highly on sense of humor and leadership qualities. The two reactively aggressive groups (i.e., reactive only and proactive-reactive combined) were also rated as being highly aggressive and bothersome, but they did not receive positive ratings on sense of humor and

leadership qualities like the proactive-only group. The two reactively aggressive groups also displayed unique social-cognitive deficits, such as a hostile attribution bias, that were not found in the proactive only group.

Vitaro and colleagues (2002) provided further evidence for the same four distinct profiles of aggression based on reactive and proactive aggression ratings (i.e., reactive only, proactive only, combined reactive-proactive, and low overall). This study also provided evidence for different developmental trajectories of the groups as rated from age 6 to age 12. The study found that the reactive and combined reactive-proactive groups were rated as more inattentive and more temperamentally reactive when compared to the proactively only and non-aggressive groups. The reactively aggressive group also reported higher rates of internalizing symptoms such as anxiety and feelings of depresssion than all other groups including the combined reactive-proactive group. This finding is line with meta-analytic reports that reactive aggression is often associated with peer rejection, victimization, emotional dysregulation and symptoms of internalizing disorders and attention deficit disorders (see Card & Little, 2006 for a review). Indeed, it has been suggested that reactively aggressive children may appear more depressed due in part to the higher rates of peer rejection, social isolation, and victimization by both parents and peers (Boivin, Vitaro, Hodges, & Poulin, 1998; Day, Bream, & Paul, 1992; Marsee, 2008; Vitaro, Brendgen, & Tremblay, 2002).

The proactive group was also rated as more physically aggressive and more overtly delinquent than all other groups suggesting that they may represent youth with a heightened risk for later delinquency (Vitaro, Brendgen, & Tremblay, 2002). The authors suggest that social processes with peers may help explain these group differences. Prior

research has demonstrated that proactively aggressive groups not only have more friends, but also have more positive peer ratings when compared to reactively aggressive groups (Dodge & Coie, 1987; Poulin & Boivin, 2000). More specifically, proactively aggressive children tend to have more proactively aggressive friends whereas the same pattern is not found for reactively aggressive youth (Poulin & Boivin, 2000). Given the well-established link between deviant peer associations and later reports of delinquency (see Patterson & Dishion, 1985 for a review), the tendency for proactively aggressive youth to form strong deviant peer groups may play a key role in explaining the link between proactive aggression and later delinquency (Vitaro, Brendgen, & Tremblay, 2002).

It should be noted at this time that while both studies mentioned above (i.e., Dodge & Coie, 1987 and Vitaro, Brendgen, & Tremblay, 2002) where indeed influential in contributing to the initial understanding of profiles of aggression, both of these studies used a measurement of reactive and proactive aggression that suffered from many of the methodological complications and theoretical limitations discussed earlier. That is, the measurement of reactive and proactive aggression was based on limited content (only 6 items, 3 for reactive and 3 for proactive) that was embedded in a larger measurement of general social behavior. Recent attention has been paid to replicating these profiles of aggression using a more precise and theoretically accurate measurement of aggression.

Crapanzano and colleagues (2010) used cluster analysis to test whether the same profiles of aggression would emerge in a school-based sample of boys and girls in 4th through 7th grades. More importantly, they were the first to extend this analysis to see if similar patterns emerged for both the forms (relational and overt) and the functions (reactive and proactive) of aggression together in a single sample using a more precise

measurement of aggression. Interestingly, the results failed to demonstrate a group that was purely high on proactive aggression alone. Rather, three groups emerged: one group with high rates of reactive aggression only, another combined group with high rates of both reactive and proactive aggression, and a group that was low overall. Overall, the results suggested that the group differences were due in large part to differences in levels of risk severity rather than qualitative differences among distinct aggression typologies. That is, rather than the combined group representing a distinct group of individuals with discrete psychosocial outcomes; it was found that this group just appeared to have more severe ratings on all of the outcome variables studied when compared to the other groups. There was one notable exception to this, the combined group displayed significantly higher rates of callous and unemotional (CU) traits when compared to the other groups. This is an important caveat as several lines of research have demonstrated that the presence of CU traits are often associated with a more chronic and severe pattern of antisocial behavior with unique treatment needs (see Frick and Dickens, 2006 for a review).

Another study using cluster analysis extended the investigation of groups based on both the forms and functions of aggression in three distinct adolescent populations: a residential treatment sample, a community based sample, and a detained sample (Marsee, Frick, Barry, Kimonis, Munoz-Centifanti, & Aucoin, 2014). In all three samples, the same groups emerged for overt aggression that have been previously reported, with one group with primarily high reactive overt scores, and another combined group with high scores in both reactive and proactive overt scores. In the residential treatment and detained samples, similar groups emerged in regards to relational aggression, but only for girls. Results from this study also indicated that group differences emerged as a result of

differences in severity rather than as a result of differences in typology. As in other studies, the combined group represented a more overall disturbed group in regards to psychosocial outcomes such as emotional and behavioral dysregulation and reports of delinquency. Furthermore, a purely proactive group did not emerge in any of the three samples studied indicating that proactive aggression is quite rare except in the presence of reactive aggression as well. Thus, it appears that theories pertaining to the forms and functions of aggression may need to consider the possibility that the presence of proactive aggression merely represents a more highly aggressive group instead of a differentially unique group (Marsee & Frick, 2010).

These aggression profiles have been demonstrated in a variety of settings (i.e., child, adolescent, community, residential, and detained) using a variety of statistical techniques (i.e., variable-centered and person-centered). However, to the writer's knowledge studies regarding specific aggression profiles have yet to be conducted in a sample of juveniles who have been adjudicated for a sexual offense. While there is a wealth of research indicating that juveniles who have been adjudicated with a sex offense share many commonalities with juveniles who have been adjudicated with general illegal behaviors, especially in regards to recidivism rates; there are still several important distinguishing features indicating that these two groups of juvenile offenders represent distinct groups with differential treatment needs (see Chaffin, 2008; Letourneau & Miner, 2005; Seto & Lalumiere, 2010; Worling & Langstrom, 2006). Thus, research investigating whether these two groups of juvenile offenders have similar or different profiles of aggression could help inform treatment options for both groups.

Comparing Juveniles with Illegal Sexual Behavior and Juveniles with General Delinquent Behavior

It can be difficult to adequately compare adolescents who have been adjudicated with illegal sexual behavior (AISB) and adolescents who have been adjudicated with general delinquent behavior (AGDB) because neither group constitutes a homogenous category entirely within themselves (Van Wijk, Vermeiren, Loeber, Doreleijers, & Bullens, 2006). It has long been accepted in the field of developmental psychology that there are two distinct groups of individuals with antisocial behavior each with unique neurological and environmental risk factors (Moffitt, 1993; Moffitt, 2003). Children in the child-onset, or life-course persistent, trajectory exhibit symptoms of attention deficit disorder, oppositional defiant disorder, and/or conduct disorder early in childhood and continue to have conduct problems throughout adolescence and into adulthood. These children often engage in antisocial behaviors as a result of early neurodevelopmental deficits (e.g., difficult temperamental styles, behavioral and emotional dysregulation), poor parenting practices (e.g., harsh or inconsistent parenting styles), and improper social influences (e.g., experiences of aggression modeling from peers and/or parents). This child onset group may share similar qualities in regards to symptom severity as the combined reactive and proactive aggressive groups mentioned above. In contrast, the adolescent limited group first begins acting out in adolescence and the problematic behavior tapers off as they enter adulthood. Conduct problems in this group have been linked primarily to a social maturity gap that reinforces deviant behavior as involvement with deviant peer groups spikes in adolescence. Since the adolescent limited pathway is more often the result of peer

influences, it is common to see the problematic behaviors desist in adulthood as the individual develops more socially appropriate relationships.

There also appears to be two distinct types of juvenile sex offenders based on patterns of offending behavior, with one group that engages in sexually abusive behavior with children (at least 4 or 5 years younger than the perpetrator) and another group that engages in sexually coercive behavior with similar-aged peers (Hunter, Figueredo, Malamuth, & Becker, 2003). Studies examining group differences among these types of offenders have found that the group with child age victims were found to have more social deficits, more social isolation, and were more likely to have been victims of sexual abuse as compared to the group with peer-aged victims (Ford & Linney, 1995; Hsu & Starzynski, 1990; Worling, 1995). The group of peer-aged offenders has also been shown to have higher rates of externalizing problem behavior while the child victim group exhibited more internalizing problems (Carpenter, Peed, & Eastman, 1995).

A recent review of the literature comparing adolescents with illegal sexual behavior (AISB) with adolescents with generally delinquent behavior (AGDB) found differences in personality characteristics, behavioral problems, sexual abuse histories, and peer functioning (van Wijk et al., 2006). For example, when examining group differences, it has been found that AISB were significantly more socially isolated, had fewer friends, and had greater concerns about threats to masculinity (Miner & Munns, 2005; Miner & Swinburne-Romine, 2004). Similarly, a recent meta-analysis indicated that AISB reported more extensive sexual abuse histories, less extensive criminal histories, more social isolation, fewer antisocial peers, and lower self-esteem ratings than general delinquent offenders (Seto & Lalumiere, 2010). The largest group differences were found for sexual abuse

histories, criminal histories, and antisocial associations (Seto & Lalumiere, 2010). This meta-analysis with 59 independent studies has been the most comprehensive investigation into group differences between AISB (*n* = 3,855*)* and AGDB (*n* = 13,393*)* to date. And yet none of the studies addressed group differences in specific aggression subtypes. However, general antisocial tendencies and conduct problems were assessed indicating that juveniles adjudicated with sexually illegal behavior had fewer conduct problems and scored significantly lower on ratings of antisocial attitudes and beliefs than the general delinquent populations. Given the important distinction that has been made between aggression profiles and symptom severity, with the combined proactive-reactive profile repeatedly representing a more severely disturbed group (Crapanzano et al., 2010; Marsee et al., 2014) determining meaningful group differences in aggression profiles could potentially highlight another key distinguishing feature between these two distinct populations of adjudicated youth. Understanding these group differences in aggression profiles could help inform treatment options for delinquent youth.

Determining meaningful differences in aggression profiles could also help inform a long standing debate regarding the application of sex offender registration and notification laws to juvenile offenders. In the last decade, several high profile criminal cases have shaped and guided registration and notification laws, beginning with the Jacob Wetterling Act and Megan's Law in 1996. Current federal guidelines outlined in the Adam Walsh Child Protection and Safety Act of 2006 for the first time extended registration and notification requirements to juvenile offenders. The juvenile court systems have long taken a rehabilitative, rather than punitive, approach to juvenile justice (Melton, Petrila, Poythress, Slobogin, Lyons, & Otto, 2007). This extension of registration and notification laws to

juveniles represented a striking detour from a century long tradition of treating juvenile and adult offenders separately. This marked the first time in the history of the juvenile courts in which juvenile court records were no longer protected and private, a statute that had been created in recognition of the fact that records of criminal involvement were likely to unjustly penalize juveniles (Garfinkle, 2003; Zimring, 2000). The rationale for extending adult registration laws to juvenile offenders is often rooted in an ill-conceived theory that sexual offenders are much more dangerous than all other types of offenders (Garfinkle, 2003; Zimring, 2004). Research demonstrating similarities or differences in aggression profiles between AISB and AGDB could help inform this debate by helping clinicians accurately identify high risk youth and target intervention efforts based on this research.

Statement of the Problem

While much research has shown that the forms and functions are associated with differential psychosocial outcomes, there still remains a great deal of overlap (Marsee et al., 2011). Several studies have shown that two distinct patterns often emerge regarding the forms and functions of aggression (Crapanzano, Frick, & Terranova, 2010; Marsee et al. 2014). These patterns have been demonstrated in both male and female child and adolescent populations, as well as community, residential, and detained populations. That is to say, there appears to be a group that displays primarily reactive aggressive and a combined group that displays high rates of both reactive and proactive aggression. However, this pattern of aggressive behavior has yet to be investigated in a population of juveniles who have been adjudicate for illegal sexual behavior. Previous research has indicated that AISB represent a unique subpopulation of juvenile offenders with distinct developmental pathways and treatment needs (Seto & Lalumiere, 2010; Van

Wijk et al., 2006). Furthermore, these individuals are often treated differently by the juvenile court systems, with AISB being subjected to adult sanctions of registration and notification standards.

With this in mind, the purpose of this paper was to explore profiles of aggression in a group of juvenile offenders who have been adjudicated for illegal sexual behavior using a measure of aggression that was designed to specifically and thoroughly assess the different forms and functions of aggression. First, profile analysis was used to determine if AISB and AGDB have similar or different profiles of aggression. Next, cluster analyses were conducted separately for the reactive and proactive overt aggression subscales and for the reactive and proactive relational aggression subscales. These analyses were conducted separately for the sample of AISB and AGDB to determine if similar patterns emerge for both juvenile offender groups. Finally, differences across aggression profiles were tested to determine if groups differ on several key outcome variables. Therefore, this study proposes the following hypotheses:

1. For the AISB sample cluster analysis:
    a. In regards to overt aggression, it is expected that three groups will emerge based on the reactive and proactive functions of aggression (i.e., low overall, high reactive, combined reactive/proactive)
    b. In regards to relational aggression, it is expected that only two groups will emerge based on the reactive and proactive functions of aggression (i.e., high and low)
    c. A purely proactive aggressive group is not expected to emerge for either overt or relational aggression in this sample.

2. For the AGDB sample cluster analysis:
    a. In regards to overt aggression, it is expected that three groups will emerge based on the reactive and proactive functions of aggression (i.e., low overall, high reactive, combined reactive/proactive)
    b. In regards to relational aggression, it is expected that only two groups will emerge based on the reactive and proactive functions of aggression (i.e., high and low)
    c. A purely proactive aggressive group is not expected to emerge for either overt or relational aggression in this sample.
3. Comparing groups differences on theoretically-informed outcome variables:
    a. Childhood abuse history: Groups differences are expected to emerge in regards to abuse history. Compared to the other profiles, the high reactive aggression profile is expected to be associated with a much more extensive childhood abuse history. Furthermore, this association is expected to be stronger in the AISB sample.
    b. Psychopathic traits: The combined reactive/proactive group is expected to have significantly higher rates of psychopathic traits when compared to the other aggression profiles in both populations.
    c. Externalizing features: Group differences are expected to emerge in regards to externalizing symptoms. The combined reactive/proactive profile is expected to have much more extensive externalizing features of psychopathology. Furthermore, this association is expected to be stronger in the AGDB sample.
    d. Internalizing features: Group differences are expected to emerge in regards to

internalizing symptoms of psychopathology. While the reactive profile is expected to have more internalizing features of psychopathology and this association is expected to be stronger in the AISB sample.

