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ACCEPTANCE

This dissertation, IDENTIFYING FACTORS THAT INFLUENCE ACADEMIC PERFORMANCE AMONG ADOLESCENTS WITH CONDUCT DISORDER by LISA M. QUICK, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree Doctor of Philosophy in the College of Education, Georgia State University.

This Dissertation Advisory Committee and the student's Department Chair, as representatives of the faculty, certify that this dissertation has met all standards of excellence and scholarship as determined by the faculty. The Dean of the College of Education concurs.

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ABSTRACT

IDENTIFYING FACTORS THAT INFLUENCE ACADEMIC PERFORMANCE AMONG ADOLESCENTS WITH CONDUCT DISORDER
by
Lisa M. Quick

The academic underachievement of children and adolescents diagnosed with conduct disorder is well established in the literature. However, no study to date has explored the contributions of personal and contextual variables to specific areas of academic functioning in this population. In this study measures of basic reading, reading comprehension, mathematics reasoning, and numerical operations were assessed using the Wechsler Individual Achievement Test (WIAT) in 63 participants with childhood onset (CO) conduct disorder and 27 participants with adolescent onset (AO) conduct disorder. Participants were enrolled in a residential treatment facility between 1998 and 2002 at the time of evaluation. A series of ANCOVAs were conducted to evaluate how verbal IQ, onset subtype, comorbid ADHD, and residence location (urban versus nonurban) influenced each academic area. Only verbal IQ was significantly related to all academic areas. After adjusting for the variance explained by verbal IQ, comorbid ADHD did not significantly influence academic scores. After controlling for verbal IQ, participants with either CO or an urban residence were found to have significantly weaker scores in basic reading. Urban residents with CO had significantly weaker performance in mathematical reasoning. Numerical operations scores were the weakest among the four academic areas for both onset groups, and verbal IQ explained a

relatively small portion of the variance. Overall, a larger portion of the variance in academic scores was explained among the AO group than the CO group, suggesting subtler complexities among the CO population that are yet unknown. This study highlights the heterogeneity among the conduct disorder population and variation in academic risk by demographic markers. If these results replicate across studies, they may represent a more parsimonious organization of patterns of characteristics that will provide treatment utility for clinical work and educational intervention beyond what is currently used.

IDENTIFYING FACTORS THAT INFLUENCE ACADEMIC PERFORMANCE AMONG ADOLESCENTS WITH CONDUCT DISORDER

by
Lisa M. Quick

A Dissertation

Presented in Partial Fulfillment of Requirements for the
Degree of
Doctor of Philosophy
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in
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in
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Atlanta, GA
2007

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ABBREVIATIONS

ADHD	Attention Deficit Hyperactivity Disorder
AO	Adolescent Onset
CD	Conduct Disorder
CO	Childhood Onset
DSM	Diagnostic and Statistical Manual
LI	Language Impaired
WIAT	Wechsler Individual Achievement Test
WISC-III	Wechsler Intelligence Scale for Children – Third Edition

EXPLORING FACTORS ASSOCIATED WITH THE DIAGNOSIS OF CONDUCT DISORDER AMONG ADOLESCENTS

Although current statistics point to declining incidents of violent crime in the country, incidents of youth violence are soaring in this country (Mandel, 1997; Rodney, Tachia, & Rodney, 1999) Media bias and sensationalism may exaggerate the severity and magnitude of the problem (Doob & Meen, 1993), however, a review of crime statistics illustrates a steady and drastic increase in youth violence (Coie & Dodge, 1998). Much of youth violence is perpetrated by children diagnosed with conduct disorder (CD), a classification developed to describe a persistent pattern of behavior involving the violation of others' rights or societal rules and norms. The number of youths diagnosed with CD has increased drastically within the last 30 years (Kazdin, 1995; Mandel, 1997; Moffitt, 1993b) with the greatest increase occurring in urban areas (Bassarath, 2001; Bernstein, 1996; Coie, 1996; Kazdin, 1995).

The behavior of those diagnosed with conduct disorder is costly to society and to the victims of their antisocial and aggressive acts. The cost for psychiatric and psychological treatment, family social work, juvenile adjudication, incarceration, special education programs, and associated services are costly (Kazdin, 1995). Additionally, conduct disorder is associated with a wide range of maladaptive psychosocial outcomes which include substance abuse, poor school performance, school drop out, depression,

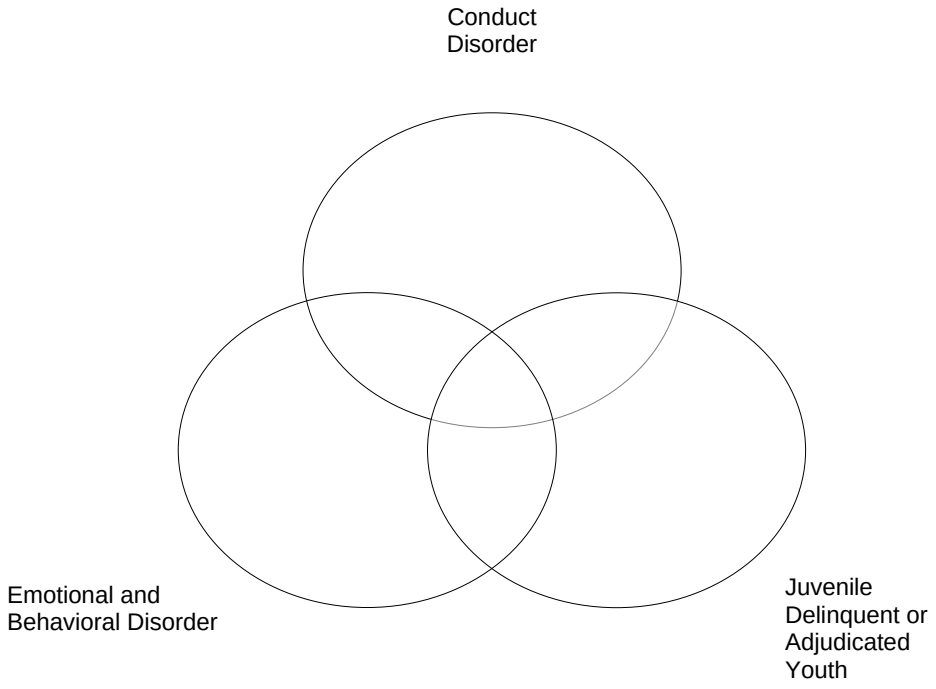
and early parenthood (Bassarath, 2001; Moffitt, 1993a; Offord, 1987; Prinz & Miller, 1991).

The etiology of conduct disorder involves an interaction of developmental, genetic/constitutional, familial, social and cultural factors. The elements of these diverse domains are symbiotic, constantly influencing and being influenced by each other. To examine these elements in isolation would be incomplete without also understanding how these factors work in concert. While individualized risk factors have been intricately described in the research, this paper will not provide an in depth analysis of those individual risk factors. The intention of this paper is to discuss how these factors work in concert, to add to what we know about the increase in adolescents identified with conduct disorder, and to explore current factors and trends that may account for its reported growth in urban areas.

Conduct disorder, a psychiatric index of antisocial behavior, shares similarities with delinquency, a criminological index (See Figure 1). Many youths diagnosed with conduct disorder are involved in social and legal systems (APA, 2000; Bennett, 1998), however, all CD youths are not juvenile delinquents. While all delinquent behaviors are defined as violations of the law, CD symptoms are not necessarily so defined. For instance, symptoms such as “has used a weapon” may be criminal offences, and thus overlap with delinquency, whereas “bullies, threatens or intimidates” or “stays out at night despite parental prohibitions” may not necessarily be interpreted as violations of law. With regard to special education, many youths with conduct disorder receive services under the emotional or behavioral umbrella, but not all (Gagne, 1977; Koonce,

2000; McGee, Williams, & Silva, 1984). So whereas Conduct Disorder is the term used in clinical settings, other disciplines may use a different nomenclature to identify similar groups of children and adolescents. For example, terms such as “emotional and behavioral disordered”, may be used in the schools. “juvenile delinquent” or “adjudicated youth” are used in the justice system. Yet one adolescent may be served by multiple systems and have multiple labels. Because of the overlap of these populations, research on any one of these topics may provide insight into the others. This paper will include research from the disciplines of education, psychiatry, criminal justice, sociology, psychology, and anthropology that discuss antisocial behaviors of children and adolescents.

Figure 1. Overlap of psychiatric, legal, and educational nomenclatures



Multifactor Risks Associated With the Diagnosis of Conduct Disorder Among Adolescents

Genetic Risk Factors

Genetically influenced temperament appears to be stable over time and can be a precursor to later difficulty. Aggressive dispositions tend to be a stable trait for both males and females that can be tracked throughout life as early as age 3 (Caspi et al., 2003). Research has found that the amount of irritable and aggressive behavior displayed between ages 3 and 10 is a fairly good predictor of aggressive or antisocial inclinations later in life (Aber & Zigler, 1981; Caspi et al., 2003; Hart, Hofmann, Edelstein, & Keller, 1997; Newman, Caspi, Moffitt, & Silva, 1997).

Research suggests evidence of a genetic predisposition that may leave some children with an inherent decreased baseline. Parental psychopathology that includes depression (Cicchetti, Rogosch, & Toth, 1998; Kim-Cohen, Moffitt, Taylor, Pawlby, & Caspi, 2005), substance abuse (Lahey et al., 1988; Lahey, Russo, Walker, & Piacentini, 1989; Moss, Baron, Hardie, & Vanyuknov, 2001), and especially antisocial behavior are among the strongest predictors of CD. Antisocial genetic factors (Arseneault et al., 2003; Bassarath, 2001; Caspi et al., 2004; McCabe, Hough, Wood, & Yeh, 2001; O'Connor, L., Fulker, Rutter, & Plomin, 1998; Simonoff, Pickles, Meyer, Silberg, & Maes, 1998) that likely include dysregulated behavior (Dodge, 2003) are moderately to highly correlated with risk of antisocial behavior among offspring. Researchers have suggested the

presence of neurological impairments among some conduct disordered youths(Clark, Prior, & Kinsella, 2002; Dodge & Pettit, 2003; Hodges, 2003; Moffitt, 1993a). Individuals with conduct disorder have been compared to individuals with traumatic brain injuries (Max et al., 1998a, 1998b). Golden and Golden (2001) assessed adolescents who had early onset conduct disorder and compared them to adolescents with brain injuries. They found that those with early onset conduct disorder performed similarly on cognitive measures as adolescents with left hemisphere brain injuries. Whereas right hemisphere brain injured adolescents tend to have spatial and visual motor coordination problems, left hemisphere injuries are characterized by verbal impairments, learning difficulties, and poor regulation of emotions and behavior. This lends support to theories that early onset conduct disorder may have neurological impairments.

In a longitudinal analysis, Kim-Cohen, Moffitt, Taylor, Pawlby, and Caspi (2005) found a dose-response relationship has been found between mothers' depression and their children's antisocial behavior independent of parental antisocial behaviors, even when controlling for child antisocial behavior prior to age 5 years that could have provoked maternal depression. Predictably, genetic loading combined with social learning environment is a robust predictor of CD. Yet, genetic inheritance alone may be a robust predictor of CD. Rushton, Fulker, Neale, Nias, and Eyesenck (1986) found identical twins were more likely to both be involved in delinquency than were fraternal twins. Adopted children of antisocial biological fathers were more likely to exhibit antisocial behavior than other adopted children suggesting an intergenerational transmission of risk (Ruston, Fulker, Neale, Nias, & Eyesenck, 1986). Arsenault et al. (2003) analyzed data

from the Environmental Risk Longitudinal Twin Study and found that genetic risk for antisocial behavior was associated with conduct disorder. Interestingly, genetic risk is most highly correlated with childhood onset CD and only moderately correlated with adolescent onset CD (Rhee & Waldman, 2002). Conduct disorder that begins in childhood tends to be stable and persistent and antisocial youths often remain in continued contact with mental health and criminal justice systems well into adulthood (Offord, 1987). Some children clearly demonstrate severe conduct difficulties early on, but it is not until adolescence that the majority of children are identified as having a conduct disorder. Empirical evidence supports the theory that this is not just a delayed membership of the same profile of conduct disorder, but rather the emergence of a qualitatively different group of individuals. The literature indicates mounting evidence that conduct disorder contains these two distinct groups of early childhood onset versus adolescent onset (Moffitt, 1993a; Moffitt & Caspi, 2001; Patterson, Capaldi, & Bank, 1991; Raine et al., 2005).

Prenatal Risk Factors

The impact the environment exerts on us from birth is widely known, but perhaps our greatest susceptibility to environmental influences occurs prenatal. In addition to maternal health conditions, intrauterine exposure to teratogens, such as drugs, chemicals, and infection can produce developmental damage. Research finds that fetuses exposed to opiates or methadone, alcohol, and marijuana are at a heightened risk for developing conduct disorder. The earlier the insult, the greater the chance of negative long-term consequences. Prenatal exposure to drugs and alcohol have been identified as

developmentally culpable in causing behavioral difficulties as well as cognitive and adjustment difficulties (Dodge & Pettit, 2003). The most common environmental hazard, maternal prenatal smoking, places the unborn child at risk for antisocial outcomes (Burke, Loeber, Mutchka, & Lahey, 2002; Wakschlag et al., 2000). Although the direct impact of smoking places all pregnancy at risk of low birth weight babies, the correlation between maternal prenatal smoking and antisocial outcomes may occur with a confluence of other characteristics. Data from the Environmental Risk Longitudinal Twin Study, which provided information about mothers' smoking habits, illustrated that mothers who smoked during pregnancy differed from other mothers in that they were more likely to be antisocial, have had children with more antisocial men, bring up their children in more disadvantaged circumstances and were more likely to have had depression; all of which are highly correlated with the development of antisocial behavior among children (Maughan et al., 2004).

