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SINS OF OUR FATHERS (AND MOTHERS):
IMPACT OF PARENTAL INCARCERATION UPON EDUCATION OUTCOMES

by
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A THESIS

Presented to the Faculty of
The Graduate College at the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Master of Arts

Major: Sociology

Under the Supervision of Professor Lisa A. Kort-Butler

Lincoln, Nebraska

May, 2013

SINS OF OUR FATHERS (AND MOTHERS):
IMPACT OF PARENTAL INCARCERATION UPON EDUCATION OUTCOMES

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University of Nebraska, 2013

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In 2007, it was estimated that 2.3% of all children in the U.S. under the age of 18 had a parent currently in prison or jail (Glaze and Maruschak 2008). A growing body of research on the experiences of children who have had a parent to go prison or jail has exposed a number of detrimental outcomes associated with parental incarceration, including lower education outcomes (Foster and Hagan 2007), higher risk of mental health problems (Farrington et al. 2001), and increased contact with the criminal justice system later in life (Huebner and Gustafson 2007). This study used data from the National Longitudinal Study of Adolescent Health (Add Health) to extend the existing literature on parental incarceration and high school completion and overall educational attainment. This study focused on examining differences in how these educational experiences change when a father is incarcerated compared to a mother, and how old the child was when their parent was first incarcerated. This study finds that parental incarceration lowers the odds of a child completing high school by 50%, and lowers their overall educational attainment by 0.33 standard deviations. Educational attainment is further decreased when a mother is incarcerated compared to a father. For both education outcomes sons fare worse than daughters. The effects of parental incarceration upon education outcomes are most severe when the child is between the ages of 11 to 14 when their parent was first incarcerated.

ACKNOWLEDGEMENTS

I would like to thank my committee members, Jolene Smyth and Tara Warner, for their time, effort, and feedback for this research. I would also like to thank Jarred D. Hobbs for his kind donation of time and thought to a friend who was in great need of both. This project is also indebted to the constructive learning environment fostered by the faculty members of this department who have always been willing to listen and provide a critical eye. Most especially, I would like to thank my advisor and chair, Lisa A. Kort-Butler, for her inexhaustible patience with the many versions of this project and her excellent advice about the next incarnation. This would be a poorer project without her insight.

GRANT INFORMATION

This research uses data from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Information on how to obtain the Add Health data files is available on the Add Health website (<http://www.cpc.unc.edu/addhealth>). No direct support was received from grant P01-HD31921 for this analysis.

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In 2007 it was estimated by the U.S. Department of Justice that 1,706,600 minor children, 2.3% of all U.S. children under the age of 18, currently had a parent in prison or jail (Glaze and Maruschak 2008). This number reflects nearly three decades of meteoric growth in prison populations which has resulted in the U.S. having the highest rates of incarceration in the world (Walmsley 2011). The amount of social science research exploring the effects of incarceration upon prisoners has mirrored the growth of the prison population. Yet the effects of imprisonment reach far beyond the constraints of a corrections facility. Punishments meant for the offender can trickle down and have unintended consequences on their children. The absence of a parent due to incarceration is uniquely detrimental, beyond what is experienced due to divorce or loss of a parent for another reason (Murray et al. 2012). A growing area of research reveals that children of incarcerated parents can face a wide array of challenges which can have significant and serious effects on their lives, such as educational attainment (Foster and Hagan 2007), higher risk for mental health problems (Farrington et al. 2001), and increased risk for contact with the criminal justice system (Huebner and Gustafson 2007). The effect of these challenges can possibly extend into a third generation and beyond (Foster and Hagan 2007). Education in particular can be a potent factor in determining not only future income, but also the income and education of the next generation, so that lack of education has the effect of transmitting disadvantage (Sirin 2005). Understanding how parental incarceration affects educational outcomes becomes important when the potential scope of the negative effects is considered.

