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System Involvement in Adolescence and Emerging Adulthood:
Pilot Results Among Puerto Rican Youth**

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Disruptive Behavior Disorders in Childhood and Criminal Justice System Involvement in
Adolescence and Emerging Adulthood: Pilot Results Among Puerto Rican Youth

by

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Abstract

Data were examined from an exploratory pilot study that investigated the relationship between the presence of Disruptive Behavior Disorders (DBD) in childhood and arrest during adolescence and emerging adulthood in a community sample of Puerto Rican children who were living in the South Bronx, NYC (N=162) when first recruited. Youths who had DBD in childhood were expected to be at greater risk for arrest, to be of younger age at the time of the first arrest, and to have had higher numbers of arrests compared to youths who did not have DBD in childhood. Statistically significant associations were found between youth having DBD in childhood and arrest during adolescence and emerging adulthood, compared to two groups of DBD negative youths: Siblings and Controls. However, there were no significant differences between DBD and non-DBD groups in age at the time of the first arrest or in the number of arrests. Gender differences were also observed in regard to likelihood of arrest, with males having higher rates of criminal justice involvement compared to females, but there were no gender differences in age of first arrest or number of times arrested.

Keywords: disruptive behavior disorders, antisocial behaviors, arrest, criminal justice involvement, Hispanic/Latinos

Disruptive Behavior Disorders in Childhood and Criminal Justice System Involvement in
Adolescence and Emerging Adulthood: Pilot Results Among Puerto Rican Youth

Childhood misbehavior is a natural occurrence of the human experience. Children undergo developmental periods in which certain disruptive behaviors are very common and can be considered socially appropriate. However, if the child continues to display disruptive behaviors beyond the appropriate context and developmental period, the child may be considered to have an externalizing disorder known as a Disruptive Behavior Disorder (DBD). Research suggests that a DBD diagnosis at an early age has profound negative effects on the child and its environment. For example, DBD symptoms in childhood oftentimes include antisocial behaviors that could lead to arrest later in life (Loeber & Farrington, 2001a). Several studies examining the relationship between DBD and arrest have reported that nearly half of participants within their sample have a DBD diagnosis, suggesting that DBD in childhood and arrests in adolescence/young adulthood are related (Teplin, Abram, McClelland, Dulcan & Mericle, 2002; Shufelt & Coccoza, 2006; Lewis, 2010).

Although much research has been conducted on DBD, Hispanic populations have been largely underrepresented (compared to Whites and African Americans) in studies examining the relationship between childhood DBD and later arrest, despite Hispanics being one of the largest and fastest growing racial groups in the United States (Brown, 2014). The limited data available suggest that there is a link between DBD and criminality in Hispanics; yet, more research on Hispanic populations is needed in order to explore the nature of this relationship and to assess its strength. It is crucial to investigate if a childhood diagnosis of DBD is related to arrests in adolescence/young adulthood in Hispanics, in order to concentrate preventive efforts during childhood in Hispanic individuals showing early signs of DBD to potentially circumvent the

delinquency trajectory. The current pilot study aimed to investigate if DBD in childhood was related to criminal justice involvement later in life in a sample of Puerto Rican youth living in the South Bronx, NYC.

In the introduction of this paper, a description of what is considered to be a disruptive behavior disorder, what causes it, who it impacts, and theories of how disruptive behaviors develop and persist will be provided. Then, a review of the literature pertaining to the relationship between Disruptive Behavior Disorders and criminal behaviors will be discussed, along with the limitations of previous research and strengths of the current study.

Classification

Disruptive Behavior Disorders (DBD), as defined here, includes two highly prevalent childhood/adolescent psychiatric disorders (Conduct Disorder and Oppositional Defiant Disorder) that are characterized by age-inappropriate patterns of externalizing antisocial behaviors. DBD are considered to be externalizing disorders because the symptoms largely consist of overt intrusive behaviors. This visible misconduct is consistent across multiple settings (e.g. in school, at home, in public) and eventually interferes with the child's ability to perform daily activities. For example, a child with DBD may be physically aggressive towards other children without being provoked, and this behavior disrupts everyone's environment. The teacher may observe that the child is pushing other children, taking the other children's toys away, or being loud enough that the teacher cannot carry on with the lesson. At home, the child may also disobey the parents' rules, hit his/her siblings, and take things without permission. The child may be removed from the classroom and he/she will miss the lesson; therefore, the child will have a hard time or will not be able to do the homework. The child's behavior will also interfere with his/her ability to socialize and make friends or get along with his/her siblings. Furthermore, the child's relationships with adults will be

affected since he/she will not be trusted. The child's consistent age-inappropriate antisocial externalizing behaviors can lead to a diagnosis of DBD. The two DBD which are the focus of this paper are Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD).

Oppositional Defiant Disorder

The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV TR) published by the American Psychiatric Association (APA) defines ODD as a "recurrent pattern of negativistic, defiant, disobedient, and hostile behavior toward authority figures" (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000). It is amongst the most regularly observed child psychiatric disorders. The prevalence of ODD rates vary depending on the sample and methods used in the study. A review of articles pertaining to ODD and CD reported the ODD prevalence rate to be 2.1-15.4% in boys and 2.1-15.6% in girls (Loeber, Burke, Lahey, Winters, & Zera, 2000). A national comorbidity study reported rates of ODD within the range of those from the Loeber et al. (2000) review with an overall prevalence of 12.6% (11.3% in females, 13.9% in males) (Merikangas, He, Burstein, Swanson, Avenevoli, Cui, Benjet, Georgiades, & Swendsen, 2010). However, the distribution of rates seems to be slightly different across age groups. The prevalence rate for thirteen to fourteen year olds was 12%, 12.6% for 15-16 year olds, and 13.6% for 17-18 year olds. This suggests that older adolescents may slightly account for more of the individuals with ODD than younger children.

In addition, ODD is more common among males than females before puberty, but after puberty the prevalence is about equal for both males and females. The disorder usually manifests before age 8 but ordinarily no later than early adolescence, and is limited to diagnosis in childhood (17 years of age or younger) (APA, 2000). The symptoms include persistent stubbornness, resistance to direction, unwillingness to compromise, deliberately testing limits, annoying others

on purpose, use of verbal aggression, disobedience of rules, and lying/blaming others for their own actions. For most children, the behaviors tend to dissipate as the child ages. However, this is many times not the case for children with Conduct Disorder (CD).

Conduct Disorder

Conduct disorder is defined as a “repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated” (APA, 2000). It is also one of the most commonly diagnosed conditions in children, with a reported prevalence of 4.6% (6.2% in males, 3.0% in females), 9.5% (12.0% in males and 7.1% in females), and 1.8-16% in males and 1.8-9.2% in females according to Loeber et al.’s (2000) review (Perou, Bitsko, Blumberg, Pastor, Ghandour, Hedden, Crosby, Visser, Schieve, Parks, Hall, Brody, Simile, Thompson, Baio, Avenevoli, Kogan, & Huang, 2013; Nock, Kazdin, Hiripi, & Kessler, 2006). Merikangas et al. (2010) reports similar rates of CD as 6.8% overall, but 5.8% for females and 7.9% for males. A similar pattern for ODD is seen when breaking down the prevalence by age. Thirteen to fourteen year olds have a prevalence of 4.4% for CD, while 15-16 year olds report 7.5%, and finally 9.6% for 17-18 year olds. In Perou et al.’s (2013) report we also see that older groups have higher rates of CD. The 3-5 year olds have a reported prevalence of 1.5%, the 6-11 year olds have a reported rate of 5.1%, and the 12-17 year olds have a prevalence of 5.7%. Age of onset was reported as 11.6 years old (Perou et al., 2013).

A prominent theme in CD diagnosis is that males are more affected by this disorder than females. The difference in prevalence of CD between males and females may be reflective of how males exhibit more overtly aggressive behaviors compared to females, and as a result get labeled more often. Males tend to exhibit more physically aggressive behavior (e.g. fighting), whereas females tend to display non-confrontational behaviors (e.g. running away from home) (Björkqvist,

Lagerspetz, & Kaukianen, 1992). For example, a girl may tell a boy to push another child that they do not like. If the teacher sees this, the boy will be labeled as disruptive because he is visibly pushing the child, whereas the girl seems to just be a bystander. The teacher would consider the boy's actions to be more severe, even though both show antisocial behaviors. The first significant symptoms of CD typically start in middle childhood to middle adolescence, with less severe symptoms emerging first, followed by the most severe behaviors. Behaviors displayed may include bullying, initiation of physical fights, causing physical harm to self or others, cruelty towards people and/or animals, lying, stealing, destruction of property, violations of rules, forced sex, and physical violence. These behaviors tend to be more severe than the behaviors of ODD.