Gender Differences and Risk

Males are significantly more at risk for the development of conduct disorder than females in the childhood years with the disparity between the males and females narrowing somewhat in adolescence. When evaluating for conduct disorder in females, clinicians may look for more covert displays of the criteria than for males. Females may choose to express aggression through ostracism or verbal means rather than physical aggression. Societal violations in the form of drug abuse, sexual promiscuity, prostitution, truancy, and running away from home may be underreported and less likely to come to the attention of clinicians (Loeber & Keenan, 1994). Another theory as to why

females may not be as robustly represented as males is proposed by Loeber & Kennan (1994) who suggests that it may require a higher level of risk to propel females along the path of delinquency. Loeber et al. (1994) add that once that level is reached, females can be just as antisocial as their male counterparts. It is not surprising that antisocial male and female adolescents would tend gravitate toward each other. Not only might this lead to abusive relationships, but may also result into an early entrée into parenthood (Elster, Lamb, Peters, Kahn, & Tavare, 1987), a role these adolescence are ill prepared to handle.

Family Structure as a Risk Factor

The relationship between poverty and family structure is well established. Nonmaritial childbearing has increased over the last 30 years (Wu, Bumpass, & Musick, 2001) resulting in an increase in single parent families. When looking at first births, more than four of five first births among black women and one of three among white women occurred outside of marriage in the mid 1990s (FIFoCaF, 2005b). Children of unmarried mothers are substantially more likely to drop out of school, live in poverty, and be labeled with a conduct disorder. In addition to lower levels of income, single parent families have lower educational attainment, fewer resources, higher familial stress and poorer psychological well being (Conger, Conger, & Elder, 1997; Kim-Cohen, Moffitt, Caspi, & Taylor, 2004; McLloyd, 1990; O'Connor et al., 1998). Single mothers are noted to deal more aggressively with their sons than mothers of intact families. Without a positive male role model, young males may turn to peers for belonging, socialization, and guidance on how to become a man.

Frustration found among many men in disenfranchised groups may manifest in excessive and sometimes counterproductive disciplinary measures in the home (Wade, 1994), which may be at odds with an adolescent male attempting to establish self-identity and a sense of independence. This can be further exacerbated if the father does not live in the home and hence, exerts authority only sporadically (Rodney et al., 1999). Fathers play an especially important role in the development of positive self-esteem in African American boys, and the lack of male role models for these boys has been negatively linked to educational attainment and serious criminal behaviors (Brooks & Cohen, 1992).

Age of biological mother is moderately predictive of antisocial behaviors among children (Loeber & Farrington, 1998; Wakschlag et al., 2000). Daughters of very young mothers are substantially more likely to have a teen nonmaritial birth than daughters of older mothers regardless of mothers' marital status. Children born of teenage mothers and fathers are at increased risk for conduct problems (Furstenberg, Brooks-Gunn, & Morgan, 1987; Wakschlag et al., 2000). Teenaged parents, themselves, may have conduct difficulties, live in poverty, or both (Brooks-Gunn & Duncan, 1997). Antisocial behavior among teens is predictive of early parenthood among both males (Stevens-Simon & Lowy, 1995) and females (Miller-Johnson et al., 1999b; Stevens-Simon & Lowy, 1995; Wakschlag et al., 2000; Woodward & Ferguson, 1999). Young parents may be less skilled and more likely to live in poverty. Financial status at the time of birth has been predictive of later adjustment problems even if the family's income status improves. Young antisocial parents, may rely on similar coercive child rearing techniques as their parents unsuccessfully used with them (Serbin et al., 1998) thus exposing their own

offspring to a home environment that fosters irritable, defiant child behaviors, hostile attributional biases and all their concomitants. A caveat is that teenage pregnancy can take place in a variety of psychosocial contexts and therefore, cannot be equated with conduct disorder in women. For example, Wakschlag & Hans (2000) found that early adolescent mothers are significantly more likely to have a history of problem behavior and poorer long-term trajectories (Miller-Johnson et al., 1999b; Wakschlag et al., 2000) than late adolescent mothers who may be influenced by their expectation of the net economic benefits or costs associated with the occurrence of such a birth (Stevens-Simon & Lowy, 1995; Wolfe, Wilson, & Haveman, 2001).

Poverty, Economic Hardship and Stress

Children and adolescents from the lower socioeconomic strata, particularly males from larger urban areas, exhibit more aggressive behavior and are more likely to be identified as delinquent than their age mates from the middle class (Atwater, 1992; Elliott, 1996; Fergusson, Lynskey, & Horwood, 1996; Loeber & Dishion, 1983; Loeber, Green, Keenan, & Lahey, 1995) . African American males are overrepresented among school-age children labeled as aggressive and among juveniles arrested for delinquency (Sherwin & Schmidt, 2003). Yet this finding may simply reflect the reality that more African Americans live in poverty, for other researchers are finding that economically disadvantaged White children and adolescents are just as aggressive and inclined to commit violent crimes as disadvantaged African Americans (Dodge, Pettit, & Bates, 1994; Farrington, 1987). Children growing up in impoverished households receive less emotional and cognitive stimulation, are more likely to suffer health problems that

interfere with cognitive development, and perform more poorly than nonpoor peers (Duncan & Brooks-Gunn, 1997; Smith, Brooks-Gunn, & Klebanov, 1997). (Brooks-Gunn & Duncan, 1997; Dodge et al., 1994; Korenman, Miller, & Sjaastad, 1995; McLloyd, 1998). The U.S. Census Bureau statistics report that the poverty rate from 2004 exceeded the rate of 2003 (U.S. Census Bureau & CPS, 2005). The largest increase occurs among children under 18 years of age with 17.8 percent of the children living under the poverty level (U.S. Census Bureau et al., 2005). Though the poverty line for each family fluctuates, the 2005 U.S. Census Bureau report sets the line for a two-person family at $13,461 a year. Though perhaps technically out of poverty when a two-person family's income reaches $13,462, there would be little argument that they were escaping extreme economic hardship (functional poverty). It is noteworthy that economic hardship and financial strain predicts young children's conduct problems and cognitive abilities even when controlling for the effects of maternal education, female head of household, and ethnicity (Dodge et al., 1994; Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998; McLeod & Shanahan, 1993).

Familial stress, in all its forms, chips away at resiliency making an individual more susceptible to risk. Early family stressors such as death in the family, financial and legal difficulties, and prolonged illness are associated with later victimization in the peer group (Schwartz, 1993). Parental discord has been found to be modestly linked to conduct difficulties in children (Bassarath, 2001; Simons, Beaman, Conger, & Chao, 1993). A growing body of evidence indicates that children often become extremely distressed when parents fight and that continuing conflicts at home increases the

likelihood that children will have hostile, aggressive interactions with siblings and peers. Children who often witness their parents fight without being abused themselves, often learn that aggressive behavior pays off for the victor and are more likely to become proactive aggressors. Those children who are also victimized are more inclined to distrust and be suspicious of other people, defensively becoming more reactively aggressive.

Death, divorce and sudden unemployment create stress in their own right, but the resulting situational poverty that may ensue will likely bring its own set of stressors. The burden of negative life events would strain all segments of society, but among individuals who have the fewest resources the effects can be devastating. Parental stress (Conger et al., 1997), and economic hardship (Caspi, Taylor, Moffitt, & Plomin, 2000; Elder & Caspi, 1988), result in less nurturing, harsher and more authoritarian parenting(Caspi & Moffitt, 1995). Since both stress and economic hardship are more prevalent among minorities and female-headed households, one would expect more disrupted parenting and higher levels of antisocial behavior in such groups (Simons et al., 1993).

Though more poor live outside of urban areas, the largest concentration of poor live within urban areas and show markedly higher conduct difficulties. Even within these urban areas, a difference has been found between poor families living in inner city neighborhoods and those living in other urban poor neighborhoods with inner city communities having a higher delinquency rate over 2.5 times that of the national average (Bassarath, 2001). The largest concentrations of urban poor are ethnic minorities. Lower-income children from ethnic minorities groups have problems at school including academic underachievement, and lower test scores. Low income ethnic minorities are

more likely than their European American classmates to be disciplined by staff, to be retained one or more grades, and to drop out before completing high school (Bassarath, 2001).

Poverty is a multidetermined problem that is a symptom, cause, and frequent co-occurring condition of other forms of disadvantage. Disadvantaged populations often have little recourse than to live in disadvantaged neighborhoods and communities. Research consistently finds that youths living in highly disadvantaged neighborhoods do worse than their counterparts in more affluent communities on measures of school functioning and academic success (Brody et al., 2001; Caspi et al., 2000; Quane & Rankin, 1998). SES correlates .68 with academic achievement when schools are ranked by median SES (White, 1982). Poor children generally have access to lower quality schools and fewer enriching after school and summer activities.

Disadvantaged communities are characterized by poverty, racial make-up, residential mobility, housing density, family disruption, child-adult ratios, and male joblessness (O'Connor et al., 1998; Plybon & Kliewer, 2001). Although selective migration of vulnerable families into deprived neighborhoods may make it difficult to disentangle genetic and family factors from neighborhood factors, a study of twins found that children growing up in deprived neighborhoods were at an increase for emotional and behavioral difficulties over and above that accounted for by genetic liability. Whereas environmental factors shared by members of a family accounted for 20% of the population variation in children’s behavior problems, neighborhood deprivation accounted for a separate 5% environmental effect (Caspi et al., 2000). Neighborhood

deprivation may increase children's' problem behaviors by increasing their parents' stress, by reducing social supports that are needed for childrearing and by compromising parent's access to services and amenities they need for promoting positive health (Sampson, 1992).

Parent Management Strategies and Risk

The flow of family influence is multidirectional. Whereas parental attitudes and child-rearing practices certainly contribute to children's aggression and antisocial conduct, the reverse may also be true. Olweus's (1980) child rearing study revealed that although mothers' permissiveness towards aggressive behavior in early childhood and rejecting cold attitudes towards their sons were the best predictor of their adolescent son's aggressive behavior, it was closely followed by boy's temperament. Olweus proposes that son's temperament may play a role in eliciting responses from their mother that involves ignoring misconduct or eliciting strong emotional reactions creating the very child-rearing environments that will influence their propensities for aggression.

Coercive home environments are homes in which family members often annoy one another and use aggressive or otherwise antisocial tactics as a method of coping with these aversive experiences. In studying homes where at least one child was aggressive, Patterson, Debaryshe, and Ramsey (1989) discovered a high percentage of interactions centered on one family member's attempt to force another to stop irritating him or her. Mothers were far more likely to ignore prosocial conduct and to interpret many ambiguous acts as antisocial, than to use social approval as a means to positively reinforce good behavior. These mothers came to rely almost exclusively on force, threats

and intimidating tactics to deal with perceived misconduct (Patterson & Stouthamer-Loeber, 1984). Having learned to fight coercion with counter-coercion, children from highly coercive home environments eventually become resistant to punishment, defying the parent and repeating the very act that the parent is attempting to suppress. Coercive interactions between parents and their children will adversely impact the behavior of all parties and contribute to the development of a hostile family environment which in turn leads to a breeding ground for aggression. Unfortunately, these problem families may never break out of this destructive pattern of attack and counterattack.

Parents from lower-income families are more likely than middle-class parents to rely on physical punishment to discipline aggression and noncompliance, thereby modeling aggression even as they are trying to suppress it (Dodge & Pettit, 2003; Patterson, Debaryshe, & Ramsey, 1989). Lower-income parents are more inclined to endorse aggressive solutions to conflict and to encourage their children to respond forcefully when provoked by peers (Dodge & Pettit, 2003; Jagers, Bingham, & Hans, 1996).

Aggression as a Risk Factor

A history of aggression is highly predictive of conduct disorder. Both genetic influences and environmental factors contribute to the stability of aggression. As previously mentioned, hostile home environments can serve as breeding grounds for the development of aggressive habits. Once these habits are entrenched they are hard to extinguish as they become increasingly reinforced. Various investigators of peer and family violence maintain that cultural/familial attitudes and beliefs or negative role

models are factors legitimizing the use of violence within the family and peer group. A theme in much of the research is that violent families regard aggressive behavior as normal, justifiable, necessary, and correct (Herzberger, 1983) and therefore suggest that children growing up in these microcosms view violence as an acceptable behavior (Hilarski, 2004; Widom, 1999). The social context in which aggression is performed is essential to understand its function and how individuals respond, as adolescents' aggressive or antisocial inclinations will depend, in part, on the extent to which their culture encourages and condones such behavior. It is widely assumed that when children approve of aggression they are either not using moral thinking, acting based on irrational/nonrational impulses, or lack the cognitive social skills to assess what behaviors are acceptable. Astor (1994) offers that it is not the absence of moral reasoning in aggressive children, but rather a difference in their moral reasoning. Astor found aggressive children did apply moral reasoning but did so differently from nonaggressive children. In contrast to nonaggressive children who viewed physical harm as more offensive, aggressive children tended to weigh physical and psychological harm similarly. These children may be less likely to recognize social rules against hitting back because they perceive hitting back as a form of justice – reciprocity not regulated by social rules. He goes on to speculate that they may arrive at the pragmatic conclusion that hitting back is the only meaningful way of restoring justice in their social environment. Variables such as family violence, neighborhood crime, police brutality, a visible unfair distribution of wealth, disenfranchisement, parental unemployment, and school failure are also factors that may affect children's views of belonging to a victim subclass or group in

which problems will not be solved unless they solve them themselves (Astor, 1994). Reasoning differences were also theorized by Smetana, Kelly, and Twentyman. (1984) who found that abused children judged transgressions entailing psychological distress more universally wrong than neglected or nonabused children. It may be that both abused and aggressive children perceive psychological threats as injuring them more personally and profoundly than physical aggression.