The purpose of this research is to extend the current body of work by examining how a child's educational success is affected by having a parent sent to prison. Four

issues are of interest. First, existing research on educational outcomes for prisoners' children has found a variety of results that are typically consistent in their direction, but use a wide range of measures that are not necessarily comparable with each other (Murray, Farrington and Sekol 2012). Additionally, few studies examine factors that may mediate the relationship between parental incarceration and educational attainment. Second, previous research has been limited in its ability to examine both paternal and maternal incarceration simultaneously. This has resulted in a dearth of studies that can directly compare the effects of losing a mother compared with the loss of a father. So although we can speak generally about the effects of parental incarceration, we have yet to empirically differentiate between an imprisoned mother and father. Third, there is a surprising lack of studies which examine how the effects of parental incarceration may vary depending on how old the child is when his/her parent is first imprisoned. This seems like a critical oversight as there are numerous developmental and social differences between the experiences of a newborn, a 10 year old, and someone who was 20 when their parent was first incarcerated. Finally, variations in the effects of parental incarceration due to the sex of the parent and the sex of the child are suggested by the existent literature, but empirical analysis is absent from the body of work. Addressing these gaps in the literature is critical in order to better inform policies relevant to parental incarceration and attain a better understanding of this complex problem.

Using data from the National Longitudinal Study of Adolescent Health (Add Health) this research will empirically address the previously mentioned absences in the literature regarding educational outcomes for children with an incarcerated parent. The first section of this thesis discusses the current status of incarcerated parents and their

children in the U.S., the theoretical frameworks employed to explain the potentially damaging effects of parental incarceration, and the proposed mediating concepts. Second, the data source and methods used to set up the analyses utilized are discussed. Third, this paper moves through the analytic section, describing the strategy employed in this thesis, and providing descriptions of results. The fourth section discusses the primary research questions in light of the results. Additionally, this section discusses some of the limitations and unexpected findings of the thesis. The final section presents the broader conclusions of the thesis as well as suggested policies that can be derived from this work.

LITERATURE REVIEW

Portrait of Incarcerated Parents and their Children

Between 1991 and 2007 the number of parents currently in prison rose 80% to 809,800 incarcerated parents (Glaze and Maruschak 2008). The vast majority of these incarcerated parents are fathers (92%) but there has been a recent rapid growth in the number of mothers in state and federal prisons. Since 1991, the number of mothers in prison has grown by 131% while the number of fathers has grown by only 77%. It is estimated that in 2007 approximately 1,559,200 children had a father in prison; 46% of fathers were Black, about 30% were White, and about 20% were Hispanic. Mothers differed from fathers in that 48% of mothers incarcerated in 2007 were White, 28% were Black, and 17% were Hispanic. More mothers were living with their minor children before arrest (55.3%) and before incarceration (60.6%) than fathers before arrest (35.5%) and before incarceration (42.4%). Approximately half of the parents in state prisons reported that they provided primary financial support for their minor children before arrest.

According to the U.S. Department of Justice, in 2007 there were approximately 1,706,000 children who had a parent currently in prison, accounted for 2.3% of the U.S. population under the age of 18 (Glaze and Maruschak 2008). Black children were seven and a half times more likely than White children to have a parent in prison. Hispanic children were more than two and a half times more likely than White children to have a parent in prison. It is estimated that more than a third of the children who had a parent incarcerated in 2007 would reach the age of 18 while their parent is still incarcerated. The living situation for children differs radically depending on which parent is in prison. Children who have a father in prison are most likely to live with their other parent (88.4%), grandparent (12.5%), other relatives (6.2%), or with a foster home or agency (2.2%). Children who have a mother in prison are most likely to live with a grandparent (44.9%), then the other parent (37%), other relatives (22.8%), or a foster home or agency (10.9%). The amount of contact between child and incarcerated parent also differed depending upon if it is the father or mother in prison. Mothers had more contact in general with their children, 85% reported any contact (78% of fathers), but 55% mothers also reported having contact once a week or more (38.5% of fathers).