Indicators of DBD include an array of behaviors that go against what is considered to be "normal" for a child. If the child deviates from the "normal" behavior, he/she may be diagnosed with a DBD. However, Conduct Disorder and Oppositional Defiant Disorder are diagnoses restricted to childhood and adolescence. If the disruptive behavior persists into adulthood (age 18 and older), then the person would be considered for a diagnosis of Antisocial Personality Disorder (ASPD), if the diagnostic criteria are met. Symptoms or a diagnosis of CD during childhood is required in order to diagnose an adult with ASPD. Therefore, not only do these disruptive behaviors happen during childhood, but they can also persist and even escalate into adulthood. From the classification of DBD we know what symptoms children with a DBD tend to exhibit, but what causes these behaviors?

Etiology

The destructive behaviors characteristic of DBD have led researchers to explore the causes of these disorders. An extensive amount of research has established certain genetic, biological, environmental/social, and individual factors that are associated with the development of both

DBD. Genetic factors linked to increased likelihood of developing DBD (both CD and ODD) include having a sibling with CD, having a parent with a psychological disorder such as CD in childhood, and/or Antisocial Personality Disorder, Schizophrenia, and Mood/Anxiety disorders in adulthood (APA, 2000). Biological factors associated with DBD include maternal smoking during pregnancy, low birth weight, and amygdala abnormalities (deficits in fear processing) (Latimer, Wilson, Kemp, Thompson, Sim, Gillberg, Puckering, & Minnis, 2012; Raine, 2011). Environmental and social factors consist of having grown up with a single parent, being adopted or experiencing early separation from a parent or loved one, family adversity, poverty, and inconsistent/coercive discipline (Latimer et al., 2012; Hinshaw & Lee, 2003). Individual level factors include problematic mental, physical, and emotional traits and cognitive deficits such as low IQ and verbal ability (Lynham & Henry, 2001). The child has a disadvantage in leading a healthy lifestyle because he/she may have a family member with a mental disorder, underdeveloped physical growth, experienced a chaotic and unstable environment, and/or has cognitive difficulties. The impact of the disadvantages predicts that the children who have enduring conduct problems will experience adverse consequences later in life.

Impact

Children and adolescents diagnosed with DBD exhibit behaviors that are often destructive to the self and/or others and that causes substantial impairment in individual, familial, peer, financial, and societal aspects of life. For example, a child that often throws temper tantrums could throw themselves on the floor or refuse to eat in protest. This places the teacher in a challenging situation since she/he cannot continue teaching until she/he deals with the situation. The educational opportunities of the other students is halted because of the child's disruption, so these children become frustrated and will not want to be the child's friend. The school officials have to

call in the parents and in turn the parents have to come in. Therefore, the child is causing harm to the self and to others as well. Another example could be an adolescent that often steals. He/she is causing damage not just to the self but to others by taking someone else's property. The adolescent may have a reputation for stealing, causing others to not trust him/her. The adolescent may be stealing money from family members or even disrupting their lives because the adolescent may have gotten caught by the police and the family had to leave work to pick him/her up. Consequently, the adolescent gets in trouble and becomes stressed, as well as the parents. These are just a few of many examples of how DBD can affect the self and others in many spheres of life.

DBD in childhood has been associated with a person's greater risk of developing a mood and/or personality disorder as an adult, and negative outcomes such as poor academic competency, unemployment, poor physical health, and early substance abuse are prevalent (Jaffee, Moffitt, Caspi, Fombonne, Poulton, & Martin, 2002; Morcillo, Duarte, Sala, Wang, Lejuez, Kerridge, & Blanco, 2012; Masten, Roisman, Long, Burt, Obradovic, Riley, Boelcke-Stennes, & Tellegen, 2005; Colman, Murray, Abbott, Maughan, Kuh, Croudace, & Jones 2009). Individuals with DBD often have problems establishing stable and healthy relationships with family members and peers (Snyder & Patterson, 1987). Financial burden is usually avoided by the individual and is consequently placed on their family, school, and state/federal public services (Foster and Jones, 2005). People that engage in criminal activity pose high public health demands to the rest of society due to costs associated with damages to property and/or victims, and operation of incarceration facilities and rehabilitation centers (Welsh, Loeber, Stevens, Stouthamer-Loeber, Cohen, & Farrington, 2008). Many aspects of the individual, his/her family, and the environment are affected by these behaviors.

Theories of Disruptive Behaviors

Several theorists have attempted to explain the chain of events leading those with DBD during childhood to display criminal behaviors in young adulthood. Moffitt (1993) hypothesized that this occurs through two different pathways. These pathways reflect a dual taxonomy that distinguishes between the Adolescent-Limited and the Life-Course-Persistent pathways. The Adolescent-Limited developmental pathway is experienced by most individuals. These individuals begin to exhibit the antisocial behaviors during adolescence (late-onset), but the behaviors eventually decrease as the person gets older. The discontinuity of the antisocial and risky behaviors in late-onset individuals is presumed to be explained by adequate levels of overall functioning (e.g. proper social skills, problem solving) that allow the person to overcome these difficulties. The individual is able to transition out of those disruptive behaviors, and function within the society after reaching developmental maturity. The antisocial behaviors tend to decline after they establish positive relationships or acquire greater responsibilities (Sampson & Laub, 1990).

In contrast to the pattern outlined above, the Life-Course-Persistent individuals show signs of antisocial and risk behaviors much earlier in life (early-onset), and continue to display these behaviors into adulthood. It has been hypothesized that these people are at high-risk for negative outcomes because of childhood predisposition and adversities (e.g. cognitive deficits, poverty) that hinder the child from developing socially competent behavior during their early years (Patterson, Capaldi, & Bank, 1991). The early-onset individuals are also more likely to repeat the behaviors throughout the life span since they did not learn pro-social alternatives to deal with life events and other people (Snyder & Patterson, 1987). Early disruptive behaviors may be indicators of neurological deficits in the child that can lead to long term impairment and partaking in risky behaviors throughout life (Lynham et al., 2001). In other words, childhood disruptive behaviors

may indicate neurological deficits that encourage a trajectory of *persistent* risky behaviors later in life. On the contrary, later-onset of disruptive behaviors may be considered as a *temporary* phase that the individual can eventually overcome. In summary, the age of onset of the behaviors can be indicative of the difference in risk trajectories between adolescent-limited and life course-persistent risk-takers.

Similarly, Loeber and Hay (1997) identified three developmental pathways which would occur in stages that get progressively worse. Each developmental pathway has its own set of behaviors that define the stage. The “Authority Conflict pathway” begins with the child displaying stubborn behavior, followed by defiance, and eventually avoidance of authority. This stage mostly consists of the child’s interpersonal conflicts and disobedience to authority figures. The “Covert pathway” includes behaviors that are minor concealed acts such as frequent lying and shoplifting, proceeding to property damage, then later engaging in moderate delinquent behaviors such as fraud, and finally turning to serious delinquency including behaviors such as burglary. This pathway is mostly associated with property loss caused by the person. The “Overt pathway” is exhibited by children with a stable pattern of conduct problems that escalate over time. Behaviors begin with minor aggression such as bullying, followed by physical fights, and ultimately severe violence such as assault/rape. The three pathways are not mutually exclusive, as a child can fit within all three pathways simultaneously. Each pathway describes a distinct set of behaviors that ultimately indicate the path that they may follow based on the sets of behaviors that the child displays. The more disruptive behaviors exhibited from each pathway, the more severe and persistent the behaviors become. As a result, this can lead to difficulties for individuals whose symptoms persist beyond childhood.

Moffit’s (1993) dual taxonomy and Loeber and Hay’s (1997) developmental pathways are

not opposing theories. The consistent pattern is that those with signs of antisocial behaviors earlier in life tend to have the worst outcomes. The child has predispositions that promote the persistence of engaging in these antisocial behaviors even if there are more severe consequences as they grow older. The persistence of these behaviors increases the likelihood that individuals will disregard laws which state that these behaviors are illegal and violate the rights of others as the child ages. This also becomes increasingly relevant as children are growing out of adolescence and into emerging adulthood. Emerging adulthood is a socially-constructed transitional period which comes after adolescence and before entering into adulthood, commonly between ages 18 and 25 (Arnett, 2000). During adolescence, individuals go through a stage in which experimentation with boundaries is common because they are trying to become more autonomous (Wiesner & Windle, 2004). Much of this experimentation period ends when transitioning into emerging adulthood, as emerging adults negotiate their roles between engaging in behaviors typical of adolescence and taking on adult roles and responsibilities (Arnett, 2004). Individuals with DBD are less likely to be able to transition into these roles, and consequently continue their path of antisocial behaviors. The maladaptive symptoms associated with DBD could include forms of delinquent acts. Consequently, individuals with DBD tend to engage in antisocial behaviors that could lead to arrest beyond adolescence.