Method

Participants

Participants were male adolescents who have been adjudicated and mandated by the courts to participate in a treatment program at a residential treatment facility. All students at the facility were under state custody and consent was provided by the state appointed advocate. The final sample consisted of 383 male juvenile offenders (57.7% African American, 37.3% Caucasian, 3.6% Biracial/Other, and 1.4% Hispanic). Participants ranged in age from 12 to 19 years old (M = 16.77; SD = 1.28). Participants had on average 6 criminal arrests (M = 6.06; SD =6.52) and a range of committing offenses. For the AISB sample (n = 140), 80.9% of committing offenses were sexual contact offenses (e.g., rape, sexual assault, sexual misconduct, sexual abuse, sodomy, etc.), 3.9% were interpersonal, non-sexual contact offenses (e.g., harassment, assault, etc.), 11.8% were non-contact offenses (e.g., indecent exposure, disseminating pornography, etc.), and 3.4% were probation violation offenses. For the AGDB sample (n = 243), 18.4% were interpersonal, non-sexual contact offenses (e.g., robbery, assault, harassment, domestic violence, etc.), 22.0% were non-contact offenses (e.g., criminal mischief, trespassing, disorderly conduct, etc.), 41.4% were property offenses (e.g., theft, burglary, possession of stolen property, etc.), 9.6% were drug offenses (e.g., possession, distribution, etc.), and 8.9% were probation violation offenses.

Research has shown that within the juvenile court system guilty pleas and plea bargaining for lesser sentencing is quite common (Bala, 1992; Hoge, Bonnie, Poythress, & Monahan, 1992; Wundersitz, Naffine, & Gale, 1991). Furthermore, confessions, guilty pleas, and other important legal decisions have been shown to differ according to age, cognitive

development, and psychopathology (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002; Wasserman, McReynolds, Lucas, Fisher, & Santos, 2002; Viljoen, Klaver, & Roesch, 2006). Therefore, the actual offense on record may not accurately reflect the actual events that brought the individual before the court. Thus, in order to better understand the true nature of violence involved in the actual sexual offenses of our AISB sample further investigation was taken. Graduate interns rated the degree of force of the committing offense for all AISB based on a combination of collateral file information (i.e., police reports, statements, and court records pertaining to the offense) and information obtained throughout the clinical interview. Degree of force was rated on a scale from 1 to 4 as either minimal force (i.e., little or no force used, force used to intimidate), moderate force (i.e., repeated slapping or hitting of victim), excessive force (i.e., victim beaten with marks/medical attention required), or brutal force (i.e., victim required extensive hospitalization and/or died from injuries). There were no individuals in the AISB sample with committing offenses rated as either excessive or brutal force. The vast majority of the AISB sample had committing offenses that were rated as minimal force (97%; *n* =136) and only 4 individuals had committing offenses rated as moderate force. This provides a clearer picture of the true committing offense. Thus, while the majority of the AISB sample had categorically violent, contact committing offenses on record; further investigation revealed that these offenses almost entirely involved minimal force with a few reports involving moderate force.

Procedures

As a requirement of the treatment program, all juvenile offenders were given a comprehensive psychological evaluation upon admission to and prior to release from the

facility. Evaluations were given within 5 to 7 days of admission per standard operating procedures at the facility. This allow students adequate time to acclimate to the facility and to adjust to daily living in a detention center setting. After this initial waiting period, evaluations were completed over a 2- to 3-day time span and included intellectual and achievement measures, clinical diagnostic interviews, and a series of self-report measures intendeded to assess personality dimensions pertinent for treatment recommendations and dormitory placement at the facility. Graduate students in a clinical psychology doctoral program completed the clinical interview and undergraduate research assistants administered and scored self-report measures. While completion of the psychological evaluation was a court mandated treatment requirement, allowing information to be used for research purposes was completely voluntary. All adolescents underwent an informed assent process prior to the initial intake evaluation. Data was collected as part of an ongoing larger research project investigating psychosocial functioning and treatment outcomes for the students adjudicated at the detention center. Selected variables from within this larger data set were used in the current analysis. The Auburn University Institutional Review Boards approved the evaluation process, data collection, and data storage procedures for the research project.

Measures

Aggression. The Peer Conflict Scale was used to measure participants' self-report of aggression (PCS; Marsee et al., 2011). The PCS is a 40-item measure operationalizing the forms and functions of aggression via four domains: reactive overt, proactive overt, reactive relational, and proactive relational. Ten distinctive items load onto each of the four domains: reactive overt (e.g., "When someone hurts me, I end up getting into a fight"),

proactive overt (e.g., "I start fights to get what I want"), reactive relational (e.g., "If others make me mad, I tell their secrets"), and proactive relational (e.g., "I gossip about others to become popular"). Items are measured on a 4-point Likert-type scale, from 0 (*not at all true*) to 3 (*definitely true*). The coefficient alphas from a combined sample of adolescents from school, residential, and detained settings range from .79 to .89 (Marsee et al., 2011). Previous research has demonstrated good convergent validity of the four aggression domains with internalizing and externalizing symptoms (Stimmel, Cruise, Ford, & Weiss, 2013; Munoz, Frick, Kimonis, & Aucoin, 2008; Marsee & Frick, 2007). The PCS has been used in prior research to create distinct profiles of aggression that show significant group differences in expected psychosocial outcomes indicating good construct validity (see Crapanzano et al., 2010; Marsee et al., 2014). Cronbach's alpha for the current sample indicated good internal consistency overall with .88 for the reactive overt subscale, .86 for the proactive overt subscale, .82 for the reactive relational subscale, and .84 for the proactive relational subscale.

Psychopathic traits. Adolescent psychopathic traits were measured using the Hare Psychopathic Checklist: Youth Version (PCL: YV; Forth, Kosson, & Hare, 2003). The PCL:YV is a downward extension of the most widely used measure of psychopathy in adults, the Hare Psychopathic Checklist - Revised (PCL-R; Hare, 1991, 2003). The PCL:YV measures the same constellation of features as the PCL-R (e.g., interpersonal, affective, and behavioral/antisocial features) and maintains the same expert-rater and multiple source format. The affective dimension of the four-factor model of the PCL:YV was used for the current study. The four-factor model has been shown to be a valid and reliable assessment of psychopathy in detained adolescents across sex, race, and ethnicity (Jones, Cauffman,

Miller, & Mulvey, 2006; Neumann, Kosson, Forth, & Hare, 2006). The affective dimension includes aspects of psychopathy such as a lack of remorse or guilt, shallow affect, callous lack of empathy, and a failure to accept responsibility (Forth, Kosson, & Hare, 2003). These specific features of psychopathy most closely represent the CU-traits that have been shown to be associated with proactive aggression in previous studies (Crapanzano, Frick, & Terranova, 2010; Marsee & Frick, 2010; Marsee et al., 2011; Ostrov & Houston, 2008). The standard assessment procedure involves a review of collateral information (such as police reports, school records, court documents, and/or previous psychological assessments) and the administration of a semi-structured interview. The 20-item clinical rating scale assesses psychopathic traits in 12 to 18-year-old male and female adolescents. Items are rated on a 3-point ordinal scale (0, 1, or 2) based on the assessment of the adolescent's functioning and how well that assessment matches the behaviors and personality traits representing the item of concern. Rating items requires strict standardization and training as well as the use of considerable clinical judgment.

According to the technical manual (Forth, Kosson, & Hare, 2003), raters must possess an advanced degree in the social, medical, or behavioral sciences and have the appropriate professional credentials (e.g., licensure to legally conduct psychological assessment according to state regulations or supervision by a licensed professional) as well as experience working with adolescents. They must also be familiar with the most current literature on psychopathy in both adults and adolescents and adequate training in the standard administration procedures of the PCL:YV. Graduate students conducting the interviews were working under supervision of a licensed clinical psychologist. Additionally, graduate students underwent 2 weeks of training in the PCL:YV during which they were

required to observe an experienced rater conduct the interview and score the items for one week. This was followed by a week of supervision in which the graduate student conducted interviews and rated items under the supervision of the experienced rater. Weekly meetings with the treatment team were held in which students were given feedback on their item ratings from the treatment team leader. Studies have shown the interrater reliability for the measure to be excellent with intraclass correlation coefficients ranging from .90 to .96 (Forth, Kosson, & Hare, 2003). PCL:YV total scores have shown to be correlated with elevations in substance abuse, ADHD, narcissism, mania, and conduct problems (Forth, Kosson, & Hare, 2003). Cronbach's alpha of .86 for the affective dimension scale of the PCL:YV in the current sample indicated good internal consistency.

Internalizing and externalizing psychopathology. The Millon Adolescent Clinical Inventory (MACI; Millon, 1993) was used to measure internalizing and externalizing symptoms of psychopathology. The MACI is a 160-item, 31-scale self-report inventory used to assess personality styles, significant problems or concerns, and clinical symptoms in adolescents, including emotional dysregulation, substance abuse proneness, impulsivity, anxious feelings, and depressive affect. The clinical syndrome scales were designed to assess current symptoms associated with DSM-IV Axis 1 disorders such as conduct disorder, ADHD, and mood and anxiety disorders. Items were rated using a true/false format. Both raw and standardized base rate scores were calculated using computer software from NCS Assessments, the publisher of the MACI. According to the manual, areas of clinical concern are indicated by base rate scores between 60 and 75 while scores over 85 signal the presence of "persistent" indicators. The MACI has demonstrated moderate to

strong internal consistency (.73 - .91) and test-retest reliability (.57 - .92; McCann, 1999; Millon & Davis, 1993).

The Delinquent Predisposition Scale was used to determine externalizing symptoms of psychopathology. This scale contains 34 items designed to measure the extent to which the adolescent adheres to societal norms and/or violates rules (Millon, 1993). High scores on this scale indicate engagement in persistent problematic and antisocial behaviors such as threatening others, lying, stealing, and a general lack of concern for rules. Prior research has shown that elevations on this scale are often associated with a clinical diagnosis of conduct disorder, however, other diagnoses such as ADHD, substance abuse disorders, and oppositional defiant disorder have also been implicated. Previous research has shown that this scale demonstrates good stability with a test-retest reliability coefficient of 0.80 and acceptable internal consistency with an alpha coefficient of 0.77 (McCann, 1999). Concurrent validity studies have shown significant correlations between this scale and other measures designed to capture substance abuse (0.44) and aggressive behavior/delinquency (0.37; see McCann, 1999 for a more detailed analysis).

The Depressive Affect Scale was used to determine internalizing symptoms of psychopathology. This scale contains 33 items designed to measure common features of depression such as feelings of sadness, discouragement, and dejection, as well as more general feelings of low self-esteem, apathy, and hopelessness (Millon, 1993). Adolescents scoring high on this scale are characterized as sad and apathetic and generally more socially withdrawn, agitated, and anxious. Previous research has shown that elevations on this scale are associated with a clinical diagnosis of adjustment disorder with depressed mood on the lower end and dysthymia or major depressive disorder on the higher end.

This scale has demonstrated excellent internal consistency (alpha coefficient of 0.89) and very good test-retest reliability (0.81) in previous studies. Significant high correlations have been demonstrated when compared to comparable measures (Beck Depression Inventory, 0.59) indicating good concurrent validity (see McCann, 1999 for a more detailed analysis).

Childhood abuse history. The childhood abuse scale from the MACI was used to determine the extent of childhood abuse. This scale consists of 24 items designed to assess the adolescent's perception of the alleged abuse in general and his/her emotional reaction and functioning related to the event (Millon, 1993). Previous studies have shown that adolescents scoring high on this scale often report feeling shame, embarrassment, and/or disgust regarding the alleged abuse. For this reason, this scale is often correlated with other personality scales on the MACI such as Scale 2B (doleful), Scale 8B (self-demeaning), Scale B (self devaluation), and Scale GG (suicidal tendency; see McCann, 1999 for a more detailed analysis). Overall, the reliability of the childhood abuse scale has been shown to be good with a test-retest reliability coefficient of 0.81 (McCann, 1999). A cross-validation study obtained a significant correlation of 0.43 between the childhood abuse scale and the clinician's judgment of childhood abuse demonstrating effective clinical use for this scale. This correlation was one of the highest of all of the MACI scales in the study (see McCann, 1999 for a more detailed analysis).

Results

Group Differences

Bivariate correlation analyses were conducted to examine associations between the main study variables. Table 1 displays correlations, means, and standard deviations for the main study variables. Group membership was based on the current committing offense to the facility; therefore AISB represented those individuals whose current committing offense was classified as a sexual offense and AGDB represented those individuals whose current committing offense was non-sexual in nature but may have included status offenses, violent and non-violent criminal offenses, and/or drug offenses (coded as 1 = AISB, 2 = AGDB). Group membership was significantly associated with both reactive (r = .22, p < .001) and proactive overt aggression (r = .12, p < .05), with AGDB reporting higher levels than AISB. In contrast, group membership was not significantly associated with either reactive (r = -.10, p = .07) or proactive relational aggression (r = -.01, p = .78).