Educational Outcomes of Children with Incarcerated Parents

Education is a powerful force in the lives of Americans and is one of the most stable components of socio-economic status (SES) indicators (Sirin 2005). There is also a strong correlation in the United States between income and education (Sirin 2005). It is highly predictive of the standing of an individual's first occupation, which in turn influences occupational positions later in life (Warren, Sheridan, and Hauser 2002). The education of a parent is also strongly linked to income and the education of the next

generation (Sirin 2005). Given education's high impact on several far-reaching aspects of American life, it is important to understand how trajectories in educational attainment may be affected by negative events, such as having a parent incarcerated. Additionally, something that affects education outcomes not only impacts the individual directly, but can also have intergenerational consequences (Foster and Hagan 2007). Thus, it is imperative that the field strives for a greater understanding of how parental incarceration affects their children's educational trajectory.

Interestingly, the current literature on educational outcomes of children who have experienced a parent's imprisonment is rather mixed. In perhaps the most comprehensive meta-analysis of the field to date, there were no conclusive findings between parental incarceration and education outcomes (Murray et al 2012), despite numerous significant findings. What appears to happen is that research in this area measures education in different ways and at different times. There are some areas of overlap but on the whole, measures of education are wildly different. Some examples of these measures include retention in an elementary grade (Cho 2009), dropping out of high school (Nichols and Loper 2012; Trice and Brewster 2004), IQ tests (Poehlmann 2005), and measures of maximum educational attainment (Foster and Hagan 2007). Although the measures used are different, the stories they tell are largely the same. Parental incarceration has a negative impact on a diverse number of educational outcomes.

The challenge is to expand upon the findings that already exist, while using commonly used education measures, in order to establish a more cohesive narrative about the relationship between parental incarceration and educational outcomes. Failure to complete high school is perhaps the most commonly used measure for education,

followed by maximum educational attainment. Both of these measures have been found to be negatively impacted by parental incarceration (Cho 2011; Foster and Hagan 2007; Nichols and Loper 2012; Trice and Brewster 2004; McLeod and Kaiser 2004). Thus, these are the two primary measures of educational attainment that this thesis will use to assess the impact of parental incarceration. Understanding how the experience of the incarceration of a parent is linked to education outcomes both theoretically and empirically is the subject of the following sections.

THEORETICAL PERSPECTIVES

There is something uniquely adverse about losing a parent to incarceration that is detrimental beyond what is experienced due to divorce or loss of a parent for another reason (Murray et al. 2012). In order to examine how children might be affected by parental incarceration it is important to understand that losing a parent does not simply trigger one response. It is a complicated situation that involves many different aspects which interact together and then coalesce into possible disadvantages. These disadvantages might be small initially, but may culminate into a vastly different trajectory through life for those who experience them. This thesis utilizes three core theoretical perspectives, strain, socialization, and stigma, to frame how some of these unique disadvantages may operate in the lives of children experiencing a parent in prison.

The Strain Perspective

There are many ways in which losing a parent to the criminal justice system can result in stress and strain within the family (Agnew 1985). The child can experience strain as their living arrangements are altered after a parent is incarcerated, beginning a potential cycle of different housing. Although only 2.9% of all children with a parent

incarcerated go to foster care, there is a substantial number who end up living with grandparents or other relatives (Glaze and Maruschak 2008). These living situations vary drastically depending upon whether a mother or father was incarcerated. When a mother is incarcerated the child is five times more likely to end up in foster care than if their father had been imprisoned (Glaze and Maruschak 2008). In addition to where the child ends up living, simply changing households may present its own problems, as it has been suggested that educational outcomes may be particularly sensitive to household instability (Nichols and Loper 2012).

Family economic stress may also occur. If an incarcerated parent had previously contributed financial resources to the family, then the loss of that parent can impose significant economic strain. It has been reported that over half of parents incarcerated in state prisons provided primary financial support at the time of their incarceration (Glaze and Maruschak 2008). This supports a 2003 qualitative study which found that two-thirds of families reported being much worse off or somewhat worse off financially than before a partner's incarceration (Arditti, Lambert-Shute, and Joest 2003). Although child support claims are still levied against the parent in prison, the low wages paid in prison make it incredibly difficult for the parent to provide any kind of financial support (Swisher and Waller 2008). The loss of income can affect the child in several ways. First, the remaining parent or caretaker has to make up for the loss of income, which can result in longer hours or a second job. This means that there is less time and money for the child (Arditti et al. 2003; Foster and Hagan 2007). Second, the increased economic strain can lead to increased distress in the relationship between parent and child. For example, financial difficulties may exert a negative influence on parenting styles, which can

become erratic or trend towards authoritarian when experiencing economic strain (Gutman, McLoyd, and Tokoyawa 2005).