Disruptive Behavior Disorders and Delinquent Behavior

A definitive feature of DBD is engaging in antisocial behaviors. These behaviors may be considered to oppose societal norms, but are not necessarily considered criminal. Nevertheless, behaviors can escalate enough to lead to arrest. For example, getting into arguments with someone is a behavior that may be considered antisocial. Getting into an argument with someone is not necessarily against the law, but if the argument escalates to harassment or threatening a person's

life, then it becomes illegal. Another example would be a couple of adolescents having consensual sex. Having sex at a young age may be considered to be an antisocial behavior, yet it is not necessarily illegal. It becomes illegal when one forces the other to have sex, in which case it is classified as rape. What we see from these examples is that there are limits within behaviors that constitute antisocial and legal behaviors versus antisocial and illegal behaviors. Unfortunately, individuals with a diagnosis or history of DBD are more likely to engage in antisocial activities that are illegal and end up in the criminal justice system.

Research conducted with individuals in the juvenile criminal justice system alludes to the connection between DBD and criminality. Teplin et al. (2002) conducted the Northwestern Juvenile Project in Chicago, Illinois to examine the prevalence of mental disorders within a sample of 1,829 arrested and detained juveniles aged 10 to 18 at the time of recruitment. The sample consisted of 36% females and 64% males, of which 55% were African American, 29% were Hispanics, 16% were White, and 4% were of another racial origin. Within this sample, it was reported that more than 40% of the total juvenile sample had a DBD. There were no significant gender differences in prevalence rates of DBD between male (41.4%) and female (45.6%) detainees. However, significant racial differences in males were observed with Non-Hispanic White males (60.3%) having the highest rates of DBD compared to Hispanic males (43.3%), and African American males (39.8%). The same pattern is seen in female detainees with Non-Hispanic White females (61.6%) being the highest, Hispanic females (56.5%) being the second highest group, and African American females (39.4%) having the lowest rate. Interestingly, Hispanic females (56.5%) had a higher rate of DBD than Hispanic males (43.3%).

Shufelt & Cocozza (2006) conducted the National Center for Mental Health and Juvenile Justice Prevalence study, which was a comprehensive study examining the mental health of youth

involved in the juvenile justice system in Louisiana, Texas, and Washington. The sample consisted of over 1,400 youths. They found that DBD rates were about 46.5% for youths overall, with a prevalence of 44.9% in males and 51.3% in females. Again we see that DBD rates were higher for females than for males. In a longitudinal study of 192 (86.5% male) 5-12 year old first-time arrestees (at baseline), juveniles who were considered to be high offenders (i.e. having more arrests) at the 2 year follow-up had higher rates of ODD/CD psychopathology than low offenders (i.e. fewer arrests) (Cohn, Domburgh, Vermeiren, Geluk, & Doreleijers, 2012). This is despite high offenders making up only one fourth of the sample. The results of these studies suggest that juvenile justice populations contain substantial numbers of juveniles with DBD, and those individuals tend to commit crimes multiple times.

Having symptoms of DBD also increases the likelihood that the person will have continued exposure to the criminal justice system. Juveniles who display delinquent behavior prior to adolescence are two to three times more likely to become chronic violent criminals compared to those who start to exhibit antisocial behaviors during adolescence (Loeber & Farrington, 2001a). Lewis (2010) conducted a study with a sample of 130 incarcerated women. Most of the participants were White (39.2%), followed by Black (36.2%), Hispanic (20%), and Other (4.6%). The researchers asked participants about past childhood disruptive and antisocial behavior in order to compose a retrospective diagnosis of CD. About 40.8% of the sample reported retrospective childhood Conduct Disorder. Women that reported a history of CD were substantially younger than the non-CD women, and had higher numbers of lifetime arrests. It was also found that those that were arrested for violent crimes were more likely to have reported a history of CD. In conclusion, research suggests that children diagnosed with DBD or with reported CD symptoms at an early age are more susceptible to criminal justice system involvement later in life.

Limitations of Previous Research

There has been extensive research examining the relationship between DBD and delinquency, but there are numerous methodological limitations in previous research. First, much of the previous research relies on retrospective report on childhood disruptive behavior disorder symptoms or diagnosis. Although retrospective reporting is an important tool used in social science and health research, it is not without limitations. One important problem is that as time passes, the possibility of recall biases could lead to over- or under-reporting of the symptoms or diagnosis (Rueter, Chao, & Conger, 2000). DBD are usually not studied until after the youth has been referred for mental health services or the criminal justice system, which regularly means there is little or no documented information on what happened in earlier years of the youth's life. This results in a large number of studies focusing on adults, without having any longitudinal information about what happened during childhood (Espiritu, Huizinga, Crawford, Loeber, 2001). Moffit (1993) explains that in order to identify factors that contribute to these enduring disruptive behaviors, researchers should conduct studies during childhood prior to the development of the behaviors that could be indicative of the trajectories to follow.

Second, much of the research has involved non-representative clinical samples or detainees from juvenile detention/prison facilities. DBD is largely examined in these types of populations due to the high rates of DBD in clinical and juvenile populations, but these samples may not reflect the general population (Lahey, Miller, Gordon, & Riley, 1999). They are also more likely to have comorbid diagnoses, which complicates the relationships. For example, ten children may have been diagnosed with a DBD, but one has also been diagnosed with Generalized Anxiety Disorder (GAD). The GAD diagnosis may exacerbate the DBD symptoms of the child with both diagnoses compared to the children with only a diagnosis of DBD. The child with DBD and GAD may end

up in a clinical or juvenile facility, but he/she is not representative of other DBD children. We would have a better understanding of DBD in the comorbid child, but not of the children that were diagnosed with DBD only. Therefore, more studies including non-clinical and non-juvenile samples must be conducted in order to understand the prevalence of DBD in the general population.

Third, studies of DBD have focused largely on Whites and African Americans with little or no attention placed on Hispanics. When Hispanics are included, the sample sizes are usually small compared to other groups. From the limited previous research we see that DBD rates among Hispanics is very high among those arrested; yet, they are still underrepresented in studies where DBD and arrests are examined (Teplin et al., 2002, Lewis, 2010). To further illustrate the lack of attention placed on Hispanics in regard to reporting criminal justice involvement, a recent FBI crime report on arrests still continues to exclude Hispanics in keeping track of arrested persons (Federal Bureau of Investigation, 2012). Hispanic individuals are collapsed within the 4 categories: White, Black, American Indian or Alaskan Native, and Asian or Pacific Islander. Antisocial behaviors in Hispanic populations is an important topic to discuss given that they are one of the largest and fastest growing minority groups in the United States (Brown, 2014). There is a need to call for more research that explores the relationship between DBD and arrests among Hispanics. We have a large population that has been greatly understudied.

Fourth, a related limitation is that frequently all ethnic groups are addressed as a single, supposedly homogeneous group. This is problematic since it doesn't take into account the variability across ethnic groups. Different ethnic groups likely have vulnerabilities and/or protective factors that are specifically relevant to them. Most studies about persons of Hispanic or Latino background focus on Mexican Americans (Buriel, Calzada, & Vazquez, 1982). Mexican

Americans may be very different from Puerto Ricans, Dominicans, Cubans, Salvadorians, etc. in that each have different immigration histories and experiences in the US. The best way to understand these differences is to examine the experiences of specific ethnic groups. For example, one of the first studies that attempted to examine antisocial behaviors in a specific Hispanic group was the Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) study. The MECA compared Puerto Rican Islanders (n=301) with Mainland Hispanics (n=52). Results from the MECA Study suggest that Island Puerto Ricans have substantially lower rates of antisocial behavior and disruptive behavior disorders when compared with Mainland Hispanics (Bird, Canino, Davies, Zhang, Ramirez, & Lahey, 2001). We clearly see that this one ethnic group differed from the panethnic group, but no conclusive results could be distinguished since there were not enough people from each specific ethnic background among mainland Hispanics for separate analyses. The Boricua Youth Study (BYS), examining antisocial behaviors in Puerto Rican youth, observed a decrease in risk for disruptive behavior disorders diagnosis and antisocial behaviors prevalence over time in Island Puerto Ricans compared with Puerto Ricans in the South Bronx, NYC (Bird, Shrout, Davies, Canino, Duarte, Shen, & Loeber, 2007). Therefore, even within the ethnic group of Puerto Ricans, we see a difference in rates and risk over time. The Methods for the Epidemiology of Child and Adolescent Mental Disorders and Boricua Youth Study studies examined the prevalence of antisocial behaviors within this specific Hispanic group, but did not focus on criminal justice involvement.