Further testing was conducted to determine whether the AISB and AGDB samples differed in regards to the violence associated with their committing offense. The committing offense was recoded for the entire sample (i.e., both AISB and AGDB) into a dichotomous variable as either a violent or non-violent offense. Offenses were coded based on the state criminal code. Violent offenses generally included sexual contact offenses and non-sexual interpersonal contact offenses such as robbery, assault, and domestic violence charges. Largely speaking, the sexual contact offenses were coded as violent based on the criminal code with the exception of rape in the second degree (i.e., statutory rape) which is considered a sexual contact offense but not a violent offense as it lacks the element of forcible compulsion. Burglary in the first and second degree were

coded as violent as the state criminal code specifies that these offenses include some form of intent to cause bodily harm. Burglary in the third degree was coded as a non-violent offense as these offenses do not include intent to cause bodily harm according to state criminal code. Otherwise, non-violent offenses mainly included non-contact property and drug offenses and probation violation charges. Results of a chi-square analysis were significant, χ^2 (1) = 78.51, $p < .001$, with 77.5% (n = 117) of the AISB sample falling into the violent offense category and 32.9% (n = 93) of the AGDB sample falling into the violent offense category.

Given that the AISB group was significantly more likely to have a violent committing offense compared to the AGDB group, further investigation was taken to determine if there were any significant associations between the committing offense and aggression subscales. Recall that nearly all of the AISB sample (80.9%) had a violent, contact offense on record as their committing offense and that further investigation revealed that nearly all of the actual offenses were rated as minimal force events. A series of independent samples t-tests were conducted with the dichotomized committing offenses (violent or non-violent) entered as the grouping variable and the four aggression subscales as the outcome variables. Results revealed there were no significant differences between any of the mean levels of aggression reported by those individuals with violent committing offenses and those individuals with non-violent offenses for both the AISB and AGDB samples. Means and standard deviations are reported in Table 2. Another series of independent samples t-tests were conducted to determine if the aggression subscales were associated with degree of force of the committing offense for the AISB sample. Results revealed there were no significant differences between any of the mean levels of aggression for those individuals with

minimal force offenses and those individuals with moderate force offenses. Means and standard deviations are reported in Table 3.

Profile analysis was conducted to determine if adolescents with illegal sexual behavior (AISB) differ significantly from adolescents with general delinquent behavior (AGDB) in regards to aggression subscales (i.e., reactive overt, reactive relational, proactive overt, and proactive relational). A repeated measures ANOVA was conducted by entering the four aggression subscales as within-subjects variables, while group membership was entered as a between-subjects factor. Evaluation of assumptions of normality indicated that the aggression subscales were skewed; log transformation improved normality. Box's M test was significant indicating that the assumption of homogeneity of variances was violated. Tabachnick and Fidell (2013) suggested that it is safe to ignore this violation when sample sizes are adequately large and the sample size does appear to be large enough in this study. Mauchly's test indicated that the assumption of sphericity was violated and that adjustments to the degrees of freedom would be needed. The Greenhouse-Geisser adjustments were used for all within-subjects effects. The overall model was investigated for parallelism and flatness of the aggression scales, as well as for group differences in aggression scales. In regards to flatness, there was a significant main effect, F (2.69, 1018.08) = 364.44, $p < .001$, indicating that there were significant differences between the aggression subscales. There was a significant interaction between group membership and aggression indicating significant parallelism, F (2.69, 1018.08) = 19.42, $p < .001$. A significant interaction indicates that the group profiles of aggression were not parallel and that the subscales of aggression differed based on group membership. As seen in Figure 1, the results show that while the within-subjects effects indicated that

AGDB scored higher on both reactive and proactive overt scales, there were no significant between-subjects effects of the actual profiles, F (1, 379) = 2.40, p = .12, indicating that AISB and AGDB have similar profiles of aggression overall.

Given that parallelism and flatness were both significant while overall group differences were not significant, a simple-effects contrast analysis was used to break down the interaction. A simple-effects analysis compared differences among means for groups at each level of the repeated measure. Thus, differences in means among AISB and AGDB were examined for each aggression scale independently. An independent-samples t-test was significant, t (244.25) = 4.17, p < .001, indicating that AGDB (M = .87, SD = .36) on average displayed higher levels of reactive overt aggression when compared to AISB (M = .69, SD = .44). In regards to proactive overt aggression, AGDB (M = .33, SD = .38) displayed higher levels of proactive overt aggression when compared to AISB (M = .24, SD = .33; t (323.18) = 2.56, p < .05). There were no significant mean differences in regards to relational aggression subscales. Results of the simple-effects contrast analysis are presented in Figure 2.

Further post hoc comparisons using Bonferroni corrections revealed that the reactive overt scores were significantly higher than the proactive overt, reactive relational, and proactive relational scores for both samples (p < .001 for all). For the AISB group, proactive overt scores were significantly lower than the reactive overt and reactive relational scores (p < .001 for both) and the reactive relational scores were significantly higher than the proactive relational scores (p < .001). For the AGDB group, proactive overt scores were significantly higher than proactive relational scores (p < .01) and reactive relational scores were significantly higher than the proactive relational scores (p < .001).

Figures 3 and 4 display results of the post hoc comparisons and means and standard errors for the aggression subscales for AISB and AGDB, respectively.

Profiles of Reactive and Proactive Aggression

To test whether distinct clusters of reactive and proactive aggression emerged, a two-step cluster analysis was performed using SPSS version 23 (IBM SPSS, 2015) in order to classify the participants on the PCS reactive and proactive aggression subscales, which were standardized prior to analyses. The two-step method is an autocluster procedure that combines both Bayesian information criteria (BIC) and ratio of distance between clusters in order to determine the optimal number of clusters to retain (IBM SPSS, 2015). The clustering procedure consists of two steps and is based on a probabilistic model where the distance between clusters is parallel to the decrease in log-likelihood function, which is a result of merging nearest neighbors (Chiu, Fang, Chen, Wang, & Jeris, 2001). For the first step, preclusters were formed based on a sequential approach. A likelihood distance measure was used to determine each case's similarity to an existing precluster, and preclusters were formed when the loglikelihood was maximized. The second step uses a model-based hierarchical technique, similar to agglomerative hierarchical techniques. The optimal number of clusters was determined by the statistical program, which weighed both the ratio of distance between clusters and the change in BIC, such that a decrease in BIC from a previous model suggested better fit. In addition, the silhouette coefficient of cluster separation (distance of cases from the next closest cluster) and cohesion (distance of a case from the center of its own cluster) were examined as a fit indicator for the resulting clusters. This coefficient ranges from –1 (poor fit) to 1 (excellent fit; Kaufman & Rousseeuw, 1990). Cluster analyses were conducted separately for the reactive and proactive overt

aggression subscales and for the reactive and proactive relational subscales, as well as separately for AISB and AGDB.

For overt aggression in the full sample, the two step cluster analysis selected a two-cluster model as best fitting, which was a good fitting model according to the silhouette coefficient (0.6). Results mainly represented a high combined cluster (*n* = 163; 42.6%) and low overall cluster (*n* = 220; 57.4%). Groups based solely on high and low ratings were not theoretically meaningful, thus additional analyses were conducted to test a three-cluster model and four-cluster model based on previous research regarding proactive and reactive profiles of aggression (Crapanzano, Frick, & Terranova, 2010; Dodge & Coie, 1987; Marsee et al. 2014; Vitaro, Brendgen, & Tremblay, 2002). Results of the three-cluster model indicated a good fitting model with a silhouette coefficient of 0.6. Consistent with study predictions, there was a low overall cluster (*n* = 112; 29.2%), a high combined cluster (*n* = 149; 38.9%), and a reactive only cluster (*n* = 122; 31.9%). Results of the four-cluster model also indicated a good fitting model with a silhouette coefficient of 0.6; however, the clusters were not as theoretically meaningful as the three-cluster model. The four-cluster model produced a low overall cluster (*n* = 112; 29.2%), a medium combined cluster (*n* = 126; 32.9%), a high combined cluster (*n* = 48; 12.5%), and a reactive only cluster (*n* = 97; 25.3%). Previous research indicating a four-factor approach (Dodge & Coie, 1987; Vitaro, Brendgen, & Tremblay, 2002) identified the four factors as low overall, high combined, reactive only, and proactive groups. Given that a proactive only group failed to emerge in the current four-cluster model for overt aggression, the three-cluster model was selected. When AISB and AGDB were analyzed separately, the three-cluster solution resulted in similar groups (i.e., high combined, low overall, and reactive only) and was a good fitting

solution for both AISB (Figure 5b) and AGDB (Figure 5c) with silhouette coefficients of 0.6 for both. The four-cluster solution resulted in similar silhouette coefficients indicating a good fitting model. But the clusters identified were not theoretically meaningful with a high combined, a medium combined, a low combined, and a reactive only cluster in both samples. Thus, the three-factor model was selected because it was more theoretically meaningful. Profiles of the 3-cluster solution for overt aggression in all samples are provided in Figures 5a-5c.

For relational aggression in the full sample, the two step cluster analysis again selected a two-cluster model as best fitting, which was a good fitting model according to the silhouette coefficient (0.6). The results mainly represented a high combined cluster (*n* = 158; 41.4%) and low overall cluster (*n* = 224; 58.6%) which were not theoretically meaningful. Results of the three-cluster model indicated a good fitting model (silhouette coefficient of 0.5) with a low overall cluster (*n* = 194; 50.8%), a high combined cluster (*n* = 82; 21.5%), and a reactive only cluster (*n* = 106; 27.7%). Results of the four-cluster model also indicated a good fitting model (silhouette coefficient of 0.6) but the four-cluster model for relational aggression indicated the presence of proactive only cluster. There was a low overall cluster (*n* = 124; 32.5%), a high combined cluster (*n* = 82; 21.5%), a proactive only cluster (*n* = 91; 23.8%), and a reactive only cluster (*n* = 85; 22.3%). This four-cluster model also resulted in a more even distribution with the ratio of sizes of the largest cluster to the smallest cluster being 1.51 compared to 2.37 for the three-cluster model. When AISB and AGDB were analyzed separately, the three-cluster solution resulted in similar clusters (i.e., high combined, low overall, and reactive only) and was a good fitting solution for both AISB (Figure 6b) and AGDB (Figure 6c) with silhouette coefficients of 0.6 and 0.5,

respectively. The four-cluster solution resulted in similar silhouette coefficients indicating a good fitting model. Interestingly, a proactive only cluster was identified in both samples, as well as in the full sample but only for relational aggression. The three-factor model once again was selected because it was the best fitting and most theoretically meaningful model across both samples for both overt and relational aggression. Additionally, previous research using the PCS as a measurement of aggression has demonstrated that a three-factor model fits best (Crapanzano, Frick, & Terranova, 2010; Marsee et al. 2014). Profiles of the 3-cluster solution for relational aggression for all samples are depicted in Figures 6a-6c.

To further describe the clusters, chi-square analyses were conducted to determine if meaningful differences existed in the level of coercion and violence of the committing offense for each individual in the aggression clusters. For the AISB population, the committing offense was recoded into a dichotomous variable as contact or non-contact and the expected three-cluster solutions (i.e., high combined, reactive only, and low overall) for both overt and relational aggression were compared separately. None of the cells (0.0%) had expected counts less than five indicating that the assumptions of the chi-square test were met. For both overt and relational aggression, the chi-square analyses were non-significant, χ^2 (2) = 1.04, p =.60, ϕ = 0.09, and χ^2 (2) = 3.67, p = .16, ϕ = 0.16, respectively. Results indicated that none of the aggression clusters differed significantly on the contact vs. non-contact variable. Thus, whether or not an individual has a sexual contact or non-contact offense does not seem to make a difference in whether that individual falls into one aggression cluster or another. Table 4 displays the distribution of cells for the overt and

relational aggression clusters in regards to contact vs. non-contact committing offenses for the AISB sample.

To further describe the clusters in the entire sample, chi-square analyses were conducted to determine if meaningful differences existed regarding the level of violence of the committing offense for each individual in the aggression clusters. Results of the chi-square analyses revealed non-significant results for both overt and relational clusters, χ^2 (2) = 4.15, p = .13, ϕ = 0.10, and χ^2 (2) = 1.57, p = .46, ϕ = .06, respectively. Results indicating that none of the aggression clusters differed significantly on the violent vs. non-violent variable. Thus, whether or not an individual has a violent or non-violent offense does not seem to make a difference in whether that individual falls into one aggression cluster or another. Table 5 displays the distribution of cells for the overt and relational aggression clusters in regards to violent vs. non-violent committing offenses for the entire sample.

Differences in Overt Aggression Clusters

Given that the three-cluster model for overt aggression was similar for AISB and AGDB, the three-cluster solution for the full sample (see Figure 5a) was used to test for differences across the overt aggression clusters. To test for differences across the overt aggression clusters and to compare differences in outcome variables across the two samples, four separate 2 (AISB vs. AGDB) by 3 (cluster: high combined, reactive only, and low overall) univariate ANOVAs were conducted using abuse history, psychopathic traits, and internalizing and externalizing symptoms as the four dependent variables. Means and standard deviations are presented in Table 6.

For childhood abuse history, results revealed a significant main effect of group membership, F (1, 375) = 77.36, $p < .001$, $\eta^2 = .17$, a significant main effect of aggression clusters, F (2, 375) = 22.04, $p < .001$, $\eta^2 = .11$, and a significant interaction between group membership and aggression cluster, F (2, 375) = 4.98, $p < .01$, $\eta^2 = .03$. Pairwise comparisons of the significant main effect of group membership indicated that the AISB group reported higher mean levels of childhood abuse when compared to the AGDB group ($p < .001$). Pairwise comparisons using a Bonferroni correction of the significant main effect of aggression clusters indicated that the high combined overt cluster reported significantly higher mean levels of childhood abuse when compared to the reactive only and low overall overt clusters (both $p < .001$). There were no significant differences between the reactive only and low overall clusters. Further post hoc comparisons using a Bonferroni correction were used to decompose the significant interaction between group membership and aggression cluster. Results revealed that within the AISB group, the high combined overt cluster reported more childhood abuse than the reactive only and low overall clusters (both $p < .01$) and the reactive only cluster more than the low overall cluster ($p < .05$). Within the AGDB group, the high combined overt cluster reported more childhood abuse that the reactive only and low overall clusters (both $p < .05$) but there were no significant mean differences between the reactive only and low overall clusters ($p = 1.0$). Lastly, the AISB group had significantly higher reports of childhood abuse than the AGDB group across all 3 overt aggression clusters (high combined, $p < .001$; reactive only, $p < .001$; low overall, $p < .05$). Results of the significant interaction between group membership and overt aggression cluster are presented in Figure 7a.