The child can be more directly affected as well. Older children in an economically strained home may need to start working in order to provide another source of income (Foster and Dinovitzer 1999). The child may also need to take on other adult roles such as providing care for younger siblings. Taking on these new roles can hamper the child's development both socially and educationally, because time is diverted away from their own activities with friends and the personal importance placed on schooling may decrease (Hagan and Dinovitzer 1999; Sirin 2005). Parental incarceration can produce strain for a child due to changing living situations, financial stress, less time from a remaining parent or caretaker, assumption of adult roles, and the disruption of the relationship between imprisoned parent and child. Thus, the loss of an incarcerated parent can result in the loss of educational opportunities and income (Foster and Hagan 2007).

The Socialization Perspective

A meta-analysis of the relevant literature reveals that parental incarceration is consistently related to a child's anti-social behavior (Murray et al. 2012), while typically controlling for family size, family SES, family income, poor supervision, parental attitudes, and marital relations (Murray and Farrington 2005). One line of thinking suggests that the loss of a parent deprives the child of an agent of socialization and social control (Foster and Hagan 2007). Incarceration makes it difficult to have dependable or intimate contact with a parent (Murray et al. 2012). Contact that does occur happens either in a very intimidating setting, which is often frightening for children (Nesmith and Ruhland 2008), or is through the phone, which can be costly for the inmate and their

family (Arditti et al. 2003). Even short periods of incarceration can harm the relationships between parent and child (Edin, Nelson and Paranal 2004; Nurse 2004; Swisher and Waller 2008). In younger children, the disruptions at home due to parental incarceration have been linked to disruptions in forming an attachment or connection to important socializing forces, such as their school, family, or friends (Dallaire 2007).

The incarcerated parent is also limited in their ability to provide support, guidance, or regulation from within the prison (Nesmith and Ruhland 2008). They are unable to be an active part of their children's lives, instead they are reduced to limited visitation hours and telephone calls or letters, assuming the child's current caretaker allows contact. Particularly problematic is that the parent is no longer able to effectively influence or discipline a child while the parent is in prison (Poehlman 2005). The incarceration of a parent results in one less person who is capable of supervising the child's activities. Additionally, when parents are absent the child may fall under the influence of more disreputable peers, leading into undesirable activities (Hagan and Dinovitzer 1999). These socialization problems have been associated with diminished educational success for the child when the child's father has been incarcerated (Foster and Hagan 2007).

Losing a parent to the criminal justice system may not always be problematic in all the ways theorized here; in fact, in some cases it may be an improvement for the child. Prisoners with a criminal history were more likely to report having children (53%) than prisoners without a criminal history (48%) (Glaze and Maruschak 2008). In state prisons, drug recidivists were more likely to be a parent (62%) than violent (52%) and other (54%) recidivists (Glaze and Maruschak 2008). It is possible that these parents were not a

source of positive socialization on their children, and that their removal may stabilize the setting of the child, despite the probable trauma of witnessing a parent's arrest (Harm and Phillips 1998) In situations where the child is moved to a grandparent's or other relative's house, they may be in a different environment than where they were previously, but the quality of care may (or may not) change. However, children may have already been exposed to the same environmental risks as their parents (Miller, Gil-Kashiwabara, Briggs, and Hatcher 2010).

Parents are both a positive agent of socialization and of social control. When a parent is incarcerated they are either unable to maintain their influence at all, or can only act in a restricted capacity (Hagan and Dinovitzer 1999; Murray et al. 2012; Nesmith and Ruhland 2008). The reduction of parental influence can then be reflected in a child's disconnect to both educational priorities and the social environment of the school (Dallaire 2007; Foster and Hagan 2007).