Maltreatment as a Risk Factor

Maltreatment in the form of physical, sexual, emotional abuse and neglect has a pervasive deleterious impact on social, psychological, cognitive and biological development (Lowenthal, 1999). The Department of Health and Human Services report that 79% of the perpetrators of maltreatment are parents. An additional 11% of the perpetrators are relatives or non-related others living in the home (FIFoCaF, 2005a). Although maltreatment exists in every segment of society, there is a large prevalence among low SES families perhaps attributed to fewer resources and higher levels of familial stress. Longitudinal studies of maltreatment are complicated both in terms of logistics (high family mobility, attrition, lack of supporting funding) and in discerning the effects due to maltreatment from co-occurring conditions which may include poverty, substance abuse, and domestic violence. However in their longitudinal study Shonk and Cicchetti (2001) found evidence of the pervasive role of maltreatment in impeding the development of competencies and effective self-regulation in placing adolescents at risk for dropping out of school and developing psychopathology over and above the risk incurred from poverty.

School success increasingly demands academic engagement, social competencies, ego resiliency and ego control. These are areas in which maltreated children are found to have specific deficits compared to nonmaltreated peers (Ryan & Patick, 2001; Shonk & Cicchetti, 2001; Skinner, Wellborn, & Connell, 1990). Shonk and Cicchetti (2001) found maltreated children had reduced ego resiliency which contributed to limited ability to adapt flexibly to the demands of school and to regain self-regulation following stress. Parents and teachers rate preschool and school age maltreated children as less ready to learn, more dependent on teachers, and as showing less effective motivation in school. Maltreated children are more likely to receive special education services, have below grade level achievement test scores (Eckenrode, Rowe, Molly, & Brathwaite, 1995), be retained a grade, be rated by teachers as showing poorer work habits and show a disparity between achievement and intelligence (Hinshaw, 1992). Maltreated children were 2.5 times more likely than nonmaltreated age-mates to fail a grade (Shonk & Cicchetti, 2001). Maltreatment places children at increased risk for externalizing and internalizing behavior problems (Toth, Cicchetti, Macfie, Rogosch, & Maughan, 2000), particularly conduct disorder (Jaffee et al., 2005; Jaffee, Caspi, Moffitt, & Taylor, 2004).

Early parenting and home environment have been found to predict later victimization (Graham & Juvonen, 1998; Schwartz, Pettit, Dodge, & Bates, 2000). Friendship has been found to moderate the pathway between early harsh home environment and later victimization by peers (Gifford-Smith & Brownell, 2003; Schwartz et al., 2000). Schwartz, Pettit, Dodge, and Bates (2000) theorized that the social skills

(e.g. emotional regulation) required for the establishment and maintenance of friendship may be associated with resiliency in social functioning.

Maltreatment is found to distort perceptions of competence with younger children tending to overestimate their abilities and older children tending to underestimate their competence (Kim & Cicchetti, 2003). Some maltreated children have been found to have distorted perceptions of the intentions, feelings and behaviors of others as well as approach-avoidance conflicts that result in contradictory, hesitant, or hostile/aggressive social behavior in preschool and in the early school years. Rogosch, Cicchetti, and Aber (1995) found that physically abused children were particularly less attentive to relevant social cues and made a higher number of misattributions of others' negative and hostile intent, and were less likely to generate competent solutions to interpersonal situations than comparable children. Their tendency to respond inappropriately with less provocation, to demonstrate poorer social skills, poorer sensitivity, and a higher likelihood to behave cruelly may be related to their poor reception among peers. Maltreated children are significantly less popular, more rejected and more neglected than nonmaltreated children and peers' rejection of maltreated children increases over time (Bolger & Patterson, 2001; Maughan & Cicchetti, 2002). Peer rejection is a significant predictor of subsequent adjustment problems, including psychopathology, delinquency, and criminality, low educational attainment, and for school drop out (Bolger & Patterson, 2001).

Peer Deviance as a Risk Factor

Not only are rejected children at greater danger for negative outcomes more than popular children, but also more than controversial and neglected children (Parker & Asher, 1987). When children who have learned to react aggressively to conflicts at home later face similar problems at school, they may try their forceful tactics on classmates, thereby inviting scorn, rejection, or counter attacks which lead them to assume that peers are hostile toward them. Before long, these children may seem likely to perpetuate their aggressive inclinations. There exists a robust link between rejected status and aggressive behavior (Dodge, Pettit, & Bates, 1997). Rejected children tend to have a higher incidence of aggression and engage in more hostile and unprovoked aggression than their nonrejected peers. It is broadly believed that violent children's social cognitions, attitudes, or thinking patterns contribute to aggressive behavior (Bandura, 1973; Bandura, Caprara, Barbaranelli, Gerbino, & Pastorelli, 2003; Kendall, Ronan, & Epps, 1991). They tend to use aggression to solve conflicts or to obtain a desired goal. They generate and positively evaluate aggressive solutions to social problems (Dodge & Pettit, 2003), interpret ambiguous overtures as hostile (Dodge & Pettit, 2003) and endorse emotionally reactive and sensation seeking goals (Hinshaw & Melnick, 1995).

Because peer rejection is correlated with aggression, there is question about whether rejection independently added to the existing tendency toward conduct problems or simply indexed the developmental progression of early aggressive behavior (Parker & Asher, 1987). There has been a growing recognition of the independent contribution made by peer relations in forecasting subsequent conduct problems (Bierman & Wargo,

1995; Miller-Johnson, Coie, Maumary-Gremaud, & Bierman, 2002; Parker, Rubin, Price, & DeRosier, 1995; Rudolph & Asher, 2000) and that both aggression and peer rejection independently predict externalizing problems. Miller-Johnson, Coie, Maumary-Gremaud, and Bierman (2002) found that peer rejection in first grade added incrementally to the prediction of early starting conduct problems in third and fourth grades over and above the effects of aggression. It is not surprising that the interaction of rejection and aggression in boys forecasts the most serious forms of antisocial behavior (Miller-Johnson, Coie, Maumary-Germaud, Lochman, & Terry, 1999a; Miller-Johnson et al., 2002).

Hinshaw (1987) reminds us, however, that not all aggressive youths are rejected by their peers and some tend to even rise as leaders. Some aggressive adolescents may gravitate towards or attract peers with the same antisocial traits and interests (Swain, Oetting, Edwards, & Beauvais, 1989). In such cases, these aggressive leaders will have created an environment for themselves that could easily perpetuate their aggressive inclinations.

Peers become increasingly important as one moves from childhood to adolescence. The role of peers as a source of activity, support, and influence increases greatly (Dumont & Provost, 1999). Adolescence has been characterized as a time of increased independence from adults, increased interaction with peers, budding interest in intimacy and sex, and a preoccupation with social issues.

Perhaps, nowhere is the involvement with and influence of peers more pronounced than in inner cities (Gorman-Smith, Tolan, & Henry, 1999; Plybon &

Kliewer, 2001; Tolan, Gorman-Smith, & Henry, 2003). Large concentration of youths in these high density areas provide the opportunity for social interaction by merely stepping out the front door. Given the high density of large households and the high child to adult ratio, time spent interacting with peers and young adults may be the largest portion of one's day. The ubiquity of peers provides ample opportunity for sharing, imparting "wisdom", exchanging ideas, and conveying attitudes about such beliefs as gender roles, social mores, and authority. Neighborhood groups may have little supervision and may include a wide age span from adolescents to young adults thus exposing younger members to the thoughts and influence of older, perhaps more deviant members. Socialization with widespread house visitation among adolescents appears to be related to delinquency (Rodney et al., 1999).

Elliott (1996) found that there is less social control of youth groups in poor urban neighborhoods and that this lack of social control relates to the increased influence of delinquent peer groups. In poor urban neighborhoods, peers may provide social support & self-esteem beyond that derived from limited family resources. Adolescents may come to depend on their peer group for identification and reward structures that are missing from other aspects of their lives. Peer group assist in the development of a behavior style that enhances status and covets specific model of masculinity. Egalitarian relationships between peers allow for a freer expression of conflicts than do asymmetric parent/child relationships (Berkowitz & Grych, 1998; Walker, Hennig, & Krettenauer, 2000). The exposure to attitudes, models of coping, transmission of moral values, in effect, the raising of these individuals by their peers, may spur precocious and/or deviant behaviors

such as asserting independence from adults, modeling gender and sexual attitudes, testing limits of authority, and experimenting with substances. Association with a deviant peer group is a robust correlate of juvenile antisocial behavior (Bassarath, 2001).

At its most extreme, these may be seen in the development of gangs. Gangs promote deviant conduct beyond individual proclivities for such behavior including a tendency towards aggression (Thornberry, 1998). These social groups of youths may fulfill some of the roles of a family – basic needs, acceptance, protection, status, and rites of passage (Flannery, 1998). This may in part account for the strong cohesion found in gangs. Brink (1997) found that adolescents with high levels of problem behaviors maintain strong ties with peers in their prior, low-income neighborhood even after moving to middle-income neighborhoods. Gangs appear most prevalent among youths who see their prospects of succeeding in society as bleak, perhaps due to racism and cultural barriers. Today's gangs are frequently Latino, Asian American, and African Americans living in urban areas. Gangs tend to drive youths even further from social structures and authority of family and school. Deviant peers are seen as influencing vulnerable teenagers via modeling and pressure to participate in marginal activities (Oetting & Beauvais, 1987; Urberg, Cheng, & Shyu, 1991) or simply endorsing and inspiring them to commit antisocial acts they might never do in isolation. Research on gangs suggest that the absence of an effective father presence or male role model have been partially blamed for the susceptibility of males to join gangs that offer rites of passage and model perceived masculine prowess. It should be noted that the mere presence of any father or male figure is not always preferable to none at all. Jaffee,

Moffitt, Caspi, and Taylor (2003) found that among children whose fathers engaged in high levels of antisocial behavior, the more time the children lived with their fathers the greater the number of conduct problems.

Numerous studies have related peer influences to parenting practices such as coercive parenting (Dishion, Andrews, & Crosby, 1995), poor parental monitoring (Dishion et al., 1995) and lack of family cohesion. Specifically in regards to urban high risk groups, Zimmerman et al. (1998) found that family emotional cohesion buffers the effects of deviant peers on youth delinquency. Peer violence partially mediated the relation between types of family organization and practices and individual delinquency and aggression of adolescent boys in inner city communities (Plybon & Kliewer, 2001).

Generally, parent monitoring is considered a protective factor against antisocial behavior (Laird, Pettit, Dodge, & Bates, 2003). Inversely, Patterson and his associates (Patterson et al., 1989; Patterson & Stouthamer-Loeber, 1984) consistently found that lack of parental monitoring is associated with such aggressive or delinquent adolescent behaviors as fighting, defying teachers, destroying property, using drugs, and general rule breaking outside the home, especially when the members of an adolescent's peer group are inclined to endorse antisocial conduct (Mason, Cauce, Gonzales, & Hiraga, 1996). Although Patterson, Debaryshe, and Ramsey (1989) suggest this lack of parental monitoring often reflects uninvolved and detached attitudes on the parent's part, not all parents who fail to monitor their children can be described as uncaring or unconcerned. A parent's ability to influence children is helped or hindered by family composition. Specifically, Patterson et al. (1989) found that mother-only households have a

particularly difficult time managing the activities of adolescent sons and daughters without the support of a spouse or some other adult in the home. Given the association between lack of parental monitoring and deviant adolescent behavior, it follows that raising adolescents is not a task that can easily be done by mother alone (McCabe et al., 2001; Patterson et al., 1989; Patterson & Stouthamer-Loeber, 1984).

School Related Risk Factors

School failure appears highest among lower-income children from ethnic minority groups. Lower income children from ethnic minorities groups have been found to have problems at school including academic underachievement, poorer grades, lower scores on standardized achievement tests, higher number of discipline referrals, higher number of retentions and school drop out (Bolger et al., 1995; Brooks-Gunn & Duncan, 1997; Garrett, Ng'andu, & Ferron, 1994; Kim-Cohen et al., 2004; McLeod & Shanahan, 1993; Payne, 1998). Lower SES homes have been accused of not being as intellectually challenging on average as middle-class homes resulting in children being less equipped with readiness skills than middle class peers (Bradley & Corwyn, 2002; Brooks-Gunn, Klebanov, & Liaw, 1995; Garrett et al., 1994; Smith et al., 1997). Aware of this, teachers may respond in stereotyped ways to children from lower SES backgrounds, subtly communicating that they do not expect them to accomplish as much as their middle class age-mates. Children are aware of these teacher expectations and may begin to perform in class so as to confirm them. This may mean that the very people who are charged with education youth may contribute to the social class differences in scholastic achievement via a self-fulfilling prophesy.