For externalizing symptoms, results revealed a significant main effect of group membership, F (1, 375) = 91.39, p < .001, η^2 = .20, a significant main effect of aggression clusters, F (2, 375) = 24.49, p < .001, η^2 = .12, and a significant interaction between group membership and aggression cluster, F (2, 375) = 2.95, p < .05, η^2 = .02. Pairwise comparisons using a Bonferroni correction of the significant main effect of group membership indicated that the AGDB group reported higher mean levels of externalizing symptoms when compared to the AISB group (p < .001). Pairwise comparisons using a Bonferroni correction of the significant main effect of aggression clusters indicated that the high combined overt cluster reported significantly higher mean levels of externalizing symptoms when compared to the reactive only and low overall overt clusters (p <. 05 and p < .001, respectively). The reactive only cluster also reported significantly higher mean levels of externalizing symptoms when compared to the low overall cluster (p < .001). Further post hoc comparisons using a Bonferroni correction were used to decompose the significant interaction between group membership and aggression cluster. Results revealed that within the AGDB group, the high combined overt cluster reported higher levels of externalizing symptoms than the reactive only and low overall clusters (both p < .01) and the reactive only cluster more than the low overall cluster (p < .01). Within the AISB group, both the high combined and reactive only overt cluster reported more externalizing symptoms than low overall cluster (p < .01, p < .05, respectively) but there were no significant differences between the high combined and reactive only clusters. Lastly, the AGDB group had significantly higher reports of externalizing symptoms than the AISB group across all 3 overt aggression clusters (high combined, reactive only, low overall;

$p < .001$ for all three). Results of the significant interactions between group membership and aggression cluster are presented in Figure 7b.

For internalizing symptoms, results revealed a significant main effect of group membership, F (1, 375) = 66.19, $p < .001$, $\eta^2 = .15$, a significant main effect of aggression clusters, F (2, 375) = 9.89, $p < .001$, $\eta^2 = .05$, but there was not a significant interaction between group membership and aggression cluster, F (2, 375) = 0.36, $p = .70$. Pairwise comparisons using a Bonferroni correction of the significant main effect of group membership indicated that the AISB group reported higher levels of internalizing symptoms when compared to the AGDB group ($p < .001$). Pairwise comparisons using a Bonferroni correction of the significant main effect of aggression clusters indicated the high combined cluster was significantly higher than both the reactive only and low overall clusters (both $p < .01$), but there was no significant difference between the reactive only and low overall clusters. Results of the significant main effects are presented in Figure 7c.

For psychopathic traits, results revealed no significant main effects of group membership, F (1, 374) = 1.04, $p = .31$, or aggression clusters, F (2, 374) = 2.07, $p = .13$. Results revealed a significant interaction between group membership and aggression cluster, F (2, 374) = 3.15, $p < .05$, $\eta^2 = .02$. Post hoc comparisons using a Bonferroni correction revealed that within the AISB group, there were no significant differences between the aggression clusters in regards to psychopathic traits. Within the AGDB group, the high combined cluster scored higher on psychopathic traits than both the reactive only and low overall clusters ($p < .001$, $p < .05$, respectively). Lastly, the AISB group had significantly higher levels of psychopathic traits than the AGDB group but only for the reactive only cluster ($p < .05$). Results are presented in Figure 7d.

Differences in Relational Aggression Clusters

For relational aggression, again the three-cluster solution for the full sample (see Figure 2a) was used to test for differences across the aggression clusters. To test for differences across the relational aggression clusters and to compare differences in outcome variables across the two samples, four separate 2 (AISB vs. AGDB) by 3 (cluster: high combined, reactive only, and low overall) univariate ANOVAs were conducted using abuse history, psychopathic traits, and internalizing and externalizing symptoms as the four dependent variables. Means and standard deviations are presented in Table 7.

For childhood abuse history, results revealed a significant main effect of group membership, F (1, 374) = 57.55, $p < .001$, $\eta^2 = .13$, a significant main effect of aggression clusters, F (2, 374) = 10.63, $p < .001$, $\eta^2 = .05$, but a non-significant interaction between group membership and aggression cluster, F (2, 374) = 1.07, $p = .34$. Pairwise comparisons using a Bonferroni correction of the significant main effects revealed that the AISB group reported significantly higher levels of childhood abuse than the AGDB group ($p < .001$). Further, the high combined cluster reported higher mean levels of childhood abuse than the low overall cluster ($p < .001$). Results are presented in Figure 8a.

For externalizing symptoms, results revealed a significant main effect of group membership, F (1, 374) = 101.46, $p < .001$, $\eta^2 = .21$, a significant main effect of aggression clusters, F (2, 374) = 8.03, $p < .001$, $\eta^2 = .04$, but a non-significant interaction between group membership and aggression cluster, F (2, 374) = 0.63, $p = .54$. Pairwise comparisons using a Bonferroni correction of the significant main effects revealed that the AGDB group reported higher mean levels of externalizing symptoms when compared to the AISB group ($p < .001$). The high combined relational cluster reported more externalizing symptoms

than the low overall relational cluster ($p < .01$) and the reactive only reported more than the low overall ($p < .05$). Results are presented in Figure 8b.

For internalizing symptoms, results again revealed a significant main effect of group membership, F (1, 374) = 49.69, $p < .001$, $\eta^2 = .12$, a significant main effect of aggression clusters, F (2, 374) = 9.79, $p < .001$, $\eta^2 = .05$, but a non-significant interaction between group membership and aggression cluster, F (2, 374) = 1.58, $p = .21$. Pairwise comparisons using a Bonferroni correction of the significant main effects revealed that the AISB group reported higher mean levels of internalizing symptoms when compared to the AGDB group ($p < .001$). The high combined relational cluster reported more externalizing symptoms than both the reactive only and the low overall relational clusters (both $p < .01$). Results are presented in Figure 8c.

For psychopathic traits, results revealed no significant main effects of group membership or aggression clusters, F (1, 373) = 0.15, $p = .70$, and, F (2, 373) = 1.69, $p = .19$, respectively. Results revealed a significant interaction between group membership and aggression cluster, F (2, 373) = 3.05, $p < .05$, $\eta^2 = .02$. Post hoc comparisons using a Bonferroni correction of the significant interaction revealed that within the AISB group, there were no significant differences between the relational aggression clusters in regards to psychopathic traits. Within the AGDB group, the high combined cluster scored higher on psychopathic traits than the low overall cluster ($p < .05$). The AISB group scored significantly higher levels of psychopathic traits than the AGDB group in the low overall cluster only, but there were no significant differences for any other clusters. Results are presented in Figure 8d.

Overlap Across Overt and Relational Aggression Clusters

Chi-square analyses were conducted to determine the degree of overlap across the overt and relational aggression clusters for both the AISB and AGDB samples separately (see Table 8). For both samples, the expected three-cluster solutions (i.e., high combined, reactive only, and low combined) for both overt and relational aggression were compared. None of the cells (0.0%) had expected counts less than five indicating that the assumptions of the chi-square test were met. For both AISB and AGDB, chi-square analyses indicated significant overlap in the clusters formed by overt and relational aggression, χ^2 (4) = 36.48, $p < .001$, $\phi = 0.51$, and χ^2 (4) = 74.88, $p < .001$, $\phi = 0.56$, respectively, with the ϕ coefficient suggesting that the strength of the association was substantial. However, despite this high level of correspondence, not all of the juveniles in the high relational clusters fell into one of the high overt aggression clusters, and this was more common for AISB (n = 15; 10.9%) than for AGDB (n = 10; 4.1%). In contrast, AGDB were more likely to fall in one of the high overt clusters but not in the low relational aggression clusters (n = 75; 30.9%) relative to AISB (n = 33; 23.9%).

Given that previous research has demonstrated two distinct types of AISB based on patterns of offending behavior, with one group that engages in sexually abusive behavior with children (at least 4 or 5 years younger than the perpetrator) and another group that engages in sexually coercive behavior with similar-aged peers (Hunter, Figueredo, Malamuth, & Becker, 2003) chi-square analyses were conducted to determine the percentage of AISB in the high combined cluster that also had child age victims (4 years or younger than the perpetrator). For overt aggression, 21.3% (n = 27) of the AISB sample fell into both the high combined cluster and had a victim 4 years of age younger and 15% (n =

19) for relational aggression. However, the association was not significant, χ^2 (4) = 5.31, p = .26, and χ^2 (4) = 4.28, p = .37, respectively.

Discussion

The current study was designed to examine profiles of the forms and functions of aggression in two distinct groups of juvenile offenders, adolescents with illegal sexual behavior (AISB) and adolescents with general delinquent behavior (AGDB). We found that AISB and AGDB have similar profiles of aggression overall as there were no significant group differences in the aggression profiles themselves. However, there were some group differences in the individual aggression subscales with AGDB displaying higher mean levels of reactive overt aggression and proactive overt aggression when compared to the AISB group. There were no group differences in relational aggression. This is the first study of its kind to investigate profiles of aggression in a population of juveniles adjudicated for illegal sexual behavior. In the United States, adult sanctions for sex offender registration and notification have been extended to juveniles adjudicated with a sexual offense on the basis that these youth represent a unique, homogenous group of dangerous youth whose illegal sexual behavior can be explained by risk factors that distinguish them from other juvenile offender populations (Becker, 1998; Chaffin, 2008; Seto & Lalumiere, 2010; Worling & Langstrom, 2006). Whereas, according to Chaffin (2008), this argument fails primarily because it assumes that other juvenile offender populations have a nonzero risk for reoffending sexually. Research has proven this to be clearly false as individuals arrested for non-sex crimes (and thus not sanctioned to registration and notification standards) tend to be re-arrested for sex crimes at a similar rate as those originally arrested for sex crimes (Hanson & Morton-Bourgon, 2005; Sample & Bray, 2003). Furthermore, decades of research have demonstrated that AISB are much less likely than adult sex offenders to reoffend sexually as evidenced by consistent reports of low

recidivism rates (see Zimring, 2004 for a review). Thus, current research seems to indicate that AISB have much more in common with AGDB than with adult sex offenders (see Chaffin, 2008; Letourneau & Miner, 2005; Zimring, 2004). The current study adds to this by demonstrating that juveniles adjudicated with illegal sexual behavior share similar profiles of aggression as juveniles adjudicated for general delinquent behavior, demonstrating once again the flawed narrative that registration and notification standards be extended to this sub-population of juvenile offenders on the basis that these youth are much more dangerous when compared to all other juvenile offenders.

We were also interested in examining clusters of aggression in both the AISB and AGDB sample. Results from the cluster analysis were generally consistent with previous research investigating clusters of aggression in detained samples with a few notable exceptions. Previous research has been mixed regarding the pattern of relational aggression for boys with some studies indicating the presence of a reactive relational group (Marsee et al. 2014) while other studies have shown this pattern for girls but not for boys (Crapanzano, Frick, and Terranova, 2010; Marsee et al. 2014). Overall, the results of this study support the presence of a reactive relational aggression group in both samples, adolescents with illegal sexual behavior (AISB) and adolescents with general delinquent behavior (AGDB). Some have suggested that individuals in this high reactive group would show different patterns of emotional and behavioral functioning when compared to individuals in the high combined group (Crick & Dodge, 1996; Hubbard et al., 2002; Marsee & Frick, 2010). Indeed, this high reactive group has been shown in previous studies to be associated with higher rates of depression, peer rejection, social isolation, and victimization by both parents and peers when compared to proactively aggressive children

(Boivin, Vitaro, Hodges, & Poulin, 1998; Day, Bream, & Paul, 1992; Marsee, 2008; Vitaro, Brendgen, & Tremblay, 2002). However, the results of the current study did not indicate unique psychosocial functioning among the high combined and high reactive aggression groups. Rather, it appears that the high combined group represented a more disturbed group overall with the highest mean ratings of both internalizing and externalizing features of psychopathology, as well as more extensive abuse histories and higher rates of psychopathic traits when compared to the other aggression clusters. The reactive only cluster was not significantly higher than the high combined cluster on any of the measured outcome variables in this study. Further, while results indicated that AISB and AGDB have similar profiles of aggression overall, there was evidence that the groups differed in regards to outcome variables. Consistent with previous research, the AISB group reported more extensive childhood abuse and higher levels of internalizing symptoms such as feelings of sadness, discouragement, dejection, and low self-esteem. The AGDB group reported higher levels of externalizing symptoms indicating engagement in more persistent problematic and antisocial behaviors such as threatening others, lying, stealing, and a general lack of concern for rules. There were no overall group differences in regards to psychopathic traits.

Research has consistently demonstrated a high rate of correlation between reactive and proactive aggression with most children scoring high on proactive aggression also scoring high on reactive aggression (Brown et al., 1996; Crapanzano et al., 2011; Dodge & Coie, 1987; Frick et al., 2003; Munoz et al., 2008; Marsee et al., 2011). This interesting finding has led some to question whether a purely proactively aggressive group of individuals truly exists or if the presence of proactive aggressive should simply serve as an

indicator of a more severe and disturbed pattern of aggression (Bushman & Anderson, 2001; Walters, 2005). Results from the current study support the latter hypothesis in that the existence of a purely proactive group failed to emerge. For relational aggression, when testing a fixed four factor solution of the cluster analysis there did appear to be a group that could be argued as a proactive only group. However, upon further investigation this group appeared to have similar levels of reactive aggression as the high reactive aggression group indicating that this fourth cluster more accurately represented a medium combined group rather than a distinctly proactive only group. Overall, the three cluster solution was deemed to be the best fitting model. With the final three cluster solution, for both overt and relational aggression, the only cluster identified as having high proactive aggression also demonstrated high rates of reactive aggression. This high combined group consistently demonstrated higher reports of emotional and behavioral dysfunction supporting the hypothesis that the presence of proactive aggression serves more as an indicator of severity rather than representing a qualitatively distinct group in and of itself.