The Stigma Perspective

Stigma is a concept that has been greatly informed by the work of Erving Goffman (1963), who defined it as a non-literal mark of disgrace or not normal. This definition has been notably expanded by Bruce Link and Jo Phelan as a situation where the "elements of labeling, stereotyping, separation, status loss, and discrimination co-occur in a power situation (2001:367)." Although a child with an incarcerated parent is not directly stigmatized, it has long been theorized that the stigma from one person can spillover and afflict those who are associated them (Goffman 1963).

The stigma of imprisonment is particularly potent as it is intended to result in exclusion (Braithwaite 1989). The experiences of stigma are pervasive in that one who

bears the stigma can be affected by both anticipated and actual reactions of others to their stigma (Link and Phelan 2001). This is demonstrated in interviews with children who were keenly aware of the negative assumptions that others might make if they knew of their parent's incarceration (Nesmith and Ruhland 2008). This anticipation leads children to keep their parent's status a secret and alters how they behave around peers in order to protect that secret and avoid the perceived risks (Nesmith and Ruhland 2008). Altered behavior at a young age due to stigma can have long lasting effects, particularly when children are forming relationships in the school environment (Birch and Ladd 1998). Although several parents or caretakers may choose to hide the status of the incarcerated parent, it has been found that problematic relationships between the child and remaining parent are more likely to develop when information about a parent's incarceration is hidden, distorted, or presented in a terrifying manner (Poehlmann 2005). Dealing with stigma goes beyond secret keeping and anticipated risk. Stigma has been linked with angry and defiant responses in children as well as isolation, peer-hostility, and rejection (Nesmith and Ruhland 2008).

These are not responses that are limited only to peers. The stigma of having an incarcerated parent can deeply affect the way a teacher views the child (Dallaire 2010). In an experiment where elementary teachers were presented with vignettes about possible students, it was found that when a teacher knew about a mother's incarceration the child was thought to be less competent than their peers, possibly more dangerous to the teacher, and daughters were thought to be notably less competent than sons (Dallaire 2010). At such an early point in their school trajectory, attitudes by teachers can have significant results on both the child's expectations and their performance well into the

child's future schooling (McLeod and Kaiser 2004). Youth with the stigma of an incarcerated parent often feel rejected by the school staff, their peers, and disconnected from the school environment (Murray 2007). Stigma influences a child and their surroundings in many ways that are not always easily quantifiable, but its impact can have far-reaching effects on education.

LINKING EDUCATION WITH PARENTAL INCARCERATION: MEDIATING AND MODERATING EFFECTS

All three theoretical perspectives addressed in the thesis may contribute to a negative relationship between parental incarceration and educational attainment. However, the way in which strain, socialization, and stigma link the two is not always straightforward. First, parental incarceration has been linked to the prevalence of mental health issues and delinquent behavior in the children of prisoners. These behaviors may then affect the child's educational attainment, demonstrating mediating pathways for disadvantage. Second, moderating effects based on age and sex may also exist. The age and sex of the child, along with the sex of the incarcerated parent, alter the relationship between parental incarceration and educational outcomes. The literature suggests that there may be differences in effects depending on if a father or a mother goes to prison. Additionally, children of different ages could have different reactions which can, in turn, may impact educational outcomes differently.

Mental Health

Children with an incarcerated father have higher depression scores than children who have not had a father incarcerated, net of other factors (Swisher and Roettger 2012). Explaining the process that leads to this result is informative. Children who are exposed

to their parent's criminal activity, arrest, or even sentencing, have a higher risk of their emotional regulation skills being disrupted while growing up (Dallaire and Wilson 2010). They are more likely to internalize emotions and display symptoms of neuroticism, depression, and anxiety (Murray and Farrington 2008). When compared to other types of parental separation, internalizing problems due to parental incarceration can have long term impacts with effects lasting all the way to age 48 (Murray and Farrington 2008).