Urban schools have faced much criticism and been accused of school failure. Schools with high concentrations of poor and ethnic minorities in densely populated urban areas, face numerous challenges: school overcrowding, transient populations, insufficient resources, high pupil-staff ratios, employment of out-of-field teachers, substandard facilities, high teacher turn over, and overextended resources. The cumulative disadvantages these children receive in school may make it difficult for the average student to achieve success. For at risk students who are struggling with learning and behavior deficits, succeeding would be even more challenging. Children who face repeated failure day after day for years are likely to be frustrated by the inescapability of repeated failure and disengage from school. Some have gone as far as to say that delinquency may be a reaction against school failure (Elliott, 1996).

Regardless of whether students are identified as having significant cognitive, learning, or behavioral difficulties they are often served together in the same remedial classes. These at risk students who often face peer rejection are frequently placement in classes with other academically deficient and/or behavioral disordered students. This placement often means that they will have ample exposure to other relatively defiant, aggressive, and socially unskilled children such as themselves. By 11 to 14 years of age, these adolescents are associating mainly with other hostile, antisocial classmates, banded together to form deviant peer cliques that tend to devalue academics, endorse aggressive solutions to conflict, and promote such dysfunctional adolescent activities as sexual misconduct, substance abuse, truancy, and a variety of antisocial or delinquent behaviors (Cairns, Cairns, Neckerman, Ferguson, & Gariepy, 1989; Dishion et al., 1995).

Another precarious time for at risk adolescents is the transition from elementary to secondary schools. For many this change has been associated with a loss of self-esteem, decreased interest in school, declining grades, and increased conduct difficulties (Eccles et al., 1993; Eccles & Wigfield, 1995; Seidman, Allen, Aber, Mitchell, & Feinman, 1994). Adolescent students generally move from smaller primary schools where the majority of the day was spent with the same teacher and group of cohorts who knew them well. This contrasts sharply with the secondary school model where students can have as many different teachers as class changes, and with it, an entirely different group of classmates. With secondary school teachers teaching such a large number of students, they are less likely to get to know individual children and forge personal relationships. Although activities in the primary school are often structured, they tend to be more varied, engaging, participatory, and allow for more choice than the lecture and seat work style that seems to predominate secondary schools. In secondary schools, student-teacher relationships tend to be less personal, good grades are harder to come by, assignments are often less engaging, opportunities for choice are limited, and discipline is more rigid – all this is at a time when adolescents are seeking more, rather than less autonomy and are more intellectually capable (Eccles et al., 1993).

Similar to parenting, teachers who use an authoritarian style, tending to dominate their pupils and rely on power-assertive methods to enforce their demands, often produce resistive students. Transition to secondary schools bring a decline in intrinsic interest in learning primarily among students who wanted more opportunities for decision-makings, but ended up with fewer opportunities than they had in elementary school (Mac Iver &

Reuman, 1988). Research by Midgley, Feldlaufer, and Eccles (1989) found that students develop negative changes in attitudes toward mathematics if their transition to secondary school resulted in less personal and supportive relations with math teachers. For those few students whose transition to secondary school involved gaining more supportive teachers than they had in elementary school, interest in academics actually increased (Midgley et al., 1989).

Students who feel as if material does not relate to their present or their future may be less invested in learning. Whereas students who can relate to what is being taught and perceive content material as culturally relevant appear more engaged in learning (Kagan & Zahn, 1975; Seidman et al., 1994). When students do not see their culture represented or when what is being taught appears to have little relationship to their life, they may disconnect from academics. This disconnect has been discussed by Steele (1995) in the concept of disidentification. Disidentification relates to student motivation and the lack of relationship between academic self-esteem and global self-esteem. Therefore, good performance is not rewarding and poor performance is not punishing, leaving these adolescents with no convincing incentive to expend effort in academic endeavors (Harter, 1981). These disidentified individuals will be at a higher risk for academic problems, poor grades, and dropping out. Evidence in support of disidentification has been found in lower correlation between self-esteem and academic outcomes among African Americans (Bruschi & Anderson, 1994) and Hispanics (Demo & Parker, 1987) than their White counterparts. Disidentification is a major factor in explaining negative behaviors such as absenteeism, truancy, dropping out, and delinquency (Osborne, 1997).

Although all students may experience anxiety over failure in academic settings, individuals from disenfranchised groups may also experience anxiety over confirming negative stereotypes though personal failure. Therefore, members of stigmatized groups may be at a greater risk for disidentification as a self-protective strategy than the general population. Steele (1989) pointed out that all African Americans, not just those doing poorly, are subject to disidentification suggesting that disidentification is a group-level response to stigma, rather than a response to poor performance. Steele sees a process whereby the social dynamics of the school environment and larger society cause African American students to disidentify as a defense mechanism. Other disenfranchised groups who experience stigmatization, such as lower class Whites and women in male dominated fields are also at risk for disidentification.

As previously mentioned, students who feel as if they belong and are cared about by school professionals tend to fare better than students who do not feel valued and connected in the school environment. This highlights the importance of continued affiliation in the school community. School mobility in the United States is the highest among industrialized countries (Long, 1992) with approximately 20% of U.S. households (30% in urban areas) changing their residence in a given year (Temple & Reynolds, 1999). Although nonurban residential moves might not necessarily lead to a school move, within densely populated urban areas a residential move of just a few city blocks may generate a school change.

School mobility predicts lower achievement and higher incidence of school drop out (Astone & McLanahan, 1994; Rumberger, 1998; Swanson, 1999). School mobility

appears the highest among low SES students (Temple & Reynolds, 1999), among maltreated populations (Eckenrode et al., 1995) and emotional/behavioral disordered students (Osher, Gale, & Bailey, 2003). Some overlap between these populations are assumed as low SES has been consistently associated with higher levels of all kinds of maltreatment (U.S. Department of Health and Human Services, 1988, 1995, 2002, 2005). Low SES and maltreated groups appear to be at greater risk for school changes and are more adversely impacted by those transitions. Although Temple and Reynolds (1999) found lower levels of premorbid achievement among low SES, minority, and inner city children, when taking this in account they still found the number of school moves was negatively correlated with academic performance. Direct effects of residential/school moves likely include increased social isolation, stress of required adjustments to new school expectations, increased negative emotional states that may include depression (Brown & Orthner, 1990) or conduct problems (Cohen, et al., 1989). In addition to issues of ecological transitions and personal adjustment, children may also have to deal with the indirect effects such as their parents' and siblings' adjustment and emotional reaction to the move that may increase the child's stress level further increasing the child's risk for poorer adjustment.

Adolescence: A Developmental Risk

Adolescence, once considered a brief journey from childhood to adulthood has become a lengthy holding pattern. Prior to modernization, biological maturity came at seventeen, social adult status arrived in the teen years, and rites of passage were more clearly defined in terms of roles and responsibilities. Among industrialized countries, vast

improvements in nutrition and health care, along with other environmental factors have lowered the average age of puberty. This is most clearly illustrated by the average age of menarche. In nineteenth century, the average age of menarche in the United States was seventeen. This contrasts sharply against the current average of 12 years 5 months (Oberfeld, 1999). The average age of menarche is even younger for African American girls (Britton et al., 2004). This early onset may be attributable to increases in adiposity (Britton et al., 2004; Karlberg, 2002), more sedentary activities (Britton et al., 2004), and family factors such as the presence of a nonrelated male (Ellis, 2000) and stressful life events (Stice, Presnell, & Bearman, 2001). The hormones associated with puberty set in motion many biological, cognitive, and sexual developmental changes.

Adapting to body changes and society's reactions to those changes may cause added stress for individuals. Adolescents, particularly females, may be psychologically ill prepared for other's reaction to their precocious development. Others may attribute greater maturity to them than is warranted by their chronological age and they may develop affiliations with older, perhaps more deviant boys. Early menarche has been associated with depression (Stice et al., 2001), substance abuse (Stice et al., 2001), alcohol consumption (Caspi, 1991) sexual promiscuity (Caspi 1991; Seeley, 1997) and delinquency (Caspi, 1993). It is not just biology that sexualizes girls, but also culture: fashion trends, pop culture, and identification with adult female icons which market themselves with sexual allure. Female teen magazines were analyzed by Durham (1998) who found that magazines not only had articles pertaining to teen sex, but that the

magazines also supported social stereotypes that girls should be sexually subordinate to boys.

With regards to neurophysiology, critical areas of the brain including the frontal and temporal lobes, hippocampus, amygdala, and corpus callosum play critical roles in executive functioning. These areas are evolving well into adulthood. The frontal lobes, which play key roles in governing attention, planning, and impulse control are immature. Less frontal lobe-mediation governing the inhibition of behavior has been associated with those who behave impulsively (Chambers, Taylor, & Potenza, 2003; Hodges, 2003). In Yurgelun (1998) study of brain scans of teens and adults reacting to pictures depicting aversive events, the prefrontal cortex, the part of the brain that is responsible for reason and thought, played a large role in the adult responses. In contrast, the amygdala, the part of the brain responsible for emotional responses, played a large role in the adolescents' reactions. This highlights the tendency for adolescents to react affectively rather than cognitively.

The hormone surge that is characteristic of puberty contributes to the fluctuation of adolescent moods. Elkind & Bowen (1979) used the term "Adolescent Egocentrism" to describe adolescents' tendency to exaggerate the importance, uniqueness and intensity of their social and emotional experiences. He theorizes that these perceptions are related to adolescents' tendency to create imaginary audiences who are constantly scrutinizing their behaviors and physical appearance. He goes on to describe adolescents as perceiving themselves as the heroic protagonist in a self-created drama exaggerating his or her own abilities and invincibilities (Elkind & Bowen, 1979). This perception of

invincibility may lead to an increase in such risk taking behaviors as reckless driving, sexual abandonment, drug experimentation, and predicting inevitable happy endings (Vartanian, 1997; Vartanian & Powlishta, 2001).

Early puberty is not the only change of modern times. Families formerly played a vital role in terms of social guidance, education, health care, economics, recreation, and sources of information. Currently, families in the United States are relieved of much of that responsibility (Sebald, 1977). No longer is vocational instruction necessary from parents. Healthcare systems offer medical support. Increased mobility minimizes the value of adults as a source of information about their community. Likewise the roles of adolescents within their family have also changed. Adolescents are no longer the vital economic asset they once were. Fewer adolescents play such an integral part in their family's survival and success in the United States, leaving many adolescents free from meaningful responsibilities that help them develop good decision making and self regulation.

This delay into adulthood further elongates the span of adolescence. The modernization of work, need for increased education, and the decreased demand for unskilled labor postpones adolescents' social and economic independence. The elusiveness of societal privileges may be frustrating to many adolescents, but among those in society who already feel disenfranchised, the perceived imbalance of privilege can feel all the more unjust. Henningan, DelRosario, Heath, Cook, Wharton, and Calder (1982) demonstrated that economic frustrations may promote antisocial conduct. Crimes of larceny increased dramatically among poorer members of society soon after the

introduction of television to their communities. Henningan et al. (1982) explained this finding by offering that the poor felt a sense of frustration or “relative deprivation” after viewing the most affluent people on television; consequently, they turned to larceny to obtain some of the good things in life they were lacking.

Some adolescents may be feeling a similar deprivation. Adolescents with CD are often described as wanting status, autonomy or power. This may simply be an exaggeration of adult activities. In a society that expects males particularly to achieve material success, competence, and power it would not be hard to understand the lure of antisocial conduct among adolescents searching for autonomy and privilege. Moffitt (1993) speculates that adolescents with no prior history of conduct difficulties may be tempted to mimic the life styles of rebellious peers who appear to have some of the autonomy and privilege they covet. Peers who have material possessions (even if ill-gotten), sexual experience, children of their own, run underground businesses, make their own decisions unfettered by parental or school restraints, and appear to have obtained a level of autonomy and privilege fabled to be forthcoming in adulthood. The lifestyle of these peers, who may have access to the adult world by having business associates, social workers, probation officers and the like, can be quite enticing. Influence of deviant peers can exist even when these peers are not among one’s circle of friends (Agnew, 1991) or when the adolescent does not approve of the peer’s behavior (Warr & Stafford, 1991).

A certain level of conflict is part of the normal development for adolescents (Tubman, et al, 1994). Twenty-five percent of men reported at least one serious violent offense (Elliott, 1996). Moffitt (1993) argues that this behavior is not rooted in

psychopathology, but rather a normative behavior. Moffitt speculated that for some this may be a temporary behavior that will subside as they acquire adult autonomy and privileges through normal societal channels. I argue that if financial independence becomes less likely, if people feel voiceless and impotent to cause any change in society, if many of these privileges remain out of reach, never able to be satisfactorily attained, and if the American Dream becomes less American and more of an illusive dream, then conforming to dominant societal expectations may mean forfeiting autonomy and privilege. This sacrifice is not very appealing.

The Conceptual Flaw

So far this paper has identified an increase in the number of adolescents diagnosed as having a conduct disorder, differentiated between childhood onset and adolescent onset conduct disorder, discussed mounting risk factors associated with the culture of poverty and social stigma, and discussed secular trends which contribute to the elongation of adolescence. This section will examine the flawed conceptualization of the diagnosis *Conduct Disorder* and discuss issues of validity, reliability and application.