Another important finding from the current study was that there were a considerable number of juveniles in both samples who fell into a high relational cluster but who did not show high rates of physical aggression (10.9% and 4.1% in the AISB and AGDB samples, respectively). Recall that experts in the field of aggression have criticized many of the clinical and research assessments of aggression due to the limited scope of the items being rated (see Tremblay, 2000 for a review). These commonly used measures fail to take into account the presence of relational aggression and tend to assess anger and general antisocial behavior rather than aggression per se (e.g., Achenbach & Edelbrook, 1983; Dodge & Coie, 1987). Using an expanded construct of aggression that includes relational

aggression may capture juvenile offenders who will not be detected if a measure assessing only overt aggression is used. Previous studies have shown an association between relational aggression and maladaptive psychosocial adjustment for both the aggressors and the victims of relational aggression (see Marsee & Frick, 2010 for a review; see also Crick & Grotpeter, 1995). Results from the current study indicated that the relational aggressions clusters in both samples experienced clinically significant impairment on several of the MACI scales. For example, in the AGDB sample all three relational aggression clusters had MACI scores in the clinical range (60-75) and severe range (85) for externalizing symptoms. In the AISB sample, the high combined relational cluster scored in the clinical range for internalizing symptoms. Clinically speaking, an assessment of aggression that fails to consider relational aggression may not identify these individuals (perpetrators and/or victims) who may be in need of mental health services (Leff & Crick, 2010).

Several important limitations should be noted. First, this study was cross-sectional in nature. Further investigation using longitudinal data is needed to determine if AISB and AGDB differ in regards to recidivism risk and if certain profiles of aggression are associated with a heightened recidivism risk. Second, it is also possible that the use of all self-report measures for aggression ratings may have led to artificially inflated correlations due to shared method variance and measurement bias. Future research is needed to determine if similar results occur when using parent, teacher, and/or peer ratings of aggression. Further, the sample consisted entirely of detained male adolescents and further research is needed to determine the generalizability of the results to community settings or to female adolescents. Finally, given that the vast majority of AISB in the current sample had

committing offenses that were rated as minimal force, it should be noted that these results may not apply equally to a sample of AISB with more violent committing offenses.

These findings have important policy implications. Critics of the Adam Walsh Act often take issue with the application of registration and notification standards to juvenile offenders. They claim that the jurisdictional blending between juvenile and adult offenders violates much of the protective and rehabilitative characteristics of the traditional juvenile justice system. Supporters of the registration and notification guidelines, on the other hand, point to the Supreme Court ruling in *Smith v. Doe* (2003) that deemed registration requirements were not punitive in nature, but rather a necessity for public safety. However, a federal appellate court has recently recognized the potential for unintended negative consequences of registration and notification standards for juvenile offenders. In *United States v. Juvenile Male* (2010), Chief Justice Reinhardt stated that registration and notification laws applied to juveniles "seriously jeopardizes the ability of such individuals to obtain employment, housing, and education" (p. 935). Furthermore, the American Psychological Association's amicus brief to the Supreme Court in *Roper v. Simmons* (2005) presented evidence indicating that adolescents are not cognitively or emotionally capable of evaluating consequences in the same manner as adults. Thus, equal treatment of juveniles and adults in regards to registration and notification standards neglects decades of research that has accumulated indicating distinct differences between juveniles and adults in terms of neurocognitive, social, and emotional development. Furthermore, the registration and notification guidelines and the many unintended consequences that follow have been selectively applied to a certain subpopulation of juvenile offenders. The selective application of such harsh and punitive standards seems unjustifiable in the light of all the

research indicating that AISB and AGDB share many similarities in terms of psychosocial risk factors and risk for recidivism, including similarities in aggression profiles as presented in the current study.

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Table 1. *Correlations, means, and standard deviations of the main study variables*

	1	2	3	4	5	6	7	M	*SD*
1. Group membership								N/A	N/A
2. Age in years	.54**							16.77	1.28
3. Race	.46**	.23**						N/A	N/A
4. Full Scale IQ	-.18**	-.07	-.37**					84.15	13.02
5. Reactive Overt	.22**	.09	.14**	.02				7.87	6.46
6. Proactive Overt	.12*	.01	.12*	-.03	.60**			2.05	3.76
7. Reactive Relational	-.09	-.16**	-.01	-.00	.48**	.59**		2.53	3.79
8. Proactive Relational	-.01	-.05	.04	-.07	.46**	.66**	.68**	1.74	3.36

Note: M = Mean. SD = Standard Deviation. Group membership was coded 1 = AISB, 2 = AGDB. Race was coded 0 = Caucasian, 1 = Non-Caucasian.
*$p < .05$, **$p < .01$, ***$p < .001$, Two-Tailed.

Table 2. *Comparing violent and non-violent offenses and aggression subscales in the full sample.*

	Violent Offenses		Non-violent Offenses		t-test Results
	M	SD	M	SD	
Reactive Overt	.77	.42	.84	.38	t (379) = 1.67, p = .10
Proactive Overt	.29	.37	.30	.35	t (389) = 0.28, p = .78
Reactive Relational	.40	.38	.37	.34	t (379) = 0.73, p = .47
Proactive Relational	.29	.36	.26	.30	t (379) = 1.04, p = .30

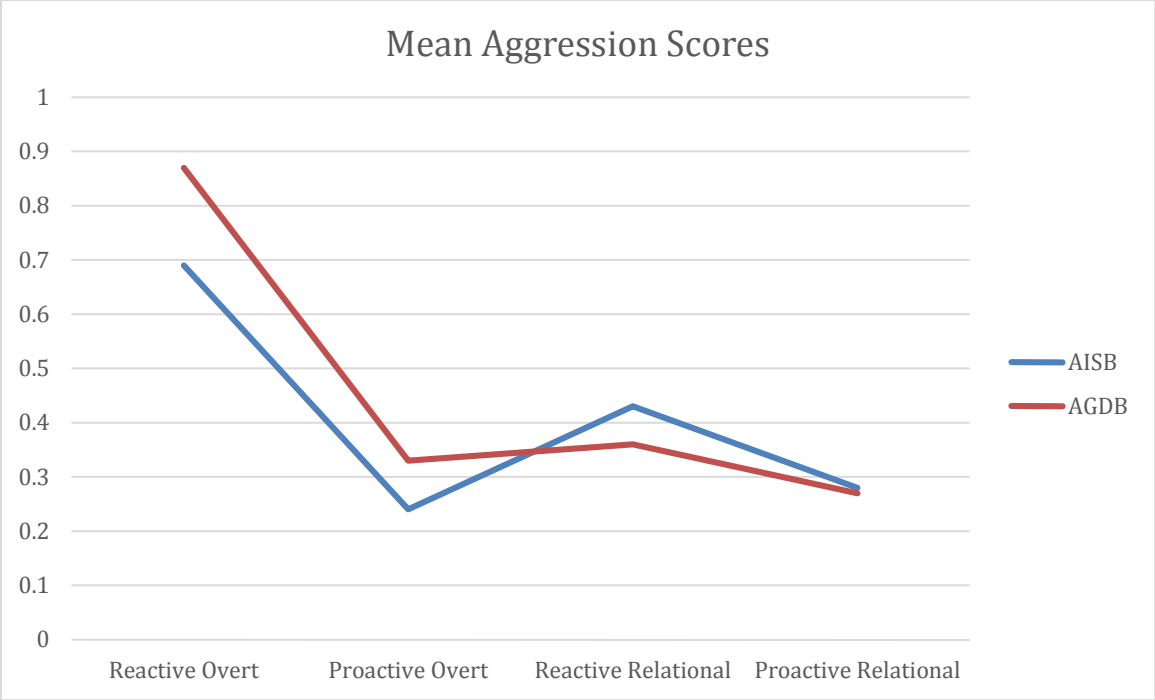
Note. Aggression scales were log transformed to improve normality. M = Mean. SD = Standard Deviation.

Table 3. *Comparing level of force of committing offense and aggression subscales in the AISB sample.*

	Minimal Force Offenses		Moderate Force Offenses		t-test Results
	M	SD	M	SD	
Reactive Overt	.69	.44	.76	.22	t (125) = 0.29, p = .77
Proactive Overt	.24	.34	.23	.15	t (128) = 0.08, p = .94
Reactive Relational	.42	.42	.54	.37	t (125) = 0.59, p = .55
Proactive Relational	.28	.35	.25	.33	t (126) = 0.19, p = .85

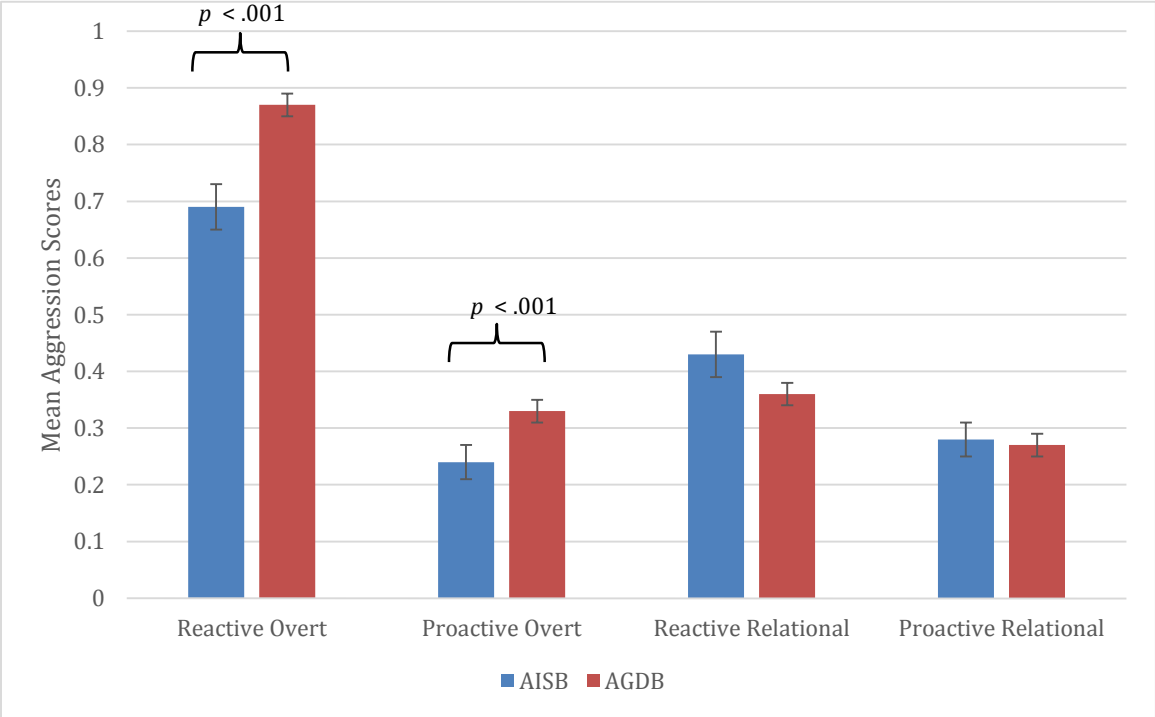
Note. Aggression scales were log transformed to improve normality. M = Mean. SD = Standard Deviation.

Figure 1. *Profiles of aggression subscales*



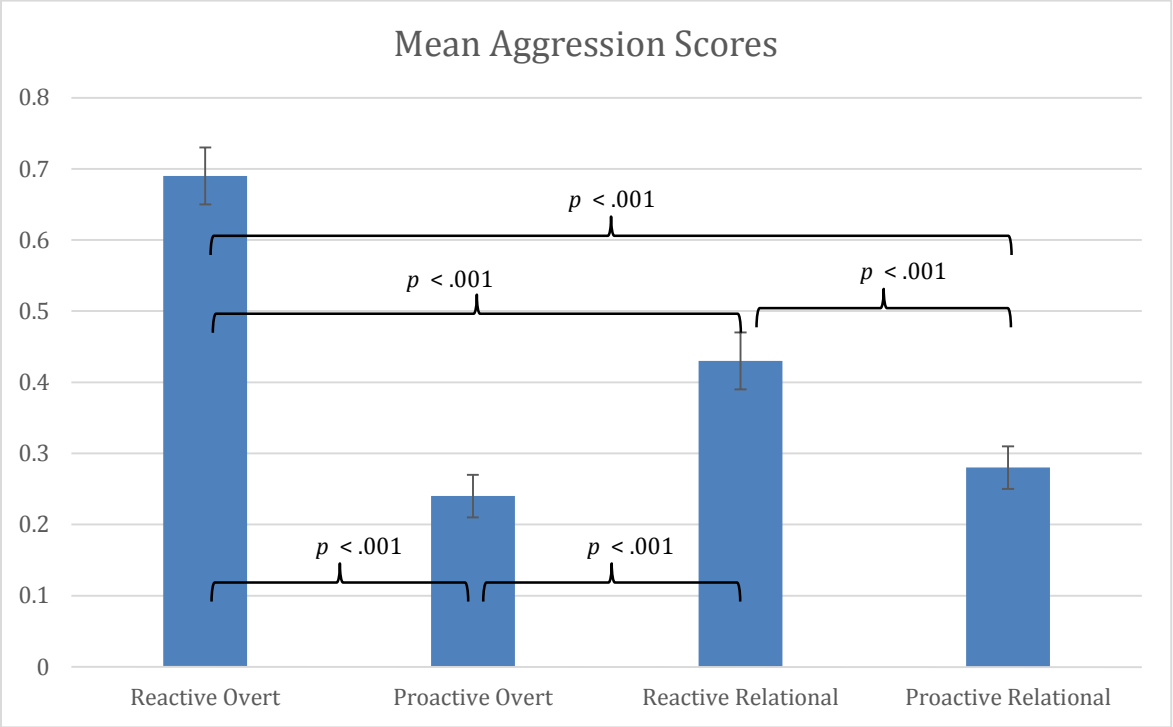
Note: Aggression scales were log transformed prior to analysis.