Internalizing and externalizing problems associated with poor mental health have been linked to educational success in the literature. Students who have internalizing or externalizing problems have been shown to have a reduced probability of completing high school and enrolling in college (McLeod and Kaiser 2004). These problems can start as early as kindergarten and still negatively impact a child's educational trajectory (McLeod and Kaiser 2004). Early manifestation of these problems can also have a cumulative negative affect on educational outcomes by influencing the views of teachers toward the child (Dallaire 2010). Thus, it is reasonable to expect poor mental health to play a role in the relationship between parental incarceration and educational outcomes, presumably in a negative fashion.

Delinquency

The delinquency of a child has been one of the most examined aspects of parental incarceration in the literature. It has been reported that a boy with an incarcerated parent is five times more likely to be incarcerated than a boy who have been separated from their parents for other reasons (Murray and Farrington 2005). Farrington and others (2001) found that the arrest of any relative who was living with the child predicts a boy's delinquency, although the effect was strongest from a father to a son. The son of an

incarcerated mother is more likely to have contact with the criminal justice system and engage in criminal behavior in adulthood compared to sons without an incarcerated mother (Huebner and Gustafson 2007). In short, Children with an incarcerated parent are more likely to experience poor family processes and to be delinquent (Aaron and Dallaire 2010).

Furthermore, engaging in delinquency or externalizing behavior lowers academic success for the child (Battin-Pearson, Newcomb, Abbott, Hill, Catalano, and Hawkins 2000; Foster and Hagan 2007; McLeod and Kaiser 2004). Children who have reported externalizing behavior, which includes persistent disobedience and physical aggression, have lower odds of achieving academically, completing high school, or applying to colleges (McLeod and Kaiser 2004). In turn, childhood delinquency has also been linked to a diminishment of the parent's investment in their child's education (Hagan and Parker 1999). Thus parental incarceration can be linked to increased delinquency, or more problems with externalizing behavior, which is then associated with reduced educational outcomes for the child and lessened involvement from the remaining parent or guardian.

Child's Age at the Time of Parental Incarceration

The age of the child at the time of the parent's incarceration can modify key outcomes in several ways. In a 2003 report, Jeremy Travis and others discuss how different effects of parental incarceration can be expected depending upon how old the child is when their parent is incarcerated (Travis, McBride, and Solomon 2003). They identify five different developmental states and list a variety of expected problems due to parental incarceration, such as impaired parent-child bonding (age 0-2), developmental regressions (age 3-6), rejection of limits on behavior (age 11-14), and premature

termination of dependency relationship with a parent (age 15-18). All of these problems can then be linked into mental health or behavioral issues, which in turn link back to educational outcomes

Remarkably, some of the negative effects which result from a parent's incarceration are not limited by the child's lifespan. Farrington and others (2001) found that the connection between a father's incarceration and a son's offending was just as strong when the incarceration occurred before the son was born. However, other studies have shown that a parent's incarceration before their child is born is only significant if the parent is released after the child is born (Swisher and Roettger 2012). Depressive outcomes can manifest when the parent is incarcerated after a child's birth and before the child turns fourteen (Swisher and Roettger 2012). Experiencing parental incarceration particularly in the first 10 years of life has been connected to a doubled risk for antisocial behavior and internalizing problems (Murray et al. 2012). This reinforces other findings that younger children are particularly vulnerable to relationship disruption between themselves and their parent, as younger children are less capable of understanding and contextualizing a situation in which their parent has been incarcerated (Poehlmann 2005). Younger children are also more likely to experience more of the negative events associated with parental incarceration, as their lives are more vulnerable to disruption when a parent is incarcerated (Dallaire and Wilson 2010). Any consideration of the effects of parental incarceration should take into account the age of the child when their parent was imprisoned, such that different developmental categories will have differing effects on outcomes of interest.