The Conception of a Category

The Diagnostic and Statistical Manual of Mental Disorders (DSM), published by the American Psychiatric Association (APA) was created to classify mental disorders using the medical model (American Psychiatric Association, 1984, 1987, 1994, 2000). Its authors created the diagnosis of “conduct disorder” to identify those under 18 who do not comply with the rules of society. Critics of the DSM’s definition of conduct disorder claim that it was born of Euro-centric psychology and; therefore, cannot judge what

constitutes appropriate behavior for all cultures. With “appropriate” and “inappropriate” being culturally defined, it is arguable that since many of those involved in conceptualizing this mental illness are older, educated, middle class, males of European descent that this diagnosis construct lacks validity. This argument appears to have merit as much research in the United States involving ethnic minorities employs a deficiency model, which assumes the normality of the mainstream dominant culture and views minority group variations as aberrations (Rogoff & Morelli, 1989; Spencer & Markstrom-Adams, 1990). In evaluating the CD criteria in the DSM-III, Richters and Cicchetti (1993) argued that even Tom Sawyer and Huckleberry Finn would likely qualify for a diagnosis of conduct disorder. Criticisms have not ceased with contemporary revisions of the manual. Prior to the latest revision of the DSM (DSM IV-TR), the American Society for Adolescent Psychiatry (ASAP) put forth their recommendation that conduct disorder be dropped from any future editions of the Diagnostic and Statistical Manual. On March 25, 1999, the American Society for Adolescent Psychiatry adopted the following resolution as the policy of the organization. The resolution opens with: “….the diagnosis of conduct disorder is conceptually flawed, has no fundamental *organizing concept to give it substance, and its use often subverts careful diagnostic evaluation of adolescents”* (Flaherty, 2002). Despite this and other criticisms the diagnostic criteria of conduct disorder remain unchanged in the DSM-IV-TR.

Structure of DSM

CD is diagnosed using an artificial rubric that looks at categories of behaviors. While the DSM creators and revisionists may have chosen to define CD in terms of identifiable, measured behaviors to avoid subjectivity or ambiguity, its sole reliance on behavioral data fails to accomplish either.

The DSM is based on a categorical as opposed to dimensional system. Categorical data allows only for the documentation of presence or absence, while dimensional classification systems assume a number of behavioral traits are shared among children to differing degrees. The categorical construct does not allow for partial manifestation or circumstance of behaviors. Diagnosticians have two options: either indicate the criteria are met or unmet. Unlike a dimensional system, a categorical system forces clinicians to decide whether to stretch ill-fitting criteria to make it more inclusive or to reject criteria to prevent stigmatization. Both systems rely on subjective judgment, however the dimensional classification systems are derived from more reliable and empirically assessed categories than the current psychiatric classification system (Kaufman, 2001).

The conduct disorder criteria consists of a menu from which only three of the possible 15 behaviors need to be reported. This creates 455 combinations of symptoms all producing a label of conduct disorder. This broad diagnostic net captures a diverse array of individuals, thus equalizing children who may have varying levels of severity, different characteristics, diverse circumstances, and underlying mechanisms. For example, an adolescent who engages in relatively minor forms of rule breaking would be given the same label as a child who kills. An earlier rendition of the Diagnostic and

Statistical Manual, the DSM-III, acknowledged differences in children meeting this diagnosis and offered subtypes aimed at describing a theoretical structure: aggressive versus nonaggressive, overt versus covert, impulsive versus psychopathic, and socialized versus undersocialized (American Psychiatric Association, 1984). These subtypes offered more insight into etiology, current mechanisms influencing behavior, prognosis, therapeutic approach and direction for research. These subtypes were dropped from later revisions of the DSM. The reasons for abandoning these subtypes are unclear, but may further frustrate mental health professionals who view individuals as influenced by unique biopsychosocial interactions. Criticisms continue claiming that the DSM is reductionist, neglecting psychosocial factors and consideration of the motivation or circumstance of behavior (Hilarski, 2004; Wakefield, Pottick, & Kirk, 2002).

Concerns have been raised that the CD diagnosis may be misapplied to individuals reacting to problematic environments that can cause genuine dysfunction. In such a circumstance, a nondisordered child could react with antisocial behavior. In environments where patterns of undesirable behavior may be viewed as protective, their behaviors may be normative and adaptive. While deprived environments may cause enduring dysfunction in empathy and impulse control leading to antisocial behavior, the same environment may also cause psychiatrically normal youths to reasonably choose to act in socially undesirable ways out of motives of self-protection and social conformity.

The text of the DSM-IV-TR (American Psychiatric Association, 2000) acknowledges that the criteria for conduct disorder can be met when no internal dysfunction exists. It goes on to caution that a diagnosis of conduct disorder should only

be made when there is an internal dysfunction and not when behaviors are normal responses to circumstance. While the authors of the DSM make this caveat, it is not listed along side of the diagnostic criteria, but is unobtrusively written two pages away from the defining criteria.

If diagnostic considerations are to look beyond behavior, to include internal dysfunction, then what might that dysfunction be? It may be clearer in diagnoses of Tourette's syndrome, autism, or depression. Unlike depression, however, CD does not have a defining symptom or mechanism. It lacks a cohesive organizing principle that gives it form. Whereas sadness is a normative behavior in grief, prolonged sadness in depression is not because the mechanisms that help regulate affect are not performing as expected. Also, unlike the neurological abnormality found in those who suffering from chronic depression, autism or Tourette's syndrome, there has been no common neurological anomaly found among those diagnosed with CD. If it is an internal dysfunction that may differentiate those individuals who have a mental disorder and those who do not, but no common internal mechanism failure can be identified, then it would be up to an individual to supply one and speculate on its presence. This can cause a myriad of problems.

Room for Bias

Long standing concerns over clinician bias appear to have empirical backing. Research has shown that clinicians who make important psychodiagnostic decisions tend to generate explanations based on their first impressions with little consideration of alternative explanations (anchoring bias) (Sommers-Flanagan & Sommers-Flanagan,

1998; Turk & Salovey, 1988). Another concern is that diagnosticians with restricted time and limited information may have to rely on background information and impressions supplied by a singular source or referring agency. This reliance may lead clinicians to form a confirmatory bias. A confirmatory bias refers to an evaluator or diagnostic team's tendency to draw conclusions that agree with an a priori hypothesis despite lack of evidence or despite evidence to the contrary. The tendency to find what one expects to find is called an expectancy effect (Rosenthal) or Pygmalion effect. A conscious or unconscious confirmatory bias may be the result of selective data gathering (Snyder & Gangestad, 1983), selective data use (Langer & Abelson, 1972), and/or an ignorance of disconfirming data (Nisbett & Ross, 1980). Counter-transference may occur when clients evoke strong retaliatory feelings or impulses in their counselors or clinician. The clinician may essentially punish the client by labeling him or her with a diagnosis of conduct disorder when a less severe or less negative diagnostic label would be appropriate (Sommers-Flanagan & Sommers-Flanagan, 1998). Clinicians may also face practical or economic pressures in determining a diagnosis. Often children are referred because of an identified need for support or assistance. The diagnosis of "problems of living" can be made when a child who is suffering from situational or environmental circumstances, but is not believed to have a psychopathological condition. With the needed support, this seriously distressed child may have a positive prognosis; however, resources may be few. Neither Medicaid, nor many insurance companies pay for assistance for children having a "problem of living" diagnosis. Therefore, well meaning diagnosticians may exaggerate symptoms making a child more disabled than he or she is

in order to access services (rehabilitation services, social security disability insurance, vouchers for necessary therapy, etc.).

Conclusion and Recommendations

So many studies have found correlations between poverty and conduct disorder that it is considered by some to be a given that poor families in poor neighborhoods are associated with conduct disorder. Poverty is not a direct determinant nor the sole risk factor associated with conduct disorder, but impoverished conditions allow risk factors for a whole host of ills to flourish. Nearly every identified risk factor for conduct disorder is associated with or exacerbated by the ubiquity of poverty. The deleterious effects of poverty and its concomitants is pervasive adversely impacting cognitive, behavioral, emotional, adaptive, and academic development. Given the growing body of literature supporting a dual taxonomy of conduct disorder in which a plethora of risk factors appear attributable to the diagnosis of an adolescent onset conduct disorder, it appears logical to attack this inequity with full force. Valiant attempts to intervene at a more proximal level such as the family or the school, are not discouraged, yet concentrated efforts aimed at macrosystemic change may be more far reaching and yield more visible results. Ideally federal, state, and city policies and legislation aimed at reducing poverty may be most effective in reducing the stark inequities that create this victim class--if they are properly funded and implemented. School readiness programs designed to help disadvantaged children obtain needed readiness skills (e.g., Headstart), but may not offer transportation for those most in need, will not accomplish their intended goal. Cursory attempts or imprecise plans that do not involve multidisciplinary development, commitment, and

continued evaluation will likely meet with limited success. The more attempts judged as unsuccessful, the ever increasing perception of the problem as fatalistic and unameilorable to change, leading to fewer and fewer attempts being made. Multidisciplinary partnerships between cities, universities, and the communities that are willing to work in concert to design, commit to, and continually evaluate and adjust interventions may have the greatest success. These aforementioned groups of experts may be able to take a concept, plug potential holes, and shape it into a project that may be beneficial to many.

While poverty has been a constant in society, perhaps never before has our culture been so acutely aware of these harsh inequities. Media provides a continuous barrage of images of extravagant luxuries and the glamorous portrayal of a real or fictional privileged class to those who view television the most, those of the disadvantaged class. America has been criticized for being an indulgent and materialistic society. Expenditures in this consumer culture exceed means, beyond those of housing and transportation, as evidenced by the fact that the average American has at least $8,562 of credit card debt (Gardner & Gardner, 2006). Even among those who are at an economical disadvantage, visible materialism is pursued, sometimes at the expense of more practical, less visible provisions. The perception of “relative deprivation” is not hard to form.

Adolescence is a period of transition where an individual is neither a children nor an adult. Previous roles and purposes have faded away in modern day society leaving many adolescents with time on their hands without a constructive purpose. To view oneself as an adult yet be deprived of access of many adult privileges, to be taunted by

flagrant and constant reminders of inequity, and particularly among the poor, faced with the possibility that many benefits will never be attainable, have created the perfect storm. As it is likely that poverty, materialism, visible inequities, and length of adolescence will only increase, we are all in for some rough seas.

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IDENTIFYING FACTORS THAT INFLUENCE ACADEMIC PERFORMANCE AMONG ADOLESCENTS WITH CONDUCT DISORDER

Conduct disorder (CD) is a psychiatric classification created to describe a persistent pattern of antisocial behavior involving the violation of social rules and norms. The etiology of conduct disorder involves an interaction of genetic/constitutional, developmental, familial, and social and cultural factors. The elements of these diverse domains are symbiotic, constantly influencing and being influenced by each other. Children who are diagnosed with conduct problems are at increased risk for life-course persistent difficulties as well as poor health and social outcomes which include injuries, arrest records, substance abuse, depression, adult unemployment, and school failure (Dishion et al., 1999; Fergusson, Lynskey, & Horwood, 1996; Frick et al., 1991; Moffitt & Caspi, 2001; Patterson, Debaryshe, & Ramsey, 1989).

Academic failure is one of the most powerful predictors of problem behavior and social failure (Bennett, Brown, Boyle, Racine, & Offord, 2003; Maguin & Loeber, 1996; Trzesniewski, Moffitt, Caspi, Taylor, & Maughan, 2006). A correlation study by McGee, Williams, and Silva (1984) found that children with a reading disability increased in antisocial behavior from age 5 to 7 years. Similarly, Bennett, Brown, Boyle, Racine, and Offord (2003) looked at children with reading problems but without behavior problems at school entry and followed up 2 years later to find that children who were poor readers at school entry were more likely than good readers to have developed conduct problems 2

years later. The association between conduct difficulties and underachievement becomes most apparent by adolescence, suggesting the critical need for awareness of developmental factors that may serve to exacerbate or moderate deleterious outcomes. In an optimistic direction, improved academic functioning co-occur with a reduction in the prevalence of conduct difficulties (Gottfredson, Gottfredson, & Skroban, 1996). Although most researchers agree that a causal relationship between behavior problems and academic underachievement cannot be drawn (Hinshaw, 1992a), others speculate that behavioral difficulties can be a reaction to educational failure (Elliott, 1996). Alternatively, both could be expressions of underlying neurological processing differences and the cascade or environmental consequences of them.

The education of students with conduct difficulties is no simple task. The challenges posed by these children and adolescents are dynamic and multifaceted and their remediation and management are formidable tasks for educators, related service personnel, and family members. The correlation between conduct problems and academic underachievement has long been referenced in the literature (Sampson, 1966). Yet despite our 40 year awareness of academic deficits in this population, research has been slow to elucidate the specific areas of deficiency and the processes that contribute to these deficits. Although there exists a large body of research examining externalizing behavior problems and reading (Bennett et al., 2003; Dishion et al., 1984; Fergusson & Lynskey, 1997; Maughan, Pickles, Hagell, Rutter, & Yurgelun, 1996; McGee, Williams, Share, Anderson, & Silva, 1986; Pisecco, Baker, Silva, & Brooke, 1996; Rutter & Yule, 1970; Trzesniewski et al., 2006; Willcutt & Pennington, 2000), there has been a lack of research looking beyond basic word recognition to explore reading comprehension or

mathematics reasoning. One of the few studies to investigate multiple areas of achievement among adolescent males with CD conducted by Quick (2007) found that although basic reading weaknesses were present, performance on reading comprehension was significantly higher than basic reading scores. Furthermore, math computation appeared to be weaker than both forms of reading and was weaker than mathematics reasoning as well. Although her unexpected findings provide important information as to the type and extent of academic deficiencies most in need of intervention, her study did not include variables that might be related to this diverse pattern of performance. That is, it is unknown whether there are subgroups of students with conduct disorder who have systematically varying academic profiles; nor is it known whether age of onset, social factors, or comorbidities are important to academic functioning. This present study was conducted to extend her research. Using a portion of her database, the present study incorporates previously identified risk factors that have been theorized to impact the trajectory of both antisocial behaviors and academic underachievement.