Lastly, the majority of the research has been gender-biased, with most of the research focusing on male antisocial behaviors (Loeber et al., 2000). There is a paucity of research that addresses the ways in which Hispanic/Latina females may exhibit antisocial behavior. The main consensus is that males have higher rates of antisocial behavior. However, some researchers have

theorized that females exhibit antisocial behaviors much later than males (Jennings, Maldonado-Molina, Piquero, Odgers, Bird, Canino, 2010). Emerging literature suggests that females may actually exhibit a delayed-onset trajectory, in which the behaviors begin later in life as opposed to in childhood like males usually display (Fontaine, Carbonneau, Vitaro, Barker, & Tremblay, 2009). This means that even if the child does not display conduct problems at an early age, the behaviors may arise later in life, and persist into adulthood. So it may not be that females are not antisocial, it could be that it is not being examined at the correct developmental period for females. Some researchers claim that there is no difference in antisocial propensity between males and females; there is a difference in the way they express it (Eley, Lichtenstein, & Stevenson, 1999). Males tend to be more overtly aggressive, while females are indirect. This difference is attributed to the way males and females are socialized. Results from previous research show a strong link between DBD and arrest for females (Shufelt & Cocozaa 2006, Teplin et al. 2002, & Lewis, 2010). However, we do not know the trajectories that females follow which lead to arrest. The limited availability of information on female trajectories warrants an examination of antisocial behaviors in females.

The Current Study

The current pilot study presented a unique opportunity to explore the relationship between childhood DBD and arrests in adolescence/emerging adulthood, while addressing some of the limitations of previous studies. The participants were part of a longitudinal community based study that aimed to investigate antisocial behaviors in a sample of Puerto Rican children. Information about DBD was collected during childhood and information about arrests was collected during adolescence and emerging adulthood. In addition, these factors are being examined in a sample that consists of participants belonging to one homogeneous Hispanic/Latino/a group (Puerto

Rican), with a comparable size of male and female participants.

Hypotheses

Hypothesis 1. Consistent with an early-onset trajectory, we expected that participants who were diagnosed with DBD in childhood will be more likely to have been arrested, arrested at an earlier age, and to have a higher number of lifetime arrests compared to those without DBD in childhood.

Hypothesis 2. We also expected to detect gender differences similar to those reported in the literature as related to the specific patterns of gender-specific DBD behaviors. Specifically, our hypothesis is that gender will play a role in the distribution of criminal justice involvement with males having been more likely to get arrested, at a much younger age and more times than females.

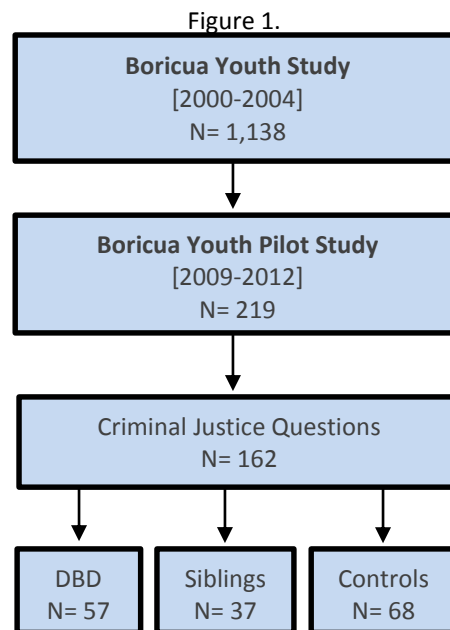
Methodology

Participants

Participants were selected from the Boricua Youth Study (BYS); a longitudinal study examining antisocial behaviors and mental health outcomes in a community sample of Puerto Rican children living in the South Bronx, New York City (for a detailed report see Bird, Canino, Davies, Duarte, Febo, Ramirez, Hoven, Wicks, Musa, & Loeber, 2006). A household was eligible to participate at baseline if [1] a parent or primary caretaker and at least one child between the ages of 5-13 years old identified as being Puerto Rican, [2] the child(ren) had been living in the household for at least 9 months, and [3] the child(ren) had no known mental retardation or developmental disability. Up to three eligible children from each household were selected to participate at random using a Kish table (Kish, 1965). Three waves of data were collected from the parents and children between 2000 and 2004. At baseline, a total of 1,138 children and 722 parents participated in the BYS at the South Bronx site. A sub-sample of children (n=219) from

the initial baseline sample were interviewed between 2009 and 2012 as part of the Boricua Youth Pilot Study . Of this sub-sample, 162 children were asked criminal justice involvement questions, since the questions were added shortly after the pilot study started.

Group Categorization. Participants of the Boricua Youth Pilot Study were divided into groups before the launch of the pilot study, based on the analysis of variables from the previous BYS waves. The determining variables for categorization were based on parental report of the child's symptoms of DBD in childhood at waves 1, 2 or 3 (see Measures section for details). The groups were: DBD, Siblings, and Controls. The first set of participants were part of the DBD (n=57) group, which included youth presenting disruptive behavior disorders, operationalized as a positive diagnosis of either CD or ODD at any of the three previous study waves. The second set included Siblings (n=37) of the children from the DBD group who were not diagnosed with DBD at any wave. The third set were the age and gender matched Controls (n= 68). This group consisted of participants that were not siblings of the children with DBD and were not diagnosed with DBD at any stage of initial waves. Figure 1 outlines the selection process starting from baseline.



Measures

Disruptive Behavior Disorders. Disruptive Behavior Disorder diagnosis was assessed using the Diagnostic Interview Schedule for Children-IV (DISC-IV). The DISC-IV is a highly structured computerized interview that was used to determine the presence or absence of DBD in the children (Shaffer, Fisher, Lucas, Dulcan, Schwab-Stone, 2000). The questionnaire was administered to parents about the child's behavior at every wave in the first three waves of the BYS [2000-2004], and based on the behaviors endorsed, the investigators were able to determine if the child had a DBD or not. If the behaviors endorsed met the criteria for ODD and CD at any of the three waves, the child would be considered to have a DBD. Criteria for Oppositional Defiant Disorder consists of a positive endorsement of four or more symptoms lasting at least 6 months. Questions include items assessing if the child often loses their temper, argues with adults, actively defies or refuses to comply with adult's requests or rules, often deliberately annoys people, often blames others for his or her mistakes or behaviors, is often touched or easily annoyed by others, angry and resentful, and spiteful or vindictive. Criteria for Conduct Disorder entails three or more symptoms in the past 12 months that includes endorsing items within four domains. These four domains are aggression towards people or animals, destruction of property, deceitfulness/lying, and a serious violation of rules.

Criminal Justice System Involvement. The youth's criminal justice involvement was assessed with lifetime arrest questions asked as part of the interview conducted during the Boricua Youth Pilot Study from 2009 to 2012. Criminal justice involvement was evaluated as replying "yes" to being arrested according to either the youth's self-report and/or parental report of the child/youth's arrest history. The information about the youth's arrest history was collected from youths who were 18 years of age and older at the time of the interview, and from the parents. If

the participant was younger than 18 years old at the time of the interview, then only the parent was asked the questions about the child's arrest history. If the participant had been arrested, follow-up questions were asked. Follow-up questions included: the number of lifetime arrests, age of first arrest, reason for first arrest, age of last arrest, and reason for last arrest. In addition, youths were asked questions about if they had ever been convicted or spent time in a juvenile detention center or prison (see Appendix A).

Procedures

Recruitment. The youths and parents were contacted by mail six to seven years after initial participation in the BYS (2000-2004). Participants were sent mailings containing information regarding intent to conduct a follow-up pilot study to the family's last known address on file. Enclosed was a self-addressed stamped envelope, a re-contact letter, an updated contact information form, consent forms, and a newsletter. The re-contact letter reminded participants of the value of their participation during the previous waves of the study. The letter stated that the research team would be contacting them at their last known phone number/address in two weeks to set up an interview. In closing, the letter asked participants to send back an updated contact information form with current information where the research team could reach them. Updated addresses, phone numbers, and emails for all previous participants were requested in order to facilitate the transmission of information about the pilot study. The consent forms included more detailed information on the purpose of the study, procedures, duration of the interview, gift card compensation, risks and benefits, confidentiality, and voluntary participation. The newsletter was an abbreviated report listing the findings of the previous waves. The mailing package was used to inform participants about the purpose for contacting them, but also giving them a chance to opt-out of the study if so they choose.

Locating Participants. After the 2-week waiting period elapsed, efforts were concentrated on calling participants to set up a telephone interview. If participants could not be reached over phone, other strategies were implemented to get in touch with them. In the previous waves, participants provided the research team with re-contact information for up to three people in the case that they could not be reached through their own information. Hard to reach participants were searched for by using web-based search engines. Home visitations were also conducted when phone contact was unsuccessful or at the request of the participants.

Interview. Located participants were informed about the brief 15-minute interview the team was interested in conducting as part of the pilot study. Interviews conducted over the phone were introduced by reminding participants of the previous study and asked if they received the mailing sent to them. The team member proceeded to explain the purpose of the current pilot study. If the person consented to participate, the team member conducted the telephone interview in English or Spanish. Participants were given the option of choosing which language they were most comfortable with. The consent was recorded over the phone using an approved script for each respondent; child, youth, or parent. Updated contact information was collected at the completion of the interview and gift cards were mailed after thanking them for their participation. Interviews conducted in-person followed a similar procedure. Team members reviewed the main points of the consent form with the participant and had participants sign two copies of each consent. One copy was kept for the research team's records and the other was given to the participant to keep. The interview and updated contact sheet were completed and gift cards were given in person. Participants had the option of refusing or saying "don't know" for any or all questions throughout the entire interview. Youths were given a resource guide with information of various children and family, legal, alcohol and substance, and educational services offered in New York City. The pilot

study was approved by the New York State Psychiatric Institute IRB. The interview team consisted of 13 female interviewers in their early to mid-20s, mostly bilingual (English and Spanish) speakers, that hold at least a Bachelors of Arts in Psychology or another related field.