Sex of both Parent and Child

Few studies are able to directly compare the effects of an incarcerated mother and an incarcerated father. There are several areas of the literature that suggest there should be distinct differences between the experience of losing a mother compared to losing a father due to incarceration. First, the living arrangements for a child differ depending upon if it was the mother or father incarcerated. The majority of children who have a father incarcerated live with their mother (88.4%), which can indicate no actual change of housing (Glaze and Maruschak 2008). However, when a mother is incarcerated things are far more likely to change. Most children in this situation will go to live with a grandparent (44.9%) or another relative (22.8%). Moreover, a child with an incarcerated mother is approximately five times more likely to end up in a foster home or agency than when a father is incarcerated (10.9% compared to 2.9%, respectively [Glaze and Maruschak 2008]). A child with a mother in prison is also more likely to have both parents in jail at the same time, which partially accounts for the housing figures (Dallaire and Wilson 2010).

Second, in addition to being more likely to be in a different living arrangement when their mother is incarcerated, the literature suggests several other ways a child may face more disadvantage after losing their mother. When a mother is incarcerated, the child is more likely to have witnessed more events related to their arrest and criminal activities, events that are potentially highly traumatizing in their own right (Dallaire and Wilson 2010). New caretakers of children also report higher anxiety, depression, and rule-breaking behavior for children who have a mother in prison, compared to those with an incarcerated father (Dallaire and Wilson 2010). Additionally, it can be more difficult to maintain relationships with a mother in a federal prison as they are typically located

160 miles further away from their family than a father, due to the scarcity of federal female prisons (Hagan and Dinovitzer 1999). This means that visiting a mother, at least in a federal prison, takes more resources and time.

However, there are also areas in the literature which suggest that more detrimental results for a child may spring from incarcerating a father as opposed to a mother. This thesis has already demonstrated links between parental incarceration and delinquency in children, but it has been found that the father-son link is the strongest, results in the highest probabilities of the child engaging in delinquent activities (Farrington et al. 2001). The incarceration of a biological father can also be highly predictive of subsequent sexual abuse of the children, largely due to the introduction of other adults to the household such as step-parents, or dates of the remaining parent (Daly 1985; Finkelhor, Hotaling, Lewis, and Smith 1990). This situation can place specific pressure on daughters to leave home due to abuse and neglect (Foster and Hagan 2007).

There are reasons to suggest that a child's experience with parental incarceration will differ dramatically depending upon which parent was incarcerated. The change in living arrangements, the introduction of new adults into the child's environment, extra efforts required to visit the incarcerated parent, and the strength of intergenerational transmission of delinquency are just a few. They represent the diversity of disadvantage potentially faced by the child. Although the bulk of the literature on parental incarceration examines the effects on a child from a father or mother in prison, few if any studies have empirically tested if there is a difference between the two. This seems to be largely due to a paucity of datasets which have both incarcerated mothers and fathers in quantities high enough to test.

Research Questions

The existent research demonstrates that there is a link between parental incarceration and education outcomes. However, there are few studies that go beyond this basic empirical link. Research suggests that several factors may influence this relationship: strain from both economic and familial sources, loss of positive agents for socialization and social control, and stigma from their parent's incarceration. The basic links between parental incarceration and educational outcomes are expanded by examining outcome measures for both high school completion and overall academic success in adulthood, while taking potential mediating factors into consideration. This thesis also seeks to understand how this relationship may change depending on whether it is a father or a mother who is incarcerated and also how the sex of the child matters within this context. Additionally, it examines if there are differences in educational outcomes when the age of the child at their parent's first incarceration is taken into consideration. In doing so four hypotheses will be tested. Hypothesis 1 (H1) posits that parental incarceration negatively affects the child's educational outcomes. Hypothesis 2 (H2) states that this proposed relationship will be mediated by measures of the child's delinquency and depression. Hypothesis 3 proposes that there is a significant difference in educational outcomes depending upon if the child's mother or father was incarcerated, such that children of an incarcerated mother are more affected (H3). Hypothesis 4 states that the age of the child will alter the relationship between parental incarceration and the child's educational outcomes, such that younger children will be more severely impacted than those whose parent was incarcerated when they were older (H4).