Figure 2. *Results of simple main effects contrast analysis*



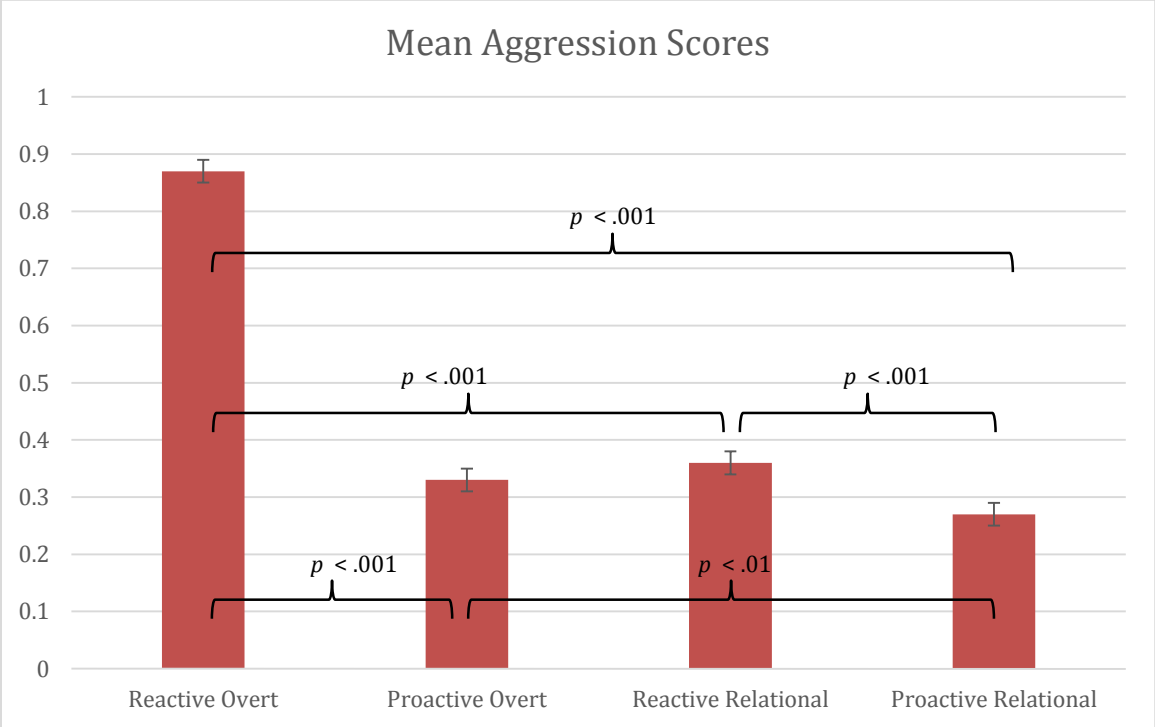
Note: Means and standard errors reported.

Figure 3. *Means and standard errors across aggression subscales for AISB*



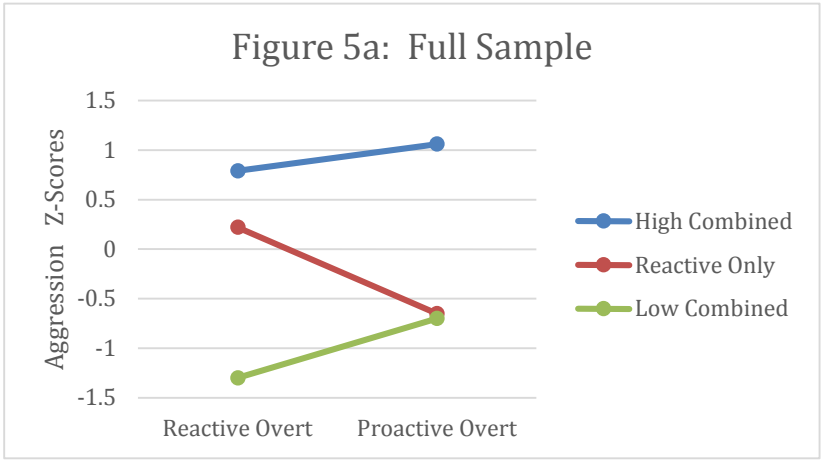
Note: Mean differences significant after Bonferroni adjustment for multiple comparisons.

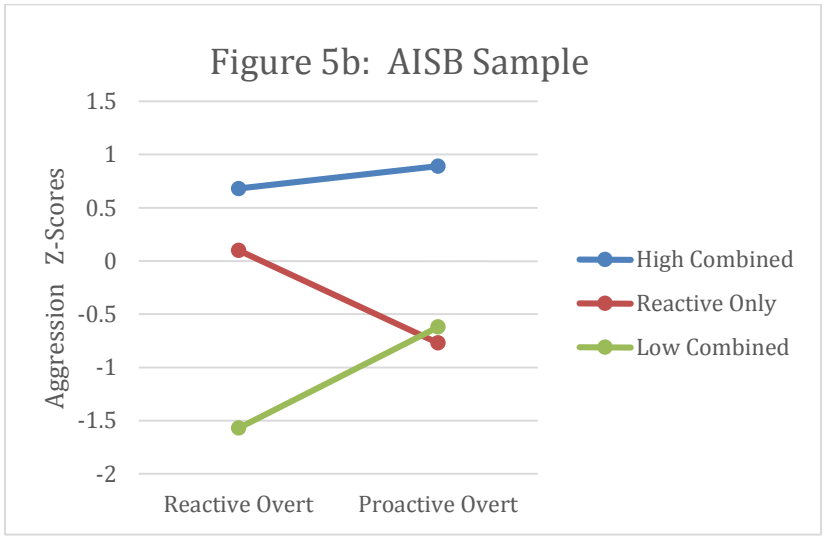
Figure 4. *Means and standard errors across aggression subscales for AGDB*



Note: Mean differences significant after Bonferroni adjustment for multiple comparisons.

Figure 5a-5c. *Overt aggression clusters across samples*





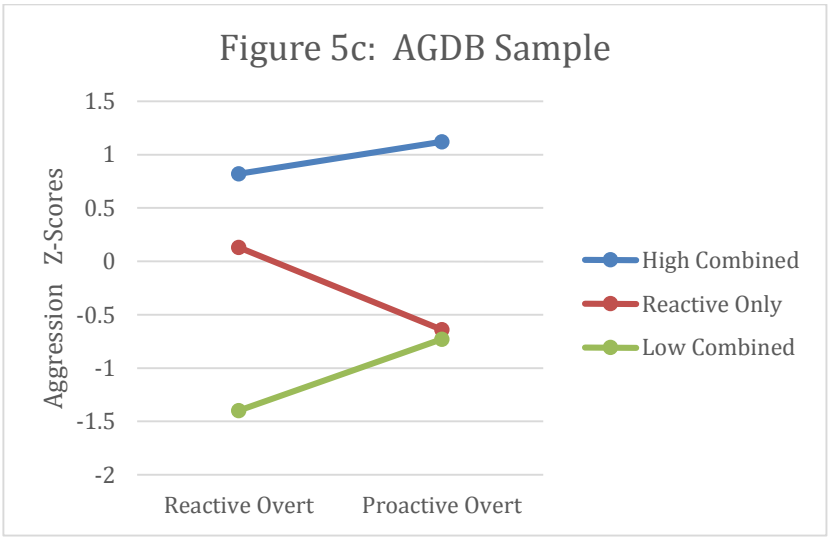
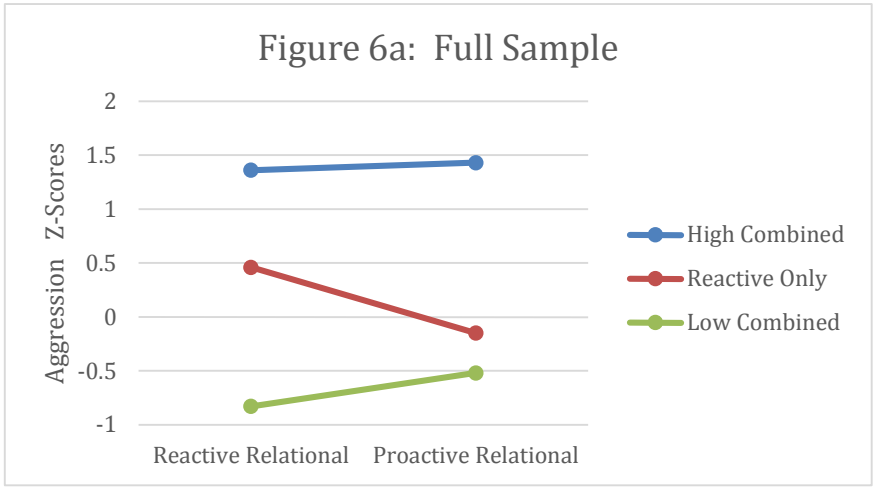
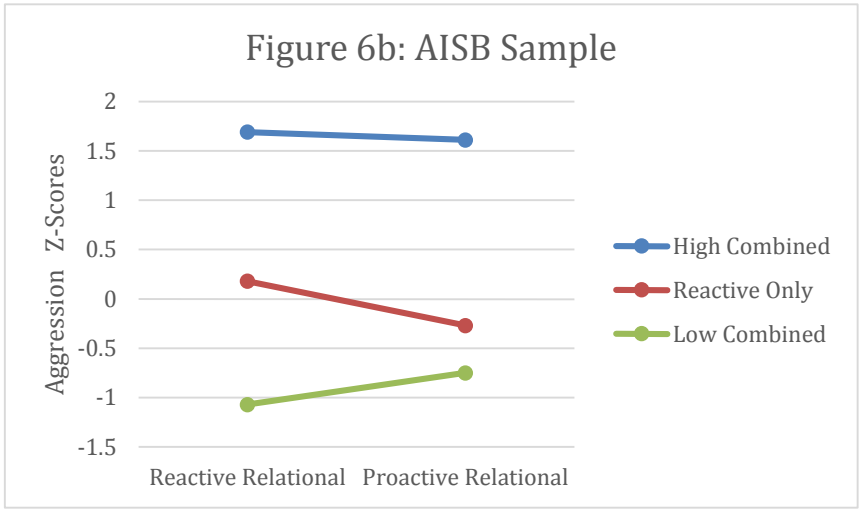


Figure 6a-6c. *Relational aggression clusters across samples*





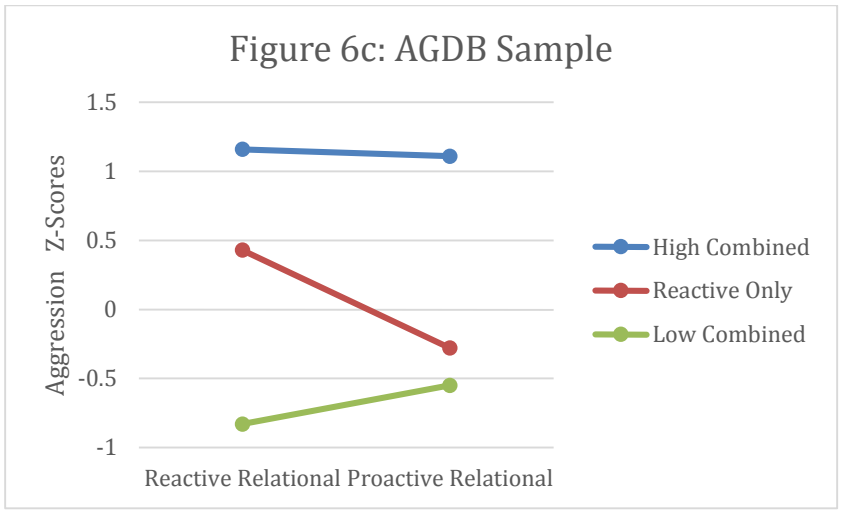


Table 4. *Distribution of cells for contact vs. non-contact offenses across aggression clusters in the AISB sample*

	High Combined Overt	Reactive Only Overt	Low Overall Overt	Chi-square	Effect size
Contact	32	31	47	χ^2 (2) = 1.04	ϕ = 0.09
Non-contact	8	10	9		
	High Combined Relational	Reactive Only Relational	Low Overall Relational		
Contact	24	23	63	χ^2 (2) = 3.67	ϕ = 0.16
Non-contact	8	9	10		

Note: Total AISB sample size (n = 137)

Table 5. *Distribution of cells for violent vs. non-violent offenses across aggression clusters for entire sample*

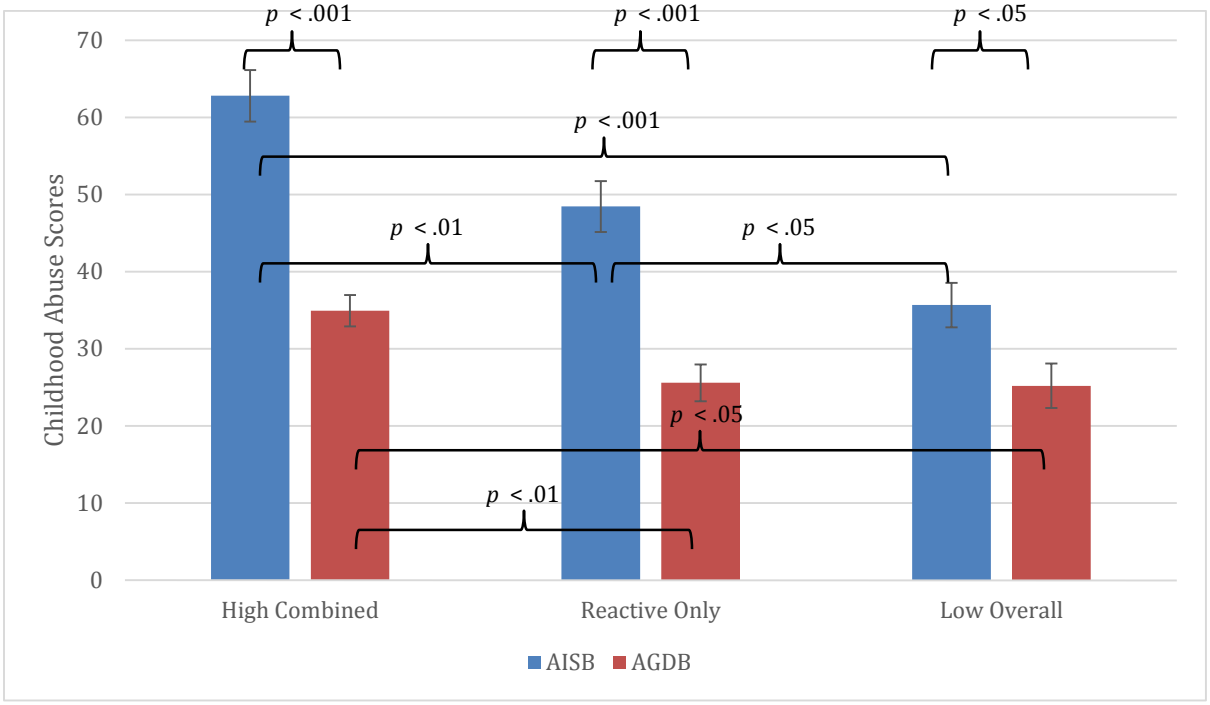
	High Combined Overt	Reactive Only Overt	Low Overall Overt	Chi-square	Effect size
Violence	67	56	64	χ^2 (2) = 4.15	ϕ = 0.10
Non-violence	81	65	48		
	High Combined Relational	Reactive Only Relational	Low Overall Relational		
Violence	42	46	98	χ^2 (2) = 1.57	ϕ = 0.06
Non-violence	39	59	96		