Academic performance as a function of intellectual functioning

Traditional measures of IQ are designed to predict academic performance. Individuals with low cognitive scores are expected to perform at a level that is consistent with their assessed low ability whereas individuals with high cognitive scores are predicted to perform at a level that is commensurate with their higher ability. Numerous research studies have found conduct problems to be associated with lower intellectual ability (Brownlie et al., 2004; Cohen, Barwick, Horodezky, Vallance, & Im, 1998; Dumas & Nilsen, 2003; Farrington, 1995; Giddan, Milling, & Campbell, 1996; Huesmann, Eron, & Yarmel, 1987; Kaufman, 2001; Lynam, Moffitt, & Stouthamer-

Loeber, 1993; Quay, 1993; Warr-Leaper, Wright, & Mack, 1994). Verbal ability (Brownlie et al., 2004; Dionne, Boivin, Tremblay, Laplante, & Perusse, 2003; Farrington, 1995; Lynam et al., 1993; Raine et al., 2005) and executive functioning (Clark, Prior, & Kinsella, 2002; Lynam et al., 1993; Moffitt, 1990, 1993; Moffitt & Henry, 1991; Raine et al., 2005) have been most frequently implicated as weaknesses among males with antisocial behavior. If individuals with conduct difficulties demonstrate lower IQ scores, it would stand to reason that research on academic achievement would be incomplete without controlling for such baseline cognitive abilities. Yet in a review of 55 studies looking at the academic functioning of students identified as having an Emotional and Behavioral disorder, Ruhl and Berlinghoff (1992) found that only 40% of studies included information about IQ. Academic achievement must not only fall significantly below the score typical of individuals the same age, but must also be significantly discrepant from the achievement that would be predicted based on the individual cognitive ability. This study will determine whether lower academic performance is an index of reported lower cognitive abilities among adolescents with conduct disorder.

Academic performance as a function of comorbid Attention Deficit Hyperactivity Disorder (ADHD)

Males with conduct disorder have a high incidence of comorbid Attention Deficit Hyperactivity Disorder (ADHD). Estimates of more than one half to more than three quarters of clinically referred children diagnosed with CD were also diagnosed as having ADHD (Abikoff & Klein, 1992). Boys exhibiting ADHD were 14 times more likely than boys without ADHD to experience CD (Szatmari, Boyle, & Offord, 1989). There has been healthy debate among researchers about whether intellectual or academic deficits

are more associated with CD or ADHD (Clark et al., 2002; Frick et al., 1991; Maughan et al., 1996; McGee et al., 1984; Moffitt & Henry, 1991; Sonuga-Barke, Lamparelli, Stevenson, Thompson, & Henry, 1994; Willcutt & Pennington, 2000). In studies of intellectual ability, several researchers have found individuals with ADHD characteristics exhibited lower IQs than those with aggressive conduct alone (Clark et al., 2002; Frick et al., 1991; McGee et al., 1984; Sonuga-Barke et al., 1994). Other researchers argue that it is the combination of the two diagnoses that yields more serious intellectual impairments (Moffitt & Henry, 1991; Nigg, Hinshaw, Carte, & Treuting, 1998).

Even though intelligence correlates significantly with academic difficulties (Lynam et al., 1993; Sattler, 2001; Wadsworth, Olson, Pennington, & DeFries, 2000), academic difficulty is even more predictive of future academic difficulty (Brownlie et al., 2004; Fergusson & Lynskey, 1997; Hinshaw, 1992b). Perhaps more controversial than the debate over which diagnosis is most associated with intellectual deficits is the debate over which diagnosis is most predictive of academic deficits. For example, several impressive studies have found that ADHD completely explains the relationship between reading problems and antisocial behavior (Dionne et al., 2003; Frick et al., 1991; Maughan et al., 1996; Willcutt & Pennington, 2000). In contrast, other studies have found that antisocial behavior is an important predictor of reading problems even after taking into account the comorbidity of ADHD (Arnold, 1997; McGee et al., 1986; Stevenson & Graham, 1993; Trzesniewski et al., 2006). This study will differentiate among the participants with CD, those who are with and without comorbid ADHD, in an attempt to develop a more robust understanding of their association with academic performance.

Academic performance as a function of onset subtype

According to the Diagnostic and Statistical Manual, Fourth Edition – Text Revision (DSM-IV-TR; American Psychiatric Association, 2000), a diagnosis of CD can be made when three of 15 possible symptoms are judged present. This rubric creates a wide range of criteria with 455 possible combinations qualifying as CD. This category has been criticized for lacking theoretical underpinning and for being ambiguous leading to overestimates of diagnoses (Jensen & Hoagwood, 1997; Richters & Cicchetti, 1993; Rogoff & Morelli, 1989; Spitzer & Wakefield, 1999; Wakefield, 1992; Wakefield, Pottick, & Kirk, 2002). Perhaps the difficulty researchers have had in finding causal pathways and effective interventions for conduct disorder can be attributed to the fact that its criteria capture a diverse group of children and adolescents. For example, a child who engages in relatively minor forms of rule breaking would be given a diagnosis equal to that of one who kills. Researchers have long identified the need for distinguishing subtypes that arise through different developmental pathways (Hinshaw, 1992b; Kazdin, 1995; Loeber, Keenan, Lahey, Green, & Thomas, 1993) to seemingly little avail. While previous editions of the DSM attempted to provide some diagnostic utility by describing subtypes of this diagnosis (e.g. aggressive versus nonaggressive, impulsive versus psychopathic, socialized versus undersocialized, overt versus covert), the only subtypes that remain describe the timing of onset. “Childhood onset” may be diagnosed when one symptom is present prior to age 10, whereas “adolescent onset” may be diagnosed when no such determination can be made.

There is some evidence that these two subtypes may be qualitatively different (Arseneault et al., 2003; Caspi et al., 2003; Loeber, Keenan, & Zhang, 1997; McCabe,

Hough, Wood, & Yeh, 2001; Patterson et al., 1989). In a recent meta-analysis of 51 studies Rhee and Waldman (2002) found that pervasive antisocial behavior detected in childhood had a heritability rate of 82% whereas only 40% heritability was found for antisocial behavior begun in adolescence and adulthood. Individuals with childhood onset CD tend to exhibit, stable antisocial behavior, poorer verbal and executive functioning, and have unsupportive environments (Arseneault et al., 2003; Broidy *et al.*, 2003; Moffitt, 1993; Moffitt & Caspi, 2001; Patterson, 1982). Comparisons have been made between individuals diagnosed with CD and those with traumatic brain injuries (Golden & Golden, 2001; Max et al., 1998). Those diagnosed with childhood onset CD and left hemisphere brain injuries often demonstrate lower verbal ability, academic deficits, and emotional and behavioral dysregulation (Golden & Golden, 2001). This finding lends support to theories that individuals with childhood onset CD may be more neurologically impaired than those with adolescent onset CD. Because of continuous and cumulative factors those with early onset CD will likely exhibit antisocial behavior in various forms throughout life. Unlike early onset CD, adolescent onset CD is described as more transitional with antisocial behavior being used situationally when there is a positive expectation of success (Broidy et al., 2003; Caspi, Taylor, Moffitt, & Plomin, 2000; Dishion et al., 1995; Dodge & Pettit, 2003; Moffitt, 1993). The increase in adolescent onset CD is theorized to be related to the elongated adolescence in industrialized societies. No longer children, adolescents may be eager for autonomy and adult privileges. Yet material goods and adult status may be delayed by secular changes that produce a decrease in low skilled jobs, an increased need for education and a more visible materialism (Sebald, 1977). Adolescents may be tempted to mimic peers who appear to

have access to adult privileges and financial independence even if from illegitimate methods (Moffitt, 1993; Moffitt & Caspi, 2001).

Based on Moffitt's theory (1993) that CD diagnosed in childhood tends to be neurological in origin and can be detected as early as 3 years old, (Arnold, 1997; Caspi et al., 2003; Tremblay, Pihl, Vitaro, & Dobkin, 1994; White, Moffitt, & Silva, 1989) it would come to reason that these children may begin school with challenging behaviors and a lack of readiness skills. It is therefore, likely that education of individuals with childhood onset CD may be impacted from the very beginning of their academic career. If adolescent onset CD occurs around the time of middle school on the other hand, one might predict that children with adolescent onset would have less severe and pervasive academic deficits. This study explores whether participants with childhood onset versus adolescent onset CD differ in levels of academic performance.

Academic performance as a function of context

Both antisocial behavior and academic failure are context specific occurring within a climate in which identifiable conditions can help to predict those behavior (McEvoy & Welker, 2000). Researchers from several disciplines have implicated high risk, inner city neighborhoods as a context for chronic conduct problems (Elliott, 1996; Lynam et al., 1993; Plybon & Kliewer, 2001; Rodney, Tachia, & Rodney, 1999). High risk neighborhoods, characterized by high housing density with high proportions of poverty, unemployment, single-parent households, residential mobility, and low education represent significant risk factors for individual conduct problems (Brody et al., 2001; Bursik, 1988; Caspi et al., 2000; Coulton & Pandey, 1992; Crane, 1991; O'Connor, L., Fulker, Rutter, & Plomin, 1998; Offord, 1994; Plybon & Kliewer, 2001; Quane &

Rankin, 1998; Sampson, Raudenbush, & Earls, 1997; Tolan, Gorman-Smith, & Henry, 2003). Garbarino and Kostelny (1993) used the term "socially toxic" to describe such disadvantaged neighborhoods noting that they posed a dual risk. First, these neighborhoods threaten safety and lack predictable opportunities for rewarding prosocial interactions. Second, individuals in high risk neighborhoods may develop functionally adaptive skills to survive these problematic environments that in other settings (e.g. school, mental health agencies) would be judged as maladaptive (Achenbach, McConaughy, & Howell, 1987; Hsieh & Kirk, 2003; Richters & Cicchetti, 1993; Wakefield et al., 2002). General hopelessness combined with a disdain toward conventional norms may be found among adults as well as children in disadvantaged conditions (Wilson, 1993).

Consistent differences in the distribution of chronic adolescent conduct problems across neighborhoods leave little doubt regarding the correlation between neighborhood factors and conduct problems. Poor supervision and parenting generates greater interest in and susceptibility to antisocial peer groups which then leads to greater risk for antisocial behavior (Capaldi & Clark, 1998; Dishion et al., 1996; Flannery, 1998; Gorman-Smith, Tolan, & Henry, 1999; Sampson et al., 1997; Tolan et al., 2003). Negative peer affiliations serve as proximal links to problem behavior and disengagement from school (Bassarath, 2001; Elliot, Huizinga, & Ageton, 1985; Elliott, 1996; Rodney et al., 1999). Knowledge of peer delinquent behavior was 2.5 to 5 times more important for self-delinquency than friends attitudes about delinquency (Warr & Stafford, 1991). Studies of inner city socialization found that boys who were highly aggressive were often the most central figures in their social group (Farmer & Rodkin, 1996; Xie, Cairns, &

Cairns, 1999). This was not the case among suburban or rural samples (Xie et al., 1999). The risk is consistent with Caspi, Taylor, Moffitt, and Plomin (2000) who found that growing up in deprived neighborhoods mattered above and beyond any genetic contribution to behavior problems. It is not clear, however, if genetically vulnerable families tend to concentrate in poor neighborhoods. This study assesses whether participants residing in urban versus nonurban areas differ in their levels of academic performance.

Prior research on students with conduct disorder and antisocial behaviors has suggested the importance IQ, onset, comorbid ADHD, and residence location to explain academic functioning, particularly reading. Yet to date, there has been no known study that has simultaneously explored these variables' relations to other academic areas. If the heterogeneous collection of adolescents labeled with conduct disorder can be disaggregated into subsets with similar configurations of personal, social, cultural, and intellectual characteristics then etiological pathways to academic difficulties may be identified and more appropriate interventions could be implemented. For example, if the results indicate that comorbid ADHD accounts for a significant amount of the variance for basic reading then characteristics of attention and working memory strategies must be considered in determining intervention components and strategies.

This study was conducted in attempt to elucidate potential relationships among personal variables and academic performance in students with conduct disorder. This study expands on the research of Quick (2007) who found significant variability in standardized subtests scores for basic reading, reading comprehension, mathematics reasoning, and numerical operations among adolescent males diagnosed with conduct

disorder. A series of ANCOVAs were used to evaluate how 1) intellectual functioning, 2) comorbid ADHD, 3) early versus late onset of conduct disorder, and 4) urban versus nonurban residence contribute to academic functioning among adolescents with conduct disorder. These factors are theorized to contribute to academic deficiencies and have also been implicated as correlates of conduct disorder in general (Bassarath, 2001).