METHODS

Data

This study uses data collected by the University of North Carolina for the National Longitudinal Study of Adolescent Health (Add Health). The population sampled for this study was U.S. students in grades 7-12 in 1994-1995. The study has since followed sampled students through a total of four waves of in-home interviews, the last of which was conducted in 2007-2008. The initial sample frame came from a dataset of U.S. high schools collected by Quality Education Data, Inc. A sample of 80 high schools and 52 middle schools was selected with an unequal probability of selection. The design of the sample was to ensure that the sample was representative of U.S. schools regarding size, region, urbanity, school type, and ethnicity. All students in grades 7-12, their parents, and school administrators at the selected schools were eligible for participation. The students in each school were then stratified by grade and sex.

The first wave of data collection had two distinct phases. The first phase involved administering over 90,000 in-school questionnaires that the students completed during class. These questionnaires were then used to pull a core sample where approximately 17 students were pulled from each stratum of each school, resulting in a total core sample of 12,105 students. In addition to the core sample, deliberate oversamples were drawn for Blacks from well-educated families, Chinese, Cuban, Puerto Rican, physically disabled, and a genetic sample. The second phase consisted of in-home interviews which were administered to the combined sample using CAPI (computer-assisted personal interview) and ACASI (audio computer-assisted self-interview) resulting in 20,745 completed interviews. For the purposes of this study, I am interested in the full weighted sample which is made up of all core and non-core eligible sample members who have both a

Wave I and Wave II grand sample weight and a Wave IV disposition code. Using this full weighted sample there are 9,421 eligible sample members who received Wave IV follow-up in-home interviews conducted in 2007-2009 (Brownstein et al. 2010). Unfortunately, only 8,345 parent interviews were completed within the full weight sample, reducing the sample size substantially when the parent's education variable is used. Another limitation to the sampling frame needs to be kept in mind as it represents a possible source of coverage error such that the frame included only schools that had more than 30 students and had an 11th grade. Therefore, small schools which serve sparsely populated areas of the U.S. may not be proportionally represented due to the sampling frame.

The response rate for the Wave IV follow-up in-home interviews was about 80%. Females had higher response and contact rates than males, and females refused to take the survey less than males. Response rates are highest for Whites and lowest for Asian and Other. Refusal rates are highest for Asian/Pacific Islander and lowest for Native Americans and Blacks. The bias introduced into the data set through unit nonresponse is found to rarely exceed 1%, which indicates that even significant unit nonresponse bias is usually small. Item nonresponse for the variables of interest is extremely minimal, in only one case did those who refuse to answer an item reach 0.1%. All other variables had an item response of less than 0.1%, and most had 6 or fewer respondents who refused or failed to complete the item (Brownstein et al. 2010).

Overall, the Add Health Wave IV sample still retains national representativeness when the complexity of the design is taken into account. A possible source of representation error for the sample is that of the 1,524 people who were not contactable, 110 were incarcerated at the time of the follow-up interviews (Brownstein et al. 2010).

Given that this study is examining effects of having a parent incarcerated and that prior research has found links between parental incarceration and an increased chance for the child to be involved in the criminal justice system (Huebner and Gustafson 2007), then there is potential that part of the population of interest is removed from the sample.

The final sample for analysis has 8,339 respondents for whom complete data across all variables of interest was available, and had the necessary weighting information. This sample is comprised of 50% female, 68% non-Hispanic White, 15% non-Hispanic Black, 12% Hispanic, and 16% (1,362) of the respondents experienced a parent go to prison or jail. A subsample for analysis is limited to only those respondents who experienced a parent go to prison or jail. Within this group, 48% are female, 59% non-Hispanic White, 23% non-Hispanic Black, and 14% Hispanic. The majority of respondents (91%) have experienced their biological father go to jail or prison, and 26% have had an incarcerated biological mother. The complete descriptive information regarding these respondents can be seen in Table A1.

Measures

Two markers of education achievement serve as dependent variables. The first, *educational attainment*, is derived from a Wave IV question that asked respondents to list the most advanced degree that they had earned. The