Data Analysis

An initial analysis of the data revealed four male outliers that were exceedingly out of range in the number of times arrested compared to the rest of the sample. The analysis was conducted including and excluding the four outliers. A comparison of both sets of analysis showed that the relationships' significance were not affected by the outliers, therefore analyses included the outliers. Descriptive statistics were computed for the whole sample, by group (DBD, Sibling, and Control), by gender, and then each group by gender. An examination of individuals who had been convicted or spent time in a juvenile detention facility could not be further analyzed because of the small numbers in each group. T-tests were used to compare means across groups and a Chi-square was used to compare frequencies. Comparisons with p values less than 0.05 were considered statistically significant. All analyses were conducted in SPSS version 22.

Results

Group Descriptives

The final sample selected for these analyses included 162 participants. Table 1 includes a breakdown for the total numbers of participants by group, the average age at time of the interview, and the number of arrested and not arrested. We then reported the average number of times arrested, the age of first arrest, and the number of participants that have spent time in a juvenile facility or have been convicted for a crime.

Table 1

Descriptives By Group

Variables	Total	DBD	Sibling	Control	Females	Males
Total	162	57 (35.2%)	37 (22.8%)	68 (42.0%)	69 (42.6%)	93 (57.4%)
Age (M, SD)	18.94 (2.57)	18.63 (2.32)	18.27 (2.67)	19.57 (2.62)	18.89 (2.93)	18.14 (2.43)
Not Arrested (N)	107	29	31	47	56	51
Arrested (N)	55	28 (50.9%)	6 (10.9%)	21 (38.2%)	13 (23.6%)	42 (76.4%)
Times Arrested (M, SD)	2.93 (4.01)	3.21 (4.91)	2.5 (1.98)	2.65 (3.05)	1.46 (1.27)	3.31 (4.44)
Age of First Arrest (M, SD)	16.57 (2.08)	16.59 (2.34)	17.00 (.89)	16.4 (2.01)	17.83 (2.69)	16.2 (1.74)
Juvenile Facility (N)	13	9	2	2	2	11
Convicted (N)	10	6	1	3	1	9

Group by Gender Descriptives

The variables were also computed between groups for each gender. The findings are listed in Table 2. Some values could not be calculated based on no values available for that group.

Table 2

Descriptives by Gender and Group

	Variables	Total	DBD	Siblings	Controls
Female	N	69	23	21	25
	Age (M, SD)	19.14 (2.81)	19.22 (2.41)	17.52 (2.38)	20.44 (2.89)
	Not Arrested (N)	56	13	21	22
	Arrested (N)	13	10	0	3
	First Arrest Age (M, SD)	17.83 (2.69)	17.4 (2.76)	-	20 (0)
	Times Arrested (M, SD)	1.46 (1.27)	1.7 (1.34)	-	1.67 (.58)
	Juvenile Facility	2	2	0	0
	Convicted	1	1	0	0
Male	N	93	34	16	43
	Age (M, SD)	18.8 (2.39)	18.24 (2.20)	19.25 (2.77)	19.07 (2.34)
	Not Arrested (N)	51	16	10	25
	Arrested (N)	42	18	6	18
	First Arrest Age (M, SD)	16.2 (1.74)	16.12 (2.0)	17.00 (.89)	16.00 (1.68)
	Times Arrested (M, SD)	3.31 (4.44)	4.6 (5.95)	2.5 (1.96)	2.83 (3.17)
	Juvenile Facility	11	7	2	2
	Convicted	9	5	1	3

- = value could not be calculated.

Statistical Analyses

The first set of analyses involved comparing the DBD group to the Siblings and Control group, and then comparing males to females in regards to arrest. A Chi-square analysis revealed a

significant relationship between belonging to the DBD group and arrest. Specifically, children with DBD were more likely to get arrested than children from the Siblings and Controls group. Males were also significantly more likely than females to get arrested. The second set of statistical analyses included comparing the average times arrested and age of first arrest for each group. T-test analyses indicated no significant differences in the number of times arrested and the age of first arrest between the DBD group and the Sibling and Control groups, as well as no statistical difference between males and females. A summary of the values is presented in Table 3.

Table 3
Statistical Analysis Comparing Groups

Variables	DBD vs. Siblings	DBD vs. Controls	Males vs. Females
Arrested	$\chi^2(1, N=94) = 10.523^{**}$	$\chi^2(1, N=125) = 4.33^*$	$\chi^2(1, N=162) = 12.238^{**}$
Times Arrested	$t(31) = -.358$	$t(45) = .302$	$t(13.784) = -1.991$
First Arrest Age	$t(32) = .346$	$t(47) = .567$	$t(53) = 1.473$
*p <.05, **p <.001			

Discussion

The current study aimed to explore the relationship between Disruptive Behavior Disorders in childhood and later criminal justice system involvement. The study findings partially confirm our first hypothesis. Adolescents/emerging adults who were in the childhood DBD group were more likely to have been arrested when compared to the adolescents and emerging adults who did not have DBD in childhood. However, there was no substantial difference in the age of first arrest nor the number of times arrested. A total of 55 participants indicated having been arrested at least once in their lifetime. DBD participants represented 51% of these 55 arrested individuals, followed by 38% Controls, and 11% Siblings. This outcome is concerning because DBD participants consisted of 35% (n=28) of the whole sample, yet they made up about half of the arrested population. The Control group had a similar number of arrested individuals (n=21) when compared

to the DBD, yet the Controls also made up a larger portion of the sample (42%). Therefore, the percentage of arrestees within the Control group is much smaller even though they were the largest group of the overall sample. Individuals from the DBD group only made up about a third of the 162 participant sample, yet about half of the arrested people came from the DBD group, suggesting further confirmation that the DBD group would be more likely to get arrested than the other two groups. They were the only group that had a higher percentage of overall arrestees in relation to the percentage within the sample. This indicates that although individuals with DBD may not be the majority in a population, they are overrepresented in regards to their criminal justice system involvement.

Having a DBD was also associated with a higher possibility of arrest when comparing within groups. The finding that the DBD group had a worse outcome compared to the other two groups was expected. However, the magnitude of the differences between the groups further reinforces how much more at risk individuals with DBD are. Approximately 1 out of 2 participants with DBD had been arrested, followed by 1 out of every 3 Controls participants, and lastly about 1 out of 6 siblings. Although we see that individuals with DBD (61%) made up the majority of the arrested group when comparing DBD vs. Control, the Control group was much more similar to the DBD than the Siblings group regarding rates of arrest. Again, the members of the Control group were matched by age and gender to the DBD group to allow a comparison with non-DBD members that were not from the same household. The finding that the Control group had similar outcomes as the DBD in risk for arrest suggests that there are factors involved other than a DBD diagnosis.

A stronger difference was seen when the participants who had DBD were compared to their siblings. When comparing the Sibling group to the DBD group, participants who had DBD represented over 82% of those arrested. This is a substantial difference in proportion of arrestees,

especially considering that these children are related. As previously stated, the sibling group consisted of children from the same household as the children with DBD, but had not been diagnosed with a DBD. One would expect that the siblings would have similar rates of arrest to the DBD for at least two reasons. First, these children are related (therefore a higher possibility of sharing genetic predispositions). Second, they were likely to be living in the same household for most of their childhood/adolescence (thereby sharing environmental factors). However, the results show that this was not the case for this sample.

Previous research on Sibling's effect on delinquency has suggested that younger siblings (brothers and sisters) of older siblings that engage in delinquent behaviors are at risk for developing delinquent activity during adolescence (Slomkowski, Rende, Conger, Simons, & Conger, 2001, Rowe & Gulley, 1992). The conclusion was that the relationship between younger and older siblings is related to the younger sibling's risk. In this pilot study, there was not a marked difference in age between the DBD and Sibling groups overall. However, when comparing the 6 Siblings (all males) to their DBD relatives that were arrested, most individuals in the DBD were actually younger than the Siblings arrested. Nevertheless, these are only 6 paired observations out of the total sample. A much larger sample size is needed to investigate this relationship. The researchers also stated that depending on this relationship, the Siblings may share mutual friends that take part in the deviant behaviors (Slomkowski, et al., 2001, Rowe & Gulley, 1992). The relationship between the Siblings and DBD group and their mutual friends was not examined in this pilot study. The relationship between the Siblings and DBD group along with their mutual friends must be studied in future studies in order to shed light on the reasons why the Siblings had lower rates of arrest compared to DBD. Does the type of relationship they have with their siblings affect their risk? Does having mutual friends that are delinquent increase the risk?