Note: Total sample size (n = 381)

Table 6. *Means and standard deviations of outcome variables for overt aggression clusters*

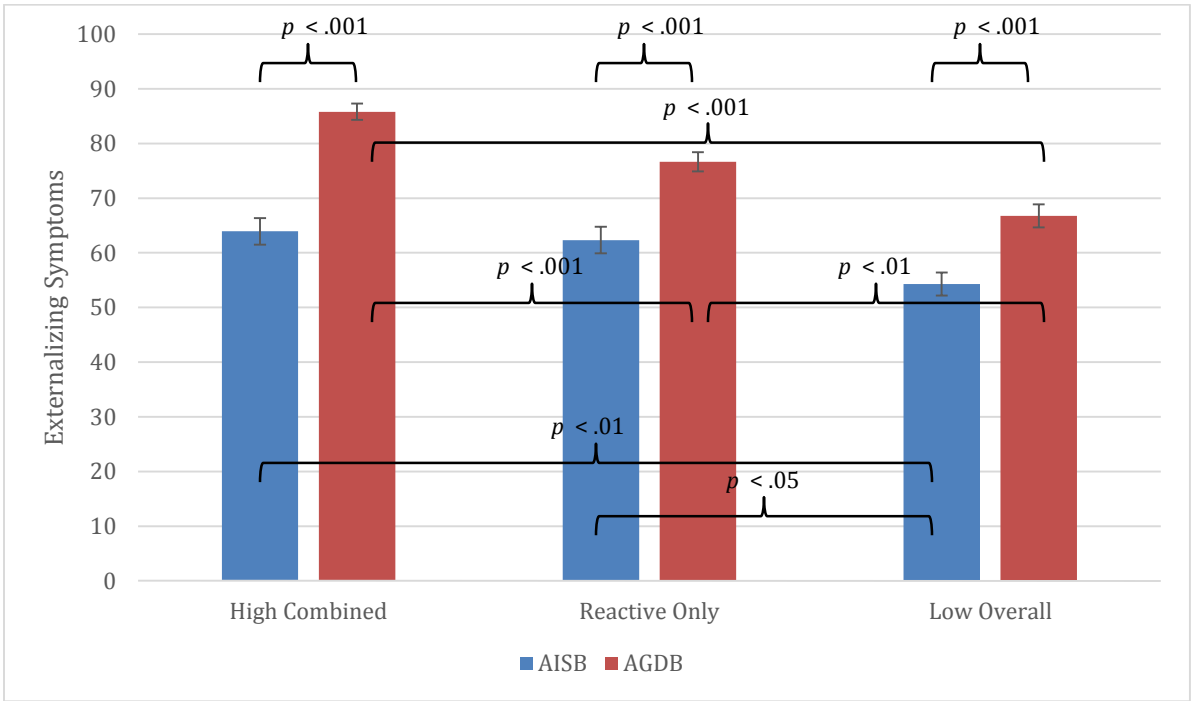
AISB Sample			
	High Combined (n = 41)	Reactive Only (n = 42)	Low Overall (n = 55)
Childhood abuse	62.81 (27.66)	48.45 (30.13)	35.67 (26.13)
Externalizing features	63.93 (18.43)	62.33 (21.12)	54.29 (15.02)
Internalizing features	71.54 (27.30)	57.45 (27.53)	55.82 (26.69)
Psychopathic traits	3.05 (2.14)	3.19 (2.29)	3.09 (2.06)
AGDB Sample			
	High Combined (n = 108)	Reactive Only (n = 80)	Low Overall (n = 55)
Childhood abuse	34.94 (18.97)	25.56 (13.89)	25.20 (15.79)
Externalizing features	85.79 (12.44)	76.65 (15.82)	66.75 (14.20)
Internalizing features	46.19 (25.29)	37.54 (22.76)	34.35 (23.03)
Psychopathic traits	3.56 (2.08)	2.39 (1.74)	2.70 (2.03)

Figure 7a. *Differences in childhood abuse scores across overt clusters*



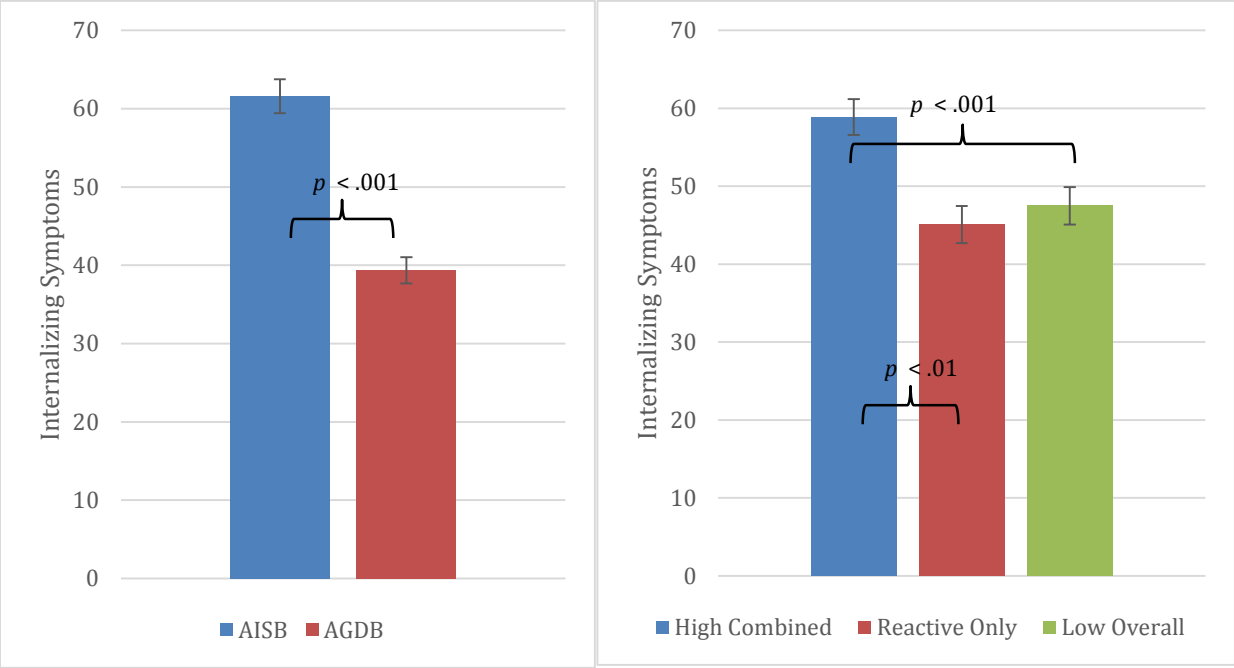
Note: Results are from a significant interaction of a 2X3 univariate ANOVA. Means and standard errors reported. Mean differences significant after Bonferroni adjustment for multiple comparisons.

Figure 7b. *Differences in externalizing symptoms across overt clusters*



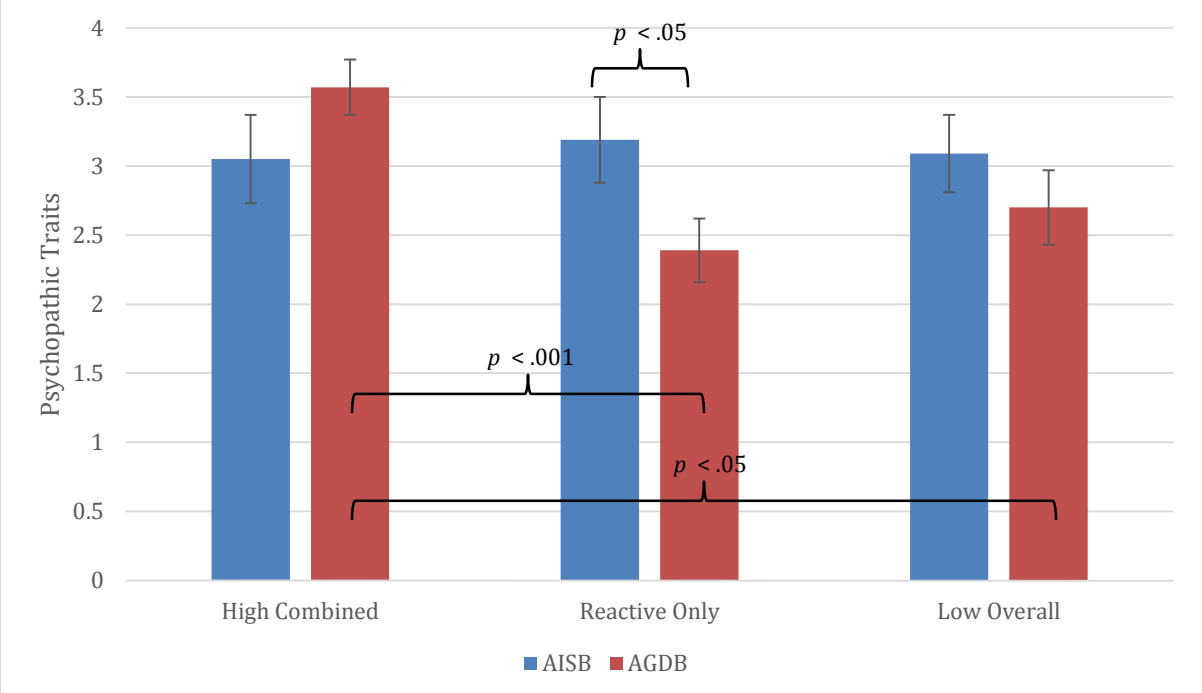
Note: Results are from a significant interaction of a 2X3 univariate ANOVA. Means and standard errors reported. Mean differences significant after Bonferroni adjustment for multiple comparisons.

Figure 7c. *Differences in internalizing symptoms across overt clusters*



Note: There was not a significant interaction between group membership and clusters for internalizing symptoms. Main effects for group membership and aggression clusters are depicted above.

Figure 7d. *Differences in psychopathic traits across overt clusters*

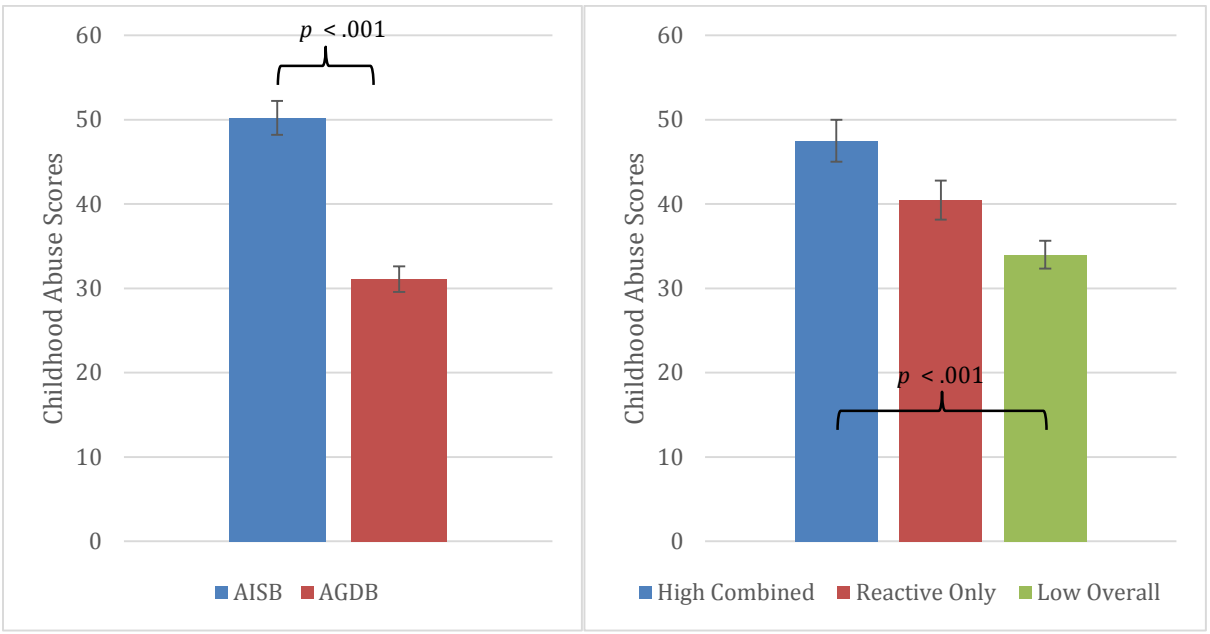


Note: Results are from a significant interaction of a 2X3 univariate ANOVA. Means and standard errors reported. Mean differences significant after Bonferroni adjustment for multiple comparisons.