Method

Participants

The sample for this study is a group of adolescent males diagnosed with a conduct disorder by a clinical psychiatrist using the most recent DSM criteria. The 90 participants, 11 to 17 years old (M = 15, SD = 1.5), resided in a residential treatment facility in the Southeastern United States sometime between 1998 and 2003. Based on self-identified race, the participants were predominantly African American (63% African American, 31% Caucasian, and 6% Hispanic). Nearly all of these adolescents received Medicaid benefits and therefore, represented a relatively lower socioeconomic sector. The data for this study were originally collected for clinical purposes and included basic demographic information (e.g. age, location, race) as well as diagnoses and other standardized measures. For the present study, participants were selected from this archival database collected from 1998 to 2002 if they met all of the following criteria: 1) diagnosis of childhood onset or adolescent onset CD; 2) completed record of the designated four academic subtests (see Figure 2); and 3) complete WISC-III assessment within 1 year of the achievement measure. Urban residence was noted if the participant lived within one of the major U.S. cities. These cities had a population density of over 1700 inhabitants per square mile. Participants who lived in suburban or rural areas were

categorized as “nonurban”. Any secondary diagnosis of ADHD was also noted. See Table 1 for more details.

Table 1. *Demographic information by subtype, comorbidity, and location*

	Childhood Onset	Adolescent Onset	Total
Without ADHD			
* Urban	18	5	23
* Nonurban	12	7	19
With ADHD			
* Urban	19	7	26
* Nonurban	14	8	22
Total	63	27	90

Measures

The Wechsler Individual Achievement Test (WIAT; Wechsler, 1992) was administered to assess levels of academic performance. The WIAT is an individually administered norm-referenced academic achievement measure developed for students 5 through 19 years of age that covers key aspects of literacy and numeracy that are directly related to the National Curriculum (Wechsler, 1992). The WIAT is unique in that it is the only achievement measure that is directly linked with the Wechsler Intelligence Scale for Children-Third Edition (WISC-III) via a sample of 1,118 children and adolescents who were administered both tests. The complete standardization sample of the WIAT consisted of 4,252 students with and without disabilities whose demographics were modeled on the 1988 United States census data. Age derived standard scores were used

as an indicator of the participant's academic functioning as they provide a more accurate metric that is consistent across age and content areas than grade equivalent scores. In the present study, educational performance in the areas of basic reading, reading comprehension, math reasoning, and numerical operations was assessed. Figure 2 lists and describes the four WIAT subtests used.

Figure 2. *Description of WIAT subtests*

Subtest	Description
Basic Reading	Printed words for assessing word recognition ability. The participant is to orally identify the word.
Reading Comprehension	Printed passages followed by orally presented questions for assessing skills such as recognizing stated detail and drawing conclusions. The participant is to respond to questions orally.
Mathematics Reasoning	Problems for assessing the ability to apply mathematic principles. Many items include visual stimuli such as charts. In most cases, the text is presented orally and in print.
Numerical Operations	Printed problems for assessing the ability to perform calculations and solve equations involving all basic operations. The participant is to write responses.

Procedure

All the achievement measures were administered by the same clinician. Measures

in which the clinician noted that scores were impacted by noncompliance and adverse conditions were discarded as they were unlikely to be reliable measures of ability. In that case, the record was incomplete and the data were not included in the present study.

The Wechsler Intelligence Scale for Children – Third Edition (WISC-III; Wechsler, 1991) is an individually administered assessment of cognitive functioning of individuals 6 to 17 years of age. Twelve subtests combine to yield verbal, performance, and full scale IQ measures. These scales have been normed on a representative national standardized sample of children and adolescents with and without disabilities who were selected as representative of children in the US. The WISC-III has excellent psychometric properties including excellent standardization, reliability, and construct validity. The average internal consistency reliability coefficients are .96 for the full scale IQ, .95 for the verbal scale IQ and .91 for the performance scale IQ (Sattler, 2001). The mean correlations of the WISC-III compared with the Wechsler Adult Intelligence Scales, third edition (WAIS-III), the Stanford-Binet: IV, and the Differential Ability Scale are .84 for the full scale IQ, .79 for verbal scale IQ, and .72 for the performance scale IQ (Sattler, 2001). WISC-III assessments were conducted by various psychologists and psychometrists.

Participants from this study (N=90) obtained full scale IQs ranging from 56 to 123 (M = 84, SD = 12) and verbal scale IQs ranging from 56 to 117 (M = 84, SD = 13). Because verbal IQ is most associated with school related tasks (Sattler, 2001) and because research indicates that CD youngsters may have lower verbal ability, verbal IQ was used as a covariate when evaluating academic performance. Table 2 lists mean verbal IQ by demographics of onset, comorbid ADHD, and location.

Table 2. *Mean verbal IQ by onset, comorbid ADHD, and location*

	Without ADHD	With ADHD	Total Mean
Childhood Onset			
* Urban	78	81	79
* Nonurban	83	81	82
Adolescent Onset			
* Urban	84	83	83
* Nonurban	98	97	97
Total Mean	92	90	

Table 3. *Mean scores and standard deviations of cognitive and achievement measures by onset subtype*

	Childhood Onset CD		Adolescent Onset CD	
	M	*SD*	*M*	*SD*
Verbal IQ	80.57	11.52	91.22	12.76
Performance IQ	84.37	11.74	91.56	14.81
Full Scale	80.98	10.26	90.63	13.76
Basic Reading	76.32	14.87	90.15	14.17
Reading Comprehension	81.52	15.51	90.81	13.88
Mathematics Reasoning	76.76	8.95	83.48	13.36
Numerical Operations	72.03	9.60	77.67	11.80
% with ADHD	52.4		55.6	
% in urban areas	58.7		44.4	

Diagnoses were made by a licensed psychiatrist who had continued affiliation with each participant. Childhood onset conduct disorder (CO CD), adolescent onset conduct disorder (AO CD), and attention deficit hyperactivity disorder (ADHD) were diagnosed using the most recent DSM criteria. The majority of participants were diagnosed with childhood onset CD (70%) with the remaining diagnosed as having an adolescent onset. Fifty-three percent of the participants had conduct disorder with comorbid ADHD. Refer to Table 1 for a demographic breakdown.

A series of ANCOVAs was performed on each onset group to determine the effects of comorbid ADHD and location on academic performance on the WIAT. Verbal IQ served as a covariate.

Results

As noted in Table 3, comorbid ADHD was present in a little more than half of each onset group. With regard to urban residence, the percentage of the population residing in urban areas was 58.7 % for the CO group and 44.4% for the AO group. The CO group had lower mean standard scores on academic subtests of the WIAT than the AO group. The differences ranged from 13.83 point in basic reading to 5.64 points in numerical operations. Independent t-tests for IQ scores revealed that onset group differences for verbal, performance, and full scale IQs were statistically significant ($p < .05$) with the CO group demonstrating lower IQ scores than the AO group. Of the three measures, the differences in verbal IQ arguably are the most meaningful as verbal IQ is most related to school tasks and has been found to be deficient among the CD population. To evaluate the effects of comorbid ADHD and location on academic subtests when score means were adjusted to reflect group differences in verbal IQ, two ANCOVAs were

performed for each onset group. In each case where verbal IQ was significant predictor of academic scores, there was a positive association with academic scores (refer to Table 4).

Table 4. *Academic performance among CO and AO groups as a function of verbal IQ*

	CO			AO		
	b	R^2	*p*	*b*	R^2	*p*
Basic Reading	0.701	.295	.001	0.683	.379	.001
Reading Comprehension	0.647	.231	.001	0.776	.509	.001
Mathematics Reasoning	0.427	.302	.001	0.629	.360	.001
Numerical Operations	0.315	.143	.002	0.343	.137	.057

Basic reading scores as a function of verbal IQ comorbid ADHD, and location

Two ANCOVAs were performed on the CO group to analyze the mean differences in basic reading as a function of comorbid ADHD and location separately, after controlling for verbal IQ. Verbal IQ explained 30% of the variance in basic reading scores. The adjusted mean difference in basic reading as a function of comorbid ADHD was not significant, $t(60) = -0.153$, $p = .879$, $\Delta R^2 < .001$. After accounting for verbal IQ, a statistically significant mean difference was found for location, $t(60) = 2.822$, $p = .006$, $\Delta R^2 = .083$. The adjusted mean for urban residence was lower than the adjusted mean for

nonurban residence with the difference being in the same direction as the unadjusted mean difference.

A second set of ANCOVAs was conducted on the AO group to assess the mean difference in basic reading as a function of comorbid ADHD and location using verbal IQ as the covariate. After adjusting for the 38% variance in basic reading scores as explained by verbal IQ, the adjusted mean difference as a function of comorbid ADHD was not significant, $t(24) = 0.151$, $p = .881$, $\Delta R^2 = .001$. When examining mean basic reading scores for location, holding verbal IQ constant, a statistically significant location effect was found, $t(24) = 3.338$, $p = .003$, $\Delta R^2 = .197$. When equalizing for verbal IQ, participants in the urban residence group demonstrated lower basic reading scores than the nonurban residence group, a difference which was in the same direction as when adjustments for verbal IQ were not made.

Reading comprehension scores as a function of verbal IQ, comorbid ADHD, and location

ANCOVAs were performed on the CO group to assess group differences in reading comprehension with regard to comorbid ADHD and location separately, after controlling for verbal IQ. After adjusting for the 23% variance in reading comprehension scores explained by verbal IQ, there was no significant difference as a function of comorbid ADHD, $t(60) = .251$, $p = .802$, $\Delta R^2 = .001$, nor was the adjusted mean difference as a function of residence location significant, $t(60) = 0.984$, $p = .329$, $\Delta R^2 = .012$.

Results of the ANCOVAs for the AO group indicated that verbal IQ explained 50% of reading comprehension scores. When controlling for verbal IQ, adjusted mean

score difference as a function of comorbid ADHD was not significant, $t(24) = 0.407$, $p = .688$, $\Delta R^2 = .003$, nor was the adjusted mean difference as a function of residence location significant, $t(24) = 0.941$, $p = .356$, $\Delta R^2 = .017$.

Mathematics reasoning scores as a function of verbal IQ, comorbid ADHD, and location

ANCOVAs were carried out on the CO group to analyze the mean difference in mathematics reasoning as a function of comorbid ADHD and location separately when considering the effects of verbal IQ. When accounting for the 30% variance in mathematic reasoning scores explained by verbal IQ, comorbid ADHD was not significant, $t(60) = 0.265$, $p = .792$, $\Delta R^2 = .001$. The adjusted mean difference in mathematics reasoning scores as a function of location was statistically significant, $t(60) = 2.031$, $p = .047$, $\Delta R^2 = .045$. Within the CO group, participants who resided in urban locations demonstrated weaker scores than participants residing in nonurban locations. This difference was in the same direction as when adjustments were not made for verbal IQ.

Results of the ANCOVAs for the AO group revealed that verbal IQ accounted for 36% of the variance in mathematics reasoning scores. When equalizing for verbal IQ, the adjusted mean difference as a function of comorbid ADHD was not significant, $t(24) = 0.774$, $p = .447$, $\Delta R^2 = .016$ nor was the adjusted mean difference as a function of residence location significant, $t(24) = 0.587$, $p = .563$, $\Delta R^2 = .009$.

Numerical operation scores as a function of verbal IQ, comorbid ADHD, and location

ANCOVAs were performed on the CO group to analyze group differences in numerical operations with regard to comorbid ADHD and location separately with verbal IQ held constant. After explaining the 14% variance in numerical operation scores that

was explained by verbal IQ, comorbid ADHD was not significant, t (60 = 1.323, p = .191, ΔR^2 = .024. The adjusted mean difference for numerical operation scores as a function of residence location was not significant, $t(60)$ = .043, p = .966, ΔR^2 = .001.

Results of the ANCOVA for the AO group, revealed that verbal IQ was not a significant predictor of numerical operations, accounting for less than 14% of the variance in numerical operations scores, $t(25)$ = 1.602, p = .122, ΔR^2 = .137. The adjusted mean difference for numerical operation scores as a function of comorbid ADHD was not statistically significant, $t(24)$ = 0.753, p = .459, ΔR^2 = .020, nor was the adjusted mean difference as a function of location significant, $t(24)$ = .037, p = .971, ΔR^2 = .001.

Mean differences in academic subtest scores by onset subtype

Independent t-tests were conducted with onset subtype as the independent variable and basic reading, reading comprehension, mathematics reasoning, and numerical operation performance as the dependent variables. For each dependent variable, academic scores between the CO and AO groups were significantly different (p < .05), with CO participants' scores being lower than AO participants'. Given the significant relationship between verbal IQ and academic scores (see Table 4), however, it is unclear whether the difference among groups is an effect of verbal IQ.

Table 5. *b-values for academic areas by onset, comorbid ADHD, and location*

	Childhood Onset		Adolescent Onset	
	ADHD	Location	ADHD	Location
Basic Reading	-0.492	8.664*	0.682	14.965*
Reading Comprehension	0.879	3.478	1.594	4.363
Mathematics Reasoning	0.509	3.850**	3.300	3.024
Numerical Operations	2.982	0.101	3.298	0.197

*p<.01. **p<.05.