Furthermore, an alternative explanation would be that perhaps knowledge of a sibling's arrest will deter the other child(ren) in the family from engaging in behaviors that will get them arrested. If a child sees firsthand the damaging effects of engaging in delinquent behaviors, he/she could potentially decide that they want to be a law-abiding person. Therefore, they would want to do the opposite of what their siblings did. The same could be said about the parents. Perhaps if one child has been arrested before they will try to rear the other child away from factors that could increase the risk of that child getting arrested (e.g. not letting them hangout with the same friends, give them a curfew, increase monitoring, etc.).

The likelihood of getting arrested was substantially higher for the DBD group, but the age of first arrest and number of arrests was not significantly different for any of the groups. This finding does not support our prediction that children with DBD would have been arrested at a younger age and would have been arrested more than the other groups. Overall, all individuals were arrested before age 19, suggesting that there would be an increased risk since they began to get arrested at an early age. However, most of the individuals were only arrested once. They did get arrested at least once during childhood, but they did not continue to get arrested after that first time in childhood/adolescence.

There are a variety of explanations for this finding. First, they could have learned their lesson and did not engage in delinquent behaviors after the first arrest. It could also be that they were more careful about getting caught doing the delinquent behaviors. It could be a different reason all together. Alternatively, perhaps the reason for the arrest was out of their control. One of the reasons for arrest was being at the wrong place at the wrong time. In this case it may have nothing to do with whether the person had DBD or not, but that other socio-cultural and environmental factors lead to this person getting arrested. The South Bronx is comprised of a

number of high crime neighborhoods where racial profiling increases the likelihood that individuals will get arrested because people of color are frequently targeted for questioning and arrested by the police (Fagan & Davies, 2000).

Nonetheless, we still see that DBD (16.59 years old) and Controls (16.4 years old) were arrested at a slightly younger age than Siblings (17 years old). DBD (3.21 times) participants also had been arrested slightly more times than the Siblings (2.5 times) and Controls (2.65 times). It is worth noting that DBD are much more likely to have started getting arrested earlier than their siblings. A trend was seen when comparing the DBD to the Siblings group in which 83.3% of DBD had first been arrested as children (before age 19), compared to only 16.7% of Siblings. This is consistent with the early onset trajectory of Moffit's (2003) dual taxonomy. The DBD individual is more at risk of getting arrested because the problems start earlier in life due to the neurological impediments and environment factors that exacerbate the already adverse situation.

Our second hypothesis that males would have higher rates of arrests, had been arrested at a younger age, and had been arrested more times was also partially supported. Gender differences were observed, with almost 1 out of 2 males having been arrested compared to approximately 1 in 5 females. The gender distributions of arrested individuals tells us an interesting story. Out of the 42 arrested males, 18 were DBD (43%), 6 Siblings (14%), and 18 were Controls. For females it was 10 (77%) DBD, 0 Siblings, 3 (23%) Controls. There was a stronger connection between arrest and DBD for females. It suggests that DBD in childhood could potentially be more salient for females in regards to later arrest. In prior research, the percentage of DBD within the females in their sample was higher than the males (Teplin et al., 2002; Shufelt & Coccozaa's 2006). For Teplin et al.'s (2002) study the DBD percentage was higher for Hispanic females than males, and for Shufelt & Coccozaa (2006) it was for all females regardless of their race. Could it be that having a

diagnosis of DBD is more detrimental to females than males? And if so, is a DBD diagnosis in childhood a better predictor of later arrest for females than males? Is it because females exhibiting disruptive behaviors are treated more harshly as it is not expected for them to behave this way? These questions need to be explored further, but at least we see in this pilot study that DBD individuals were much more represented in arrested females than were DBD males, even though males were arrested more often in general.

Consistent with findings from previous research (Moffit, 1993; Teplin et al., 2002; Shufelt & Cocozza, 2006) males continue to be more likely to be arrested compared to females, but males were not significantly younger than females at the time of their first arrest and in relation to the number of times they were arrested. This finding is not in-line with the delayed-onset trajectory expressing which would indicate that females may exhibit antisocial behaviors much later than males (Fontaine et al., 2009). Again, this may suggest that there are socio-cultural environmental issues that may be affecting this population specifically. Perhaps one explanation could be that the gender roles in this generation's culture are not defined within the same standards as previous generations were. For example, in previous generations it may not have been socially accepted for females to be outside the house passed a certain time. In this new generation, females have no (or fewer) restrictions on when to come home because that social norm no longer applies. Another example would be if females were encouraged to not fight back when faced with confrontation, but now they are encouraged to fight back if someone confronts them. In certain contexts, particularly in low-income urban settings, it may be commonplace to encourage females to fight back whether it be for self-defense or as part of their identity enhancement (e.g. for reputation) (Ness, 2004). Therefore, females may be socialized more like boys, instead of expecting for girls to be better behaved or sociable and law-abiding. The gender equality hypothesis posits that an

increase in female crime rates can be explained by changes in gender equality. As females gain more freedom to participate in the public spheres there are more opportunities to be involved in crime (Steffensmeier & Allan, 1996). A female that is not allowed outside past a certain time and is encouraged to avoid confrontations may be less likely to have the opportunity or inclination to commit a crime. A female that is allowed to come home at whatever time she wants and is encouraged to engage in confrontation may be more likely to engage in criminal activities. The gender roles socialization for these two individuals in turn influences their behavior.

The results of the current study suggests that although the relationship between gender and times arrested was not statistically significant, males in the sample were arrested an average of 3.31 (SD=4.44), whereas females were arrested an average of 1.46 (SD=1.27). We observed that the variability within the male group is much larger than the female group. This may be one of the reasons why the relationship between gender and times arrested was not statistically significant. Forty three percent of males had been arrested only one time, whereas for females it was 69%. This means that 57% of males had been arrested more than once, whereas only 31% of females were arrested more than once. The highest number of times arrested for males was 20, whereas it was only 5 for females. This indicates that males may be more likely than females to repeat offending.

Many factors could explain the finding that children with DBD and males have worse outcomes than Siblings and Controls and females. Results from recent studies reveal findings that depict a much more complex story than explained by the dual taxonomy and developmental pathways theories. Studies have shown that many individuals do not fit the simplistic trajectories of life course-persistent and adolescent-limited (Fairchild, Van Goozen, Calder, & Goodyer, 2013). For example, Odgers, Milne, Caspi, Crump, Poulton, Moffit (2007) found that there were

no differences in conduct problems between adults whose antisocial behaviors began in childhood in contrast to those where the behaviors started during adolescence. Therefore, this suggests that two individuals' antisocial behaviors may start at different points in life, but end up exhibiting similar behaviors later in life.

Implications

It is important to consider that we cannot predict trajectories of antisocial behaviors solely based on age of onset of disruptive behaviors. The research suggests that not having a diagnosis of DBD does not exempt you from developing symptoms later on in life. In addition, it also does not mean that just because you have a diagnosis of DBD in childhood, the outcome will be detrimental. Trying to confine antisocial behaviors in terms of a childhood-onset or adolescence-onset may not be enough. Other pathways may exist in which those that display severe conduct problems in childhood eventually disengage from those behaviors in adolescence (Moffitt, Caspi, Dickson, Silva, & Stanton, 1996). Obviously there are other influences associated with DBD diagnosis in childhood and later arrest that could either improve chances of a better outcome or exacerbate the negative outcome. Other social, economic, political, cultural, environmental, and individual factors should be considered. In addition, it is suggested that females may be more affected by DBD than males. If this is the case, targeted strategies need to be developed based on specific risks associated with each group. In turn, these approaches will be more relevant and effective at preventing and treating negative outcomes than current methods being used.

Limitations

The current pilot study contributed to the scarce literature of how DBD diagnosis in childhood is related to arrest in Hispanic populations. However, as it is a pilot study, it had limitations and the findings must be interpreted with a caveat. First, the initial 3 waves of the

longitudinal study were conducted over a period of 3 years, then there was a break for 6-7 years before the pilot study was conducted. It could very well be that some individuals may have had symptoms of DBD or a diagnosis during that gap period which were missed. We did not have the opportunity to ask participants about antisocial behaviors during the time gap, however, we were able to collect information on arrests. Another limitation is that the reason for arrest was collected during the pilot study, but the question was open ended so classification was difficult. Not all participants that were arrested gave a reason and therefore were hard to categorize. Comparisons between the very small numbers of reasons for being arrested would not have produced a general picture of the perceived reasons why these youths were arrested. Lastly, the criminal justice questions were self-reported. Individuals could have been dishonest about their criminal justice system involvement. Even so, the results from this pilot study provide interesting outcomes that are worth exploring.