Table 7. *Means and standard deviations of outcome variables for relational aggression clusters*

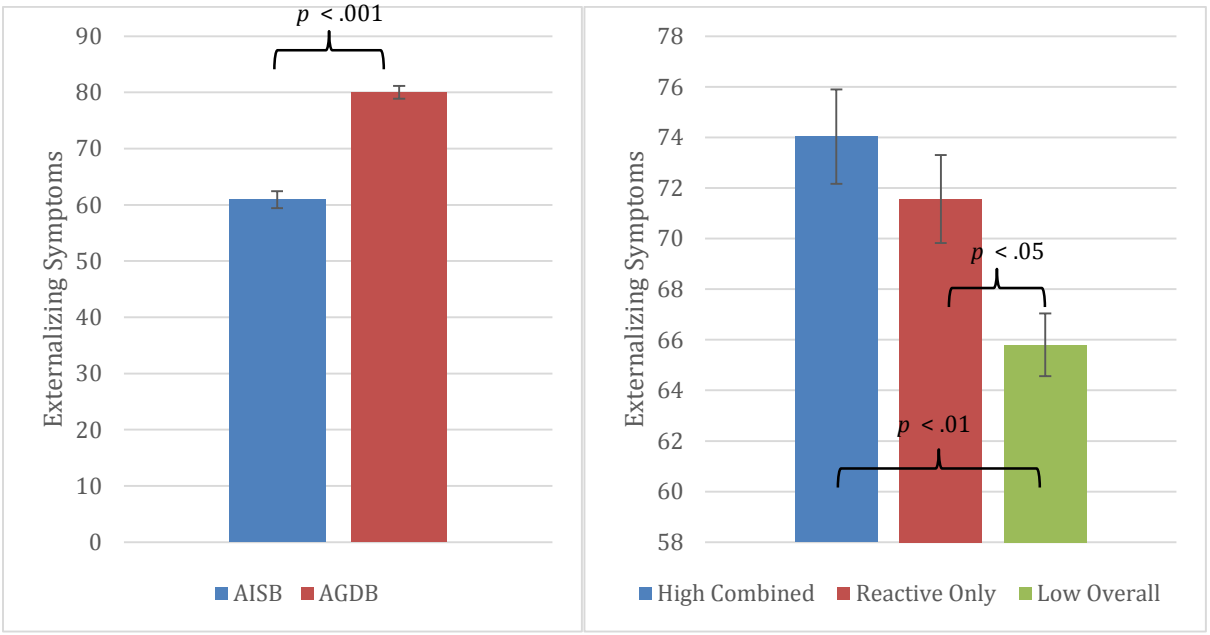
AISB Sample			
	High Combined (n = 41)	Reactive Only (n = 42)	Low Overall (n = 55)
Childhood abuse	59.73 (28.53)	48.91 (29.84)	41.96 (29.07)
Externalizing features	62.91 (21.14)	62.88 (16.44)	57.03 (18.21)
Internalizing features	75.09 (23.86)	54.91 (26.76)	57.85 (27.91)
Psychopathic traits	3.09 (2.04)	2.70 (2.38)	3.32 (2.09)
AGDB Sample			
	High Combined (n = 108)	Reactive Only (n = 80)	Low Overall (n = 55)
Childhood abuse	35.27 (18.90)	32.00 (16.28)	26.03 (16.31)
Externalizing features	85.14 (14.71)	80.25 (15.64)	74.58 (15.47)
Internalizing features	48.63 (25.63)	41.95 (25.08)	36.86 (22.77)
Psychopathic traits	3.71 (2.02)	2.97 (2.08)	2.70 (1.94)

Figure 8a. *Differences in childhood abuse scores across relational clusters*



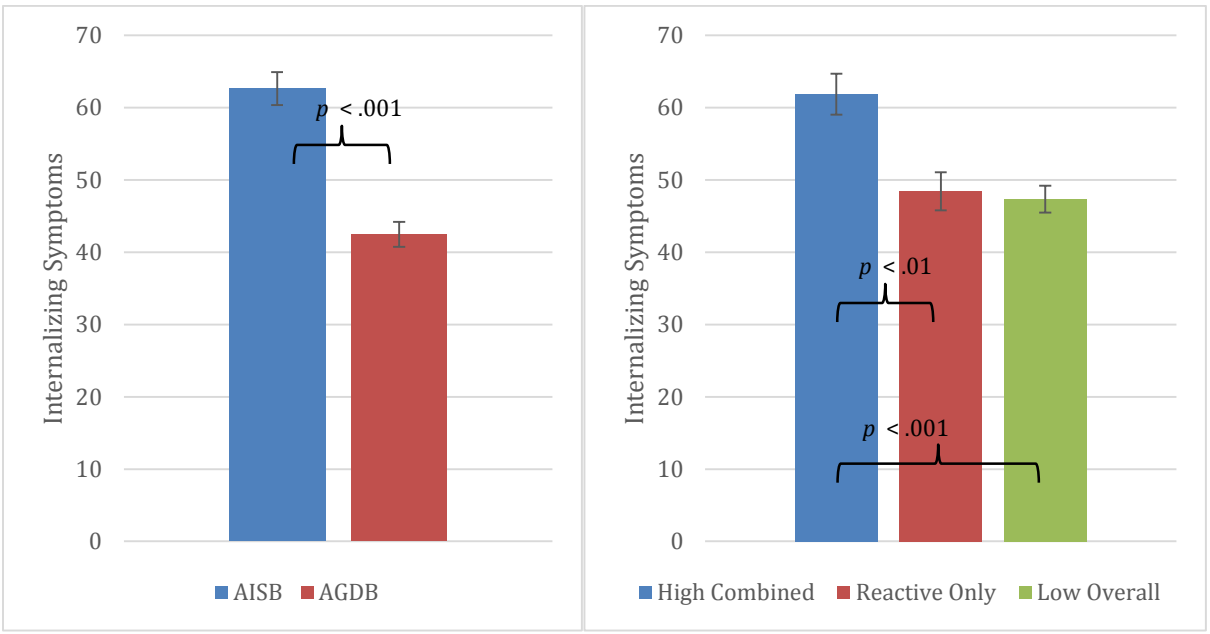
Note: There was not a significant interaction between group membership and clusters for childhood abuse. Main effects for group membership and aggression clusters are depicted above.

Figure 8b. *Differences in externalizing symptoms across relational clusters*



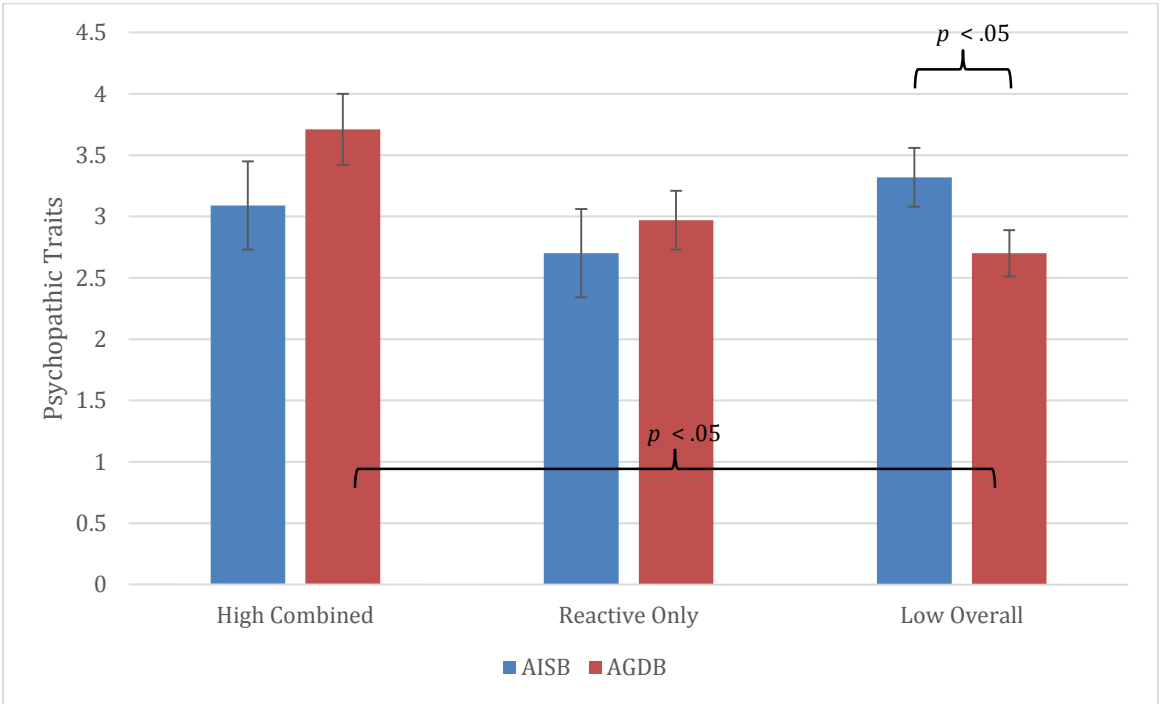
Note: There was not a significant interaction between group membership and clusters for externalizing symptoms. Main effects for group membership and aggression clusters are depicted above.

Figure 8c. *Differences in internalizing symptoms across relational clusters*



Note: There was not a significant interaction between group membership and clusters for internalizing symptoms. Main effects for group membership and aggression clusters are depicted above.

Figure 8d. *Differences in psychopathic traits across relational clusters*



Note: Results are from a significant interaction of a 2X3 univariate ANOVA. Means and standard errors reported. Mean differences significant after Bonferroni adjustment for multiple comparisons.

Table 8. *Overlap across the overt and relational aggression clusters*

Clusters	High Combined Relational	Reactive Only Relational	Low Overall Relational	Chi-square	Effect size
AISB Sample				χ^2 (4) = 36.48***	ϕ = 0.51
High combined overt	22	10	**9**		
Reactive only overt	9	9	**24**		
Low combined overt	**2**	**13**	40		
AGDB Sample				χ^2 (4) = 74.88***	ϕ = 0.56
High combined overt	43	40	**24**		
Reactive only overt	5	24	**51**		
Low combined overt	**1**	**9**	46		

Note: Bold values designate participants who were low on one form of aggression but fell into one of the high aggression clusters of the other form.
***p < .001.

AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS

RESEARCH PROTOCOL REVIEW FORM
FULL BOARD or EXPEDITED

For information or help contact **THE OFFICE OF RESEARCH COMPLIANCE (ORC)**, 115 Ramsay Hall, Auburn University
Phone: 334-844-5966 **e-mail:** IRBAdmin@auburn.edu **Web Address:** http://www.auburn.edu/research/vpr/ohs/index.htm

Revised 2.1.2014 **Submit completed form to IRBsubmit@auburn.edu or 115 Ramsay Hall, Auburn University 36849.**

Form must be populated using Adobe Acrobat / Pro 9 or greater standalone program (do not fill out in browser). Hand written forms will not be accepted.

1. PROPOSED START DATE of STUDY: August 9, 2015

PROPOSED REVIEW CATEGORY (Check one): ☑ FULL BOARD ☐ EXPEDITED

SUBMISSION STATUS (Check one): ☐ NEW ☑ REVISIONS (to address IRB Review Comments)

2. PROJECT TITLE: Accountability Based Juvenile Treatment and Assessment

3.

Barry R. Burkhart, Ph.D.	Professor	ector of the Accountability	burkhrbr@auburn.edu
PRINCIPAL INVESTIGATOR	TITLE	DEPT	AU E-MAIL
224 Cary Hall		334-844-6476	
MAILING ADDRESS		PHONE	ALTERNATE E-MAIL

4. FUNDING SUPPORT: ☐ N/A ☐ Internal ☐ External Agency: Alabama Dept of Youth Services ☐ Pending ☑ Received

For federal funding, list agency and grant number (if available).

5a. List any contractors, sub-contractors, other entities associated with this project:
Alabama DYS. Margaret K. Keiley is a PI on an associated project and a subcontractor on the DYS contract.

b. List any other IRBs associated with this project (including Reviewed, Deferred, Determination, etc.):
04-206 MR 0501(Current; Keiley, MK, PI); 130265 MR 1312

PROTOCOL PACKET CHECKLIST

All protocols must include the following items:

- ☑ **Research Protocol Review Form** (All signatures included and all sections completed)
  (Examples of appended documents are found on the OHSR website: http://www.auburn.edu/research/vpr/ohs/sample.htm)
- ☑ **CITI Training Certificates** for all Key Personnel.
- ☑ **Consent Form or Information Letter** and any Releases (audio, video or photo) that the participant will sign.
- ☑ **Appendix A**, "Reference List"
- ☑ **Appendix B** if e-mails, flyers, advertisements, generalized announcements or scripts, etc., are used to recruit participants.
- ☑ **Appendix C** if data collection sheets, surveys, tests, other recording instruments, interview scripts, etc. will be used for data collection. Be sure to attach them in the order in which they are listed in # 13c.
- ☐ **Appendix D** if you will be using a debriefing form or include emergency plans/procedures and medical referral lists (A referral list may be attached to the consent document).
- ☑ **Appendix E** if research is being conducted at sites other than Auburn University or in cooperation with other entities. A **permission letter** from the site / program director must be included indicating their cooperation or involvement in the project. NOTE: If the proposed research is a multi-site project, involving investigators or participants at other academic institutions, hospitals or private research organizations, a letter of IRB approval from each entity is required prior to initiating the project.
- ☐ **Appendix F** - Written evidence of acceptance by the host country if research is conducted outside the United States.

FOR ORC OFFICE USE ONLY

DATE RECEIVED IN ORC: _____ by _____
DATE OF IRB REVIEW: _____ by _____
DATE OF IRB APPROVAL: _____ by _____
COMMENTS:

PROTOCOL #
APPROVAL CATE
INTERVAL FOR C(

The Auburn University Institutional Review Board has approved this document for use from 08/12/15 to 08/11/16
Protocol # 15-331 MR 1508

VITA

The author was born in Montgomery, Alabama. She obtained her Bachelor's degree in human development and family studies from Auburn University in 2005. She then obtained her Master's of Art in theological studies from Fuller Theological Seminary in 2009. She joined the University of New Orleans psychology graduate program to pursue a PhD in applied developmental psychology and became a member of the Youth Social and Emotional Development Lab under the direction of Professor Monica A. Marsee in 2012. She accepted a post-doctoral fellowship in child and adolescent psychology at Auburn University in 2016. The combined clinical and research fellowship specialized in the assessment and treatment of problem sexual behavior and general adolescent delinquent behavior under the direction of Dr. Barry Burkhart.