A final series of ANCOVAs was performed to assess whether onset group differences on the four academic measures remained when means were adjusted to reflect group differences in verbal IQ. Even after adjusting for verbal IQ, the mean difference in basic reading scores was statistically significant as a function of onset, $t(87) = 2.119$, $p = .037$, $\Delta R^2 = .030$. The adjusted mean difference was significantly lower for the CO group than for the AO group. The adjusted mean difference for reading comprehension as a function of onset was not significant, $t(87) = 0.613$, $p = .542$, $\Delta R^2 = .003$. The third analysis revealed no significant adjusted mean difference in mathematics reasoning scores as a function of onset, $t(87) = 0.666$, $p = .507$, $\Delta R^2 = .003$. The adjusted mean difference for numerical operations as a function of onset was also not significant, $t(87) = 0.911$, $p = .365$, $\Delta R^2 = .008$.

Discussion

The present study extends the findings of Quick (2007) who found significant mean differences between basic reading, reading comprehension, mathematics reasoning, and numerical operations measures for 136 male adolescents diagnosed with CD. In comparing academic subtest performance, Quick found that reading comprehension was significantly higher than the other three measures; reading decoding was significantly higher than numerical operations, but was not significantly different from mathematics reasoning; and mathematics reasoning was significantly higher than numerical operations. The present study explored performance in these same four academic areas in light of variables that have been suspected by researchers as influencing academic functioning among students diagnosed with conduct disorder. Each academic area was examined to determine the influence of verbal IQ, onset subtype, comorbid ADHD, and residence location. Although these results supported several important findings in the literature, they also yielded some unexpected results. With the exception of comorbid ADHD, each of the factors accounted for some variability in academic outcomes. However, the factors differed in the amount of variance explained and type of outcome to which they were linked. Of all of the variables studied here, only verbal IQ was significantly related to all academic areas.

Academic performance as a function of onset subtype

Results of the present study suggest that meaningful distinctions in IQ and academic achievement can be made between CO and AO subtypes of conduct disorder. The onset groups differed significantly in basic reading, reading comprehension,

mathematics reasoning, and numerical operations with the CO group performance being significantly weaker than the AO group performance on all measures. Most pronounced was the mean difference in basic reading scores between groups (refer to Table 3). Even when accounting for differences associated with verbal IQ, CO still uniquely contributed to the variance in basic reading scores.

Verbal IQ explained less of the variability in CO academic performance than in AO academic performance. Despite a smaller AO group size, verbal IQ accounted for between 38% and 51% of the variance in three of the four subtests (all but numerical operations) in the AO group while in the CO group it accounted for between 23% and 30% of the variance in the same subtests. This suggests that academic performance in the CO group is less reliably a function of IQ and more likely a part of a complex network of relations among variables.

Weakness in basic reading in the CO onset group is consistent with Quick (2007) who theorized that basic reading skills that are introduced in early elementary school would be affected by childhood onset of CD more than adolescent onset. Because of the cross sectional design, it cannot be determined if CO is a result of reading difficulties, or vice-versa, or whether both are caused by a third variable such as a genetic link. Because CO is often established prior to school entry it would appear that reading would not cause conduct difficulties; however, it is quite possible that it may have exacerbated the problem.

Given that AO accounts for the largest proportion of those diagnosed with CD it may be encouraging that the AO participants tended to score higher than their CO counterparts. Their mean basic reading score fell within the WIAT classification of

"Average" (The Psychological Corporation, 1992) suggesting the existence of a foundation of skills on which to build. If AO conduct problems are often spurred by a desire to achieve adult status and material goods and may cease when alternative means of acquiring material goods and adult status become available (Moffitt, 1993; Moffitt & Caspi, 2001), programs that focus on vocational training, alternative work training programs, job placement, interviewing, and budgeting may help to reduce experimental antisocial behavior by creating an alternative means of achieving these goals.

Academic performance as influenced by independent measures

Verbal IQ was found to explain a portion of the variance for all academic areas. After accounting for the contribution of verbal IQ, comorbid ADHD was not found to make a significant contribution to performance in any academic area. However, as noted above, after accounting for verbal IQ, age of onset did make a significant contribution; the CO group performance on basic reading was significantly weaker than the AO group performance. Similarly, after controlling for verbal IQ, students who were urban residents were significantly weaker on basic reading scores than their non-urban counterparts in both the CO and AO groups. Adjusted means for mathematic reasoning scores in the CO group were also significantly weaker for the urban residence group than the non-urban residence group.

Comparison of areas of academic achievement

Of all the academic areas, research has paid a disproportionate amount of attention to basic reading performance among conduct disordered youths, consistently finding basic reading to be an area of deficiency. The present study finds basic reading to be lower than predicted given assessed cognitive ability. It is noteworthy that even after

controlling for verbal IQ, timing of onset and location of residence uniquely contributed to the variance in basic reading scores; participants with CO or living within urban locations were more likely to perform poorer on the basic reading measure.

Numerical operations scores were the lowest of the four academic areas in both onset subtypes and performance in numerical operations was the least related to verbal IQ of the four academic areas. Only within the CO group did verbal IQ reach significance, accounting for 14% of the variance in numerical operations performance. Variables of onset subtype, comorbid ADHD, residence location, and for the AO group, verbal IQ, failed to significantly explain the variance in numerical operation scores. It remains unclear what factors are associated with the low numerical operation performance of the CD participants. One possible explanation is that numerical operations instruction tends to systematically build on concepts making it more sensitive to disruptions in the learning process. For example, it would be difficult to grasp the concepts of decimals, fractions, and algebra if one has not learned multiplication and division. Disruptions along the scope and sequence of the curriculum could derail learning making it difficult to progress from that point forward. Moreover, these disruptions can take many forms to include such factors as school moves, academic disengagement, insufficient math instruction, and deficient short term memory which impede memorization of pertinent facts. It is noteworthy that the two subtests that rely so heavily on foundational knowledge, basic reading (decoding) and numerical operations (arithmetic), are the weakest among these participants with CD.

Reading comprehension scores were the highest of the four measures for the AO and CO onset groups and were significantly related to verbal IQ. Similarly among math

subtests, scores on the subtest that relies less heavily on foundational knowledge were higher than scores on the subtest requiring specific procedural knowledge. Mathematics reasoning scores were higher than numerical operation scores for both the AO and CO onset groups. When holding verbal IQ constant, the mean difference as a function of location in mathematics reasoning was significant in the CO group only.

Academic performance as a function of verbal IQ

Verbal IQ explained the largest portion of the variance in academic scores in these students with CD and was an area of relative weakness for them. Verbal IQ has been found to be related to language exposure, school and family environment and socioeconomic status. Low verbal comprehension and expression may overlap with the presence of a language impairment (LI) that may qualify a student for special education services. A diagnosis of LI suggests specific linguistic processing problems that may be amenable to treatment. The association of LI in boys with antisocial outcomes call attention to the need both for language assessment and for intervention among at-risk youths (Brownlie et al., 2004; Cohen, 2001; Giddan et al., 1996; Warr-Leaper et al., 1994). In assessing a psychiatric sample of 7 to 14 year olds, Cohen, Barwick, Horodezky, Vallance, and Im (1998) found that two-thirds of children diagnosed with conduct disorder were language impaired. This is consistent with other findings that suggest that a high percentage of adolescents in residential treatment for behavior or conduct problems have been diagnosed with LI (Giddan et al., 1996; Warr-Leaper et al., 1994).

Academic performance as a function of comorbid ADHD

A central debate in previous studies has been the extent to which the association between CD and basic reading difficulties is related to comorbid ADHD, in particular, to the reduced attentiveness often demonstrated by students with CD. After the contributions made by verbal IQ were taken in account, mean differences for comorbid ADHD were not significant for any of the academic measures. These findings contradict numerous findings that comorbid ADHD is more associated with reading deficits than CD alone. Different research designs that may not have incorporated comprehensive IQ measures (e.g. using one subtest of the WISC-III to represent IQ) need to be considered. Also worthy mention is that since ADHD does not have a monopoly on inattention, this present study may not contradict studies that have found that literacy difficulties are due to a shared characteristic of inattention. In addition to being attributed to an inherent neurological deficiency, poor attention may be related to such factors as disinterest, poor self-regulation, disengagement, and cognitive self-control that may be directly relevant to on task behavior (Kurdek & Sinclair, 2000). Competing interests with academics, academic frustration, low levels of emotional arousal, impeding behaviors, and poor cognitive self-control that manifest as inattention to the learning environment may be found among a large spectrum of students with conduct problems. It may be that when evaluating measures of attention/inattention, without assuming a diagnosis of ADHD, a relationship exists.

Academic performance as a function of residence location

Both CO and AO urban residents had significantly lower mean basic reading scores after controlling for the effects of verbal IQ. Urban schools have been noted for a

lack of school readiness among students as well as for problems of teacher and school quality. On the mathematics reasoning subtest, urban residents in the CO group had significantly lower scores than non-urban areas. At the school level this might suggest a need for greater attention to teacher and school quality, teacher retention, education on characteristics of the CD population, and improved funding and resources. At the policy level, these findings may suggest the need for language enrichment and preschool programming, policies that would reduce the number of school changes in what tends to be a highly mobile community, supervised after school alternatives, and parent support and resources. Interventions that focus on family and school factors with consideration of important aspect of community context may have the most impact.

Limitations

Like all research, this study is not without its limitations, the first of which involves the participants. The participants in this study were living in a residential treatment facility therefore; these results may not be generalized to non-hospitalized populations. Second, the number of participants in each group is an artifact of the population from which the sample is taken. As the sample was taken from a residential treatment facility, referrals were made when less restrictive interventions were deemed not sufficiently effective. Therefore, participants had to be demonstrating problematic behavior for a considerable period of time and thus were more likely to have had an earlier onset. A larger group size for AO may have yielded more robust findings.

Lastly, although the links among the variables may imply causality, due to the cross-sectional nature of the data we can only document the existence of the link without drawing conclusions regarding direction of effects.

Implications and Future Research

Even with consideration to those limitations, these findings provide important information for CD research and applied practice. It is the first study to simultaneously study onset subtypes, verbal IQ, comorbid ADHD, and residence location on specific areas of academic functioning. The results of the present study help to clarify some issues and, while generating other questions, have yielded more focused questions than prior to this study. With consideration of this study, the following findings are evidenced: 1) A meaningful distinction between onset subtype with regards to IQ and academic functioning can be made. 2) Location of residence and timing of onset produce basic reading mean score differences even when taking in account the contributions of verbal IQ. 3) Comorbid ADHD is not a significant factor influencing academic performance once the variance associated with verbal IQ is controlled. 4) Verbal IQ is important in explaining academic scores. 5) Among the CO group verbal IQ accounts for less than a third of the variance in academics. 6) Verbal IQ, onset, and location explain more of the variance among the AO group than the CO group, hinting at more intricate and perhaps more subtle complexities among that CO onset group that are yet unknown. And 7) Perhaps the most intriguing finding is that numerical operations, the weakest area among both groups, was the least explainable.

In addition to articulating variables associated with academic achievement, this study also highlights the heterogeneity among the CD population and variation in academic risk by demographic markers. If these groups replicate across studies, they may represent a more parsimonious organization of patterns of characteristics that will provide treatment utility for clinical work and educational intervention beyond what is currently

used. The findings of this present study suggest, in the author's opinion, a clear need for researchers to provide demographic information and disaggregated data that will allow analysis of subgroups. From both a research and applied perspective, these findings emphasize the need for additional identification and examination of causal factors related to academic underachievement, academic performance within specific subject areas, and the need for longitudinal research designs. Moreover, understudied academic areas such as numerical operations and mathematics reasoning should receive more attention.

As evidenced by this study a diagnosis of CD alone has little heuristic value for educational guidance and implementation of effective interventions. Identification of academic risk characteristics can help target programming where there appears to be the greatest need. Knowledge of characteristics associated with the academic functioning of CD youth should also improve the design and effectiveness of preventive and prescriptive programs. Due to the heterogeneity of the CD population, research would do well to move towards identifying empirically validated treatments in conjunction with descriptions of the personal and context characteristics of those participants. Although there may be little argument about the need to implement scientifically based academic interventions that address deficits among CD youth, there is a dearth information on the effects of educational interventions with this segment of the population (Clark et al., 2002; Kurdek & Sinclair, 2000; Mooney, Epstein, Reid, & Nelson, 2003; Ruhl & Berlinghoff, 1992). At this time, interventions aimed at improving the antecedent conditions identified in the present study may provide more information about the relationship between these variables and academic performance.

The present study is guided by a transactional and multilevel conception of developmental risk and presumes that development is dependent on the interaction of individual and contextual characteristics. Acknowledging a multiple system impact on development would signify the need for a multi-disciplinary approach. Similarly, in the case of students with significant behavioral and educational deficits, it appears that when both behavioral and educational interventions are carried out, they are largely done so separately. For example, students with CD may receive academic remediation in a special education classroom and later have a session with the counselor to work on more affective and behavioral issues. The most effective service delivery would not be provided piecemeal or in isolation but rather by integrating areas of identified deficiency. It would not be wise to assumed that improvements would be self-sustaining, nor that improvement in one situation would generalize to improvement in another. Commitment to sustained intervention among school administrators and program personnel who understand that these challenges are not transient problems and that most students requiring prolonged support services, are vital. Knowing what is needed to help students is not the same as knowing how to provide it. Many educators, administrators, and mental health professionals are frustrated because they do not have the resources to do what needs to be done. The resources that are lacking are most often human resources-enough properly trained personnel to allow the time and concentration necessary to address student's problems effectively. The schools that may have the fewest resources are those in urban areas. Yet paradoxically, that is where these findings suggest the greatest need.

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