Future Studies

The relationship between childhood DBD diagnosis and arrest in adolescence or emerging adulthood needs to be further explored in order to understand the trajectories. This pilot study provides a glimpse of how these variables may be related but it is not sufficient. The results suggest that one theory may not account for all trajectories for all groups and genders. Future studies should focus on longitudinal designs that will collect information about disruptive behaviors in childhood and examine criminal behavior in depth during the critical developmental period of emerging adulthood. In addition, taking into account the type of behaviors, severity is also important when considering trajectories. Severity of DBD may be indicative of risk for arrest and what types of crimes they will commit in the future. A child that lies and steals may not cause physical harm to

others, but those that do exhibit more severe behaviors like animal cruelty will be the ones that are more likely to get arrested.

Reasons as to why the individuals were arrested and ages at the time of each arrest should be collected in order to provide a timeline and classification of criminal behavior. Perhaps in the future researchers could provide a list of categories to choose from in addition to an open ended question in order to aid in category selection as well as provide researchers a simplified way to code it. Potentially comparing the criminal or lack of criminal records of the participants with the self-report may also tell us another story. Sometimes people do not want to directly disclose the fact that they were arrested. Looking at police records could give us that information. Access to police records may be a more accurate method of assessment due to the fact that many people feel uncomfortable disclosing that type of information. We also need to take into account the social, economic, political, and cultural environment that the person is living in. The finding that DBD and Siblings did not have comparable rates of arrest while DBD and Controls did indicate that there are factors beyond a diagnosis of DBD that affects the rate of arrest. It would be interesting to explore how other social, economic, political, and cultural factors play a role in the relationship between DBD, gender, and arrest.

Furthermore, there needs to be more research conducted with Hispanic populations as they are also disproportionately affected by arrests. In addition, it is crucial to study subgroups separately, in that there is great deal of ethnic variability within the pan ethnic populations (Bird et al., 2001; Deković, Wissink, & Meijer, 2004). Are certain Hispanic groups more likely to get arrested than others? If so, what may be specific factors within that subgroup that contribute to this disparity? Are rates of arrests affected by immigration status? Are cultural differences

affecting arrest rates due to certain DBD symptoms considered to be legal in Hispanic countries being illegal in the U.S.?

Lastly, results of the analyses revealed a relationship between gender and arrest. However, we do not understand the mechanisms behind why DBD in childhood appears to better predict arrest later in life for females than for males. How much a DBD diagnosis in childhood affects the possibility of later arrest in both Hispanic male and females should be explored in greater detail since arrested females in this sample were much more likely to be part of the DBD group when compared to males. Is it because of how females are socialized within different cultures? Is it that males are targeted differently? Even within arrest, what types of illegal activities are more common amongst males or females? These questions have been rarely examined in the literature, but will truly be valuable in helping us understand how DBD is related to arrest rates of Hispanic populations. Continuing research using multiple methodologies may add new levels of complexity, nevertheless, we could potentially identify what are aspects of a particular group that places the person more at risk for arrest. Protective factors may also be identified, and in turn primary prevention strategies can be developed. There are many avenues that need exploration in order to understand how DBD diagnosis relates to arrest.

References

- American Psychiatric Association. (2002). *Diagnostic and statistical Manual of mental disorders*. 4th ed. Washington, DC: American Psychiatric Association.
- Arnett, J. (2000). Emerging Adulthood: A Theory of Development From the Late Teens Through the Twenties. *American Psychologist*, 55(5), 469-480.
- Bird, H. R., Shrout, P. E., Davies, M., Canino, G., Duarte, C. S., Shen, S. A., & Loeber, R. (2007). Longitudinal development of antisocial behaviors in young and early adolescent Puerto Rican children at two sites. *Journal of the American Academy of Child & Adolescent Psychiatry*, 46(1), 5-14.
- Bird, H., Canino, G., Davies, M., Duarte, C., Febo, V., Ramírez, R., Hoven, C., Wicks, J., Musa, G., Loeber, R. (2006). A Study of Disruptive Behavior Disorders in Puerto Rican Youth: I. Background, Design, and Survey Methods. *Journal of the American Academy of Child & Adolescent Psychiatry*, 45(9), 1032-1041.
- Bird, H., Canino, G., Davies, M., Zhang, H., Ramirez, R., & Lahey, B. (2001). Prevalence and Correlates of Antisocial Behaviors Among Three Ethnic Groups. *Journal of Abnormal Child Psychology*, 29(6), 465-478.
- Björkqvist, K., Lagerspetz, K., & Kaukianen, A. (1992). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behav* (18), 117-127.
- Brown, Anna. (2014). U.S. Hispanic and Asian populations growing, but for different reasons. *Pew Research Center*. Retrieved from <http://www.pewresearch.org/fact-tank/2014/06/26/u-s-hispanic-and-asian-populations-growing-but-for-different-reasons/>

- Buriel, R., Calzada, S., & Vazquez, R. (1982). The relationship of traditional Mexican-American culture to adjustment and delinquency among three generations of Mexican-American male adolescents. *Hispanic Journal of Behavioral Sciences*, *4*, 41–55.
- Cohn, M., Van Domburgh, L., Vermeiren, R., Geluk, C., & Doreleijers, T. (2012). Externalizing psychopathology and persistence of offending in childhood first-time arrestees. *Eur Child Adolesc Psychiatry*, *21*, 243-251.
- Colman, I., Murray, J., Abbot, R., Maughan, B., Kuh, D., Croudace, T., & Jones, P. (2009). Outcomes of conduct problems in adolescence: 40 year follow-up of national cohort. *BMJ*, *338*, 1-8.
- Deković, M., Wissink, I. B., & Meijer, A. M. (2004). The role of family and peer relations in adolescent antisocial behaviour: comparison of four ethnic groups. *Journal of adolescence*, *27*(5), 497-514.
- Eley, T. C., Lichtenstein, P., & Stevenson, J. (1999). Sex differences in the etiology of aggressive and nonaggressive antisocial behavior: Results from two twin studies. *Child development*, *70*(1), 155-168.
- Espiritu RC, Huizinga D, Crawford AM, Loeber R (2001). Epidemiology of self-reported delinquency. In: Loeber R, Farrington DP (eds) *Child delinquents: development, intervention and service needs*, 1st edn. Sage, Thousand Oaks.
- Fagan, J., & Davies, G. (2000). Street stops and broken windows: Terry, race and disorder in New York City. *Fordham Urban Law Journal*, *28*, 457.
- Fairchild, G., Van Goozen, S., Calder, A., & Goodyer, I. (2013). Research Review: Evaluating and reformulating the developmental taxonomic theory of antisocial behavior. *Journal of Child Psychology and Psychiatry* *54*(9), 924–940.

- Federal Bureau of Investigation. (2012). *Crime in the U.S. 2012*. Retrieved from: <https://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2012/crime-in-the-u.s.-2012/tables/43tabledatadecoverviewpdf>
- Fontaine, N., Carbonneau, R., Vitaro, F., Barker, E. D., & Tremblay, R. E. (2009). Research review: A critical review of studies on the developmental trajectories of antisocial behavior in females. *Journal of Child Psychology and Psychiatry*, *50*(4), 363-385.
- Foster, E.M. & Jones, DE. (2005). The high costs of aggression: public expenditures resulting from conduct disorder. *American Journal of Public Health*, *95*, 1767-72.
- Hinshaw, S., & Lee, S. (2003). Conduct and oppositional defiant disorders. In E. Mash & R. Barkley (Eds.), *Child Psychopathology*, 2nd ed. (pp. 144-198). New York: The Guilford Press.
- Jaffee, S., Moffit, T., Caspi, A., Fombonne, E., Poulton, R., & Martin, J. (2002). Differences in early childhood risk factors for juvenile-onset and adult-onset depression. *Arch Gen Psychiatry*, *58*, 215-222.
- Jennings, W. G., Maldonado-Molina, M. M., Piquero, A. R., Odgers, C. L., Bird, H., & Canino, G. (2010). Sex differences in trajectories of offending among Puerto Rican youth. *Crime & Delinquency*, *56*(3), 327-357.
- Kish, L. (1965). Sampling Organizations and Groups of Unequal Sizes. *American Sociological Review*, *30*(4), 564-572.
- Lahey, B., Miler, T., Gordon, R., & Riley, A. (1999). Developmental epidemiology of the disruptive behavior disorders. In H. Quay, & A. Hogan (Eds.), *Handbook of disruptive behavior disorders*, (pp 23-48). New York. Plenum Press.

- Latimer, K., Wilson, P., Kemp, J., Thompson, L., Sim, F., Gillberg, C., Puckering, C., & Minnis, H. (2012). Disruptive behaviour disorders: a systematic review of environmental antenatal and early years risk factors. *Child: Care, Health and Development*, 38 (5), 611-628.
- Lewis, C. (2010). Childhood Antecedents of Adult Violent Offending in a Group of Female Felons. *Behavioral Sciences and the Law*, 28, 224–234.
- Loeber, R. & Hay, D. (1997). Key issues in the development of aggression and violence from childhood to early adulthood. *Annu Rev Psychol*, 48, 371-410.
- Loeber, R., & Farrington, D. P. (Eds.). (2001a). *Child delinquents: Development, intervention, and service needs*. Thousand Oaks, CA: Sage.
- Loeber, R., Burke, J.D., Lahey, B.B., Winters, A., & Zera, M. (2000). Oppositional defiant and conduct disorder: a review of the past 10 years, part I. *Journal of the American Academy of Child and Adolescent Psychiatry*, 39(12), 1468-84.
- Lynham, D., & Henry, B. (2001). The role of neuropsychological deficits in conduct disorder. In J. Hill & B. Maughan (Eds.), *Conduct Disorders in Childhood and Adolescence* (pp. 235-263). New York: Cambridge University Press.
- Masten, A., Roisman, G., Long, J., Burt, K., Obradovic, J., Riley, J., Boelcke-Stennes, K., & Tellegen. (2005). Developmental cascades: Linking academic achievement and externalizing and internalizing symptoms over 20 years. *Developmental Psychology*, 41(5), 733-746.
- Merikangas, K., He, J., Burstein, M., Swanson, S., Avenevoli, L., Cui, L., Benjet, C., Georgiades, K., & Swendsen, J. (2010). Lifetime Prevalence of Mental Disorders in US Adolescents: Results from the National Comorbidity Study-Adolescent Supplement. *J Am Acad Child Adolesc Psychiatry*, 49(10), 980–989.

- Moffitt, T. E., Caspi, A., Dickson, N., Silva, P., & Stanton, W. (1996). Childhood-onset versus adolescent-onset antisocial conduct problems in males: Natural history from ages 3 to 18 years. *Development and psychopathology*, 8(02), 399-424.
- Moffitt, T.E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: a developmental taxonomy. *Psychological Review*, 100, 674-701.
- Morcillo, C., Duarte, C., Sala, R., Wang, S., Lejuez, C., Kerridge, B., & Blanco, C. (2012). Conduct disorder and adult psychiatric diagnoses: Associations and gender differences in the U.S. adult population. *Journal of Psychiatric Research*, 46, 323-330.
- Ness, C. D. (2004). Why girls fight: Female youth violence in the inner city. *The Annals of the American Academy of Political and Social Science*, 595(1), 32-48.
- Odgers, C. L., Milne, B. J., Caspi, A., Crump, R., Poulton, R., & Moffitt, T. E. (2007). Predicting prognosis for the conduct-problem boy: can family history help?. *Journal of the American Academy of Child & Adolescent Psychiatry*, 46(10), 1240-1249.
- Patterson, G.R., Capaldi, D., & Bank, L. (1991). An early starter model for predicting delinquency. In D.J. Pepler & K.H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp.139-168). Hillsdale, NJ: Erlbaum.
- Perou, R., Bitsko, R., Blumberg, S., Pastor, P., Ghandour, R., Hedden, S., Crosby, A., Visser, S., Schieve, L., Parks, S., Hall, F., Brody, D., Simile, C., Thompson, W., Baio, J., Avenevoli, S., Kogan, M., & Huang, L. (2013). *Mental Health Surveillance Among Children — United States, 2005–2011*. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/su6202a1.htm?viewType=Print&viewClass=Print>

- Raine, A. (2011). An amygdala structural abnormality common to two subtypes of conduct disorder: A neurodevelopmental conundrum. *Am J Psychiatry* 168(6), 569-571.
- Rowe, D. C., & Gulley, B. L. (1992). Sibling effects on substance use and delinquency. *Criminology*, 30, 217.
- Rueter, M. A., Chao, W., & Conger, R. D. (2000). The effect of systematic variation in retrospective conduct disorder reports on antisocial personality disorder diagnoses. *Journal of consulting and clinical psychology*, 68(2), 307.
- Sampson, R.J. & Laub, H. (1990). Crime and deviance over the life course: the salience of adult social bonds. *American Sociological Review*, 55, 609-627.
- Shaffer, D., Fisher, P., Lucas, C.P., Dulcan, M.K., Schwab-Stone, M.E. (2000). NIMH Diagnostic Interview Schedule for Children Version IV (NIMH DISC-IV): Description, Differences From Previous Versions, and Reliability of Some Common Diagnoses. *Journal of the American Academy of Child and Adolescent Psychiatry*, 39(1), 28-38.
- Shufelt, J.S. & Coccozza, J.C. (2006). *Youth with mental health disorders in the juvenile justice system: Results from multi-stage, multi-system prevalence study*. Delmar, NY: National Center for Mental Health and Juvenile Justice.
- Slomkowski, C., Rende, R., Conger, K. J., Simons, R. L., & Conger, R. D. (2001). Sisters, brothers, and delinquency: Evaluating social influence during early and middle adolescence. *Child development*, 72(1), 271-283.
- Snyder, J. & Patterson, G. (1987). Family interaction and delinquent behavior, in: H. Quay (ed), *Handbook of juvenile Delinquency*. New York: Wiley.
- Steffensmeier, D. & Allan, E. (1996). Gender and Crime: Toward a Gendered Theory of Female Offending, *Annu. Rev. Sociol.*, 22 , 459-487.

- Teplin, L., Abram, K., McClelland, G., Dulcan, M., & Mericle, A. (2002). Psychiatric disorders in youth in juvenile detention. *Arch Gen Psychiatry*, *59*, 1133-1143.
- Welsh, B. C., Loeber, R., Stevens, B. R., Stouthamer-Loeber, M., Cohen, M. A., & Farrington, D. P. (2008). Costs of juvenile crime in urban areas: A longitudinal perspective. *Youth Violence and Juvenile Justice*, *6*, 3-27.
- Wiesner, M., & Windle, M. (2004). Assessing covariates of adolescent delinquency trajectories: A latent growth mixture modeling approach. *Journal of Youth and Adolescence*, *33*, 431-442.

Appendix A

Parent Questionnaire		Youth Questionnaire	
<p>DEM06. Has _____ ever been arrested or picked up by the police for anything other than a minor traffic offense?</p>	<p>0 No [GO TO DEM07] 1 Yes 777 Refused 999 Don't know</p>	<p>DEM05. Have you ever been arrested or picked up by the police for anything other than a minor traffic offense?</p>	<p>0 No [GO TO DEM06] 1 Yes [GO TO DEM05B] 777 Refused 999 Don't know</p>
<p>IF YES: DEM06B. How many times?</p>	<p>0-98 _____ 777 Refused 999 Don't know</p>	<p>IF YES: DEM05B. How many times?</p>	<p>_____TIMES 777 Refused 999 Don't know</p>
<p>DEM06C. How old was _____ the first time he/she was arrested?</p>	<p>_____YEARS OLD 777 Refused 999 Don't know</p>	<p>DEM05C. How old were you the first time you were arrested?</p>	<p>_____YEARS OLD 777 Refused 999 Don't know</p>
<p>DEM06D. What was _____ arrested for the first time?</p>	<p>1 Reason _____ 777 Refused 999 Don't know</p>	<p>DEM05D. What were you when you were arrested for the first time?</p>	<p>1 Reason _____ 777 Refused 999 Don't know</p>
<p>IF ARRESTED MORE THAN ONCE: DEM06E. How old was _____ the last time he/she was arrested?</p>	<p>_____YEARS OLD 777 Refused 999 Don't know</p>	<p>IF ARRESTED MORE THAN ONCE: DEM05E. How old were you the last time you were arrested?</p>	<p>_____YEARS OLD 777 Refused 999 Don't know</p>
<p>DEM06F. What was _____ arrested for the last time?</p>	<p>1 Reason _____ 777 Refused 999 Don't know</p>	<p>DEM05F. What were you arrested for the last time?</p>	<p>1 Reason _____ 777 Refused 999 Don't know</p>
<p>DEM06G. Has _____ ever been convicted in court or by a judge for doing something against the law or for a delinquent act?</p>	<p>1 Yes 2 No 777 Refused 999 Don't know</p>	<p>DEM05G. Have you ever been convicted in court or by a judge for doing something against the law or for a delinquent act?</p>	<p>1 Yes 2 No 777 Refused 999 Don't know</p>
<p>DEM06H. Has _____ ever spent time in a juvenile detention center or prison or other facility associated with the criminal justice system in which _____ was required by law to spend time away from home as a consequence of a criminal or delinquent act?</p>	<p>1 Yes 2 No 777 Refused 999 Don't know</p>	<p>DEM05H. Have you ever spent time in a juvenile detention center or prison or other facility associated with the criminal justice system in which you were required by law to spend time away from home as a consequence of a criminal or delinquent act?</p>	<p>1 Yes 2 No 777 Refused 999 Don't know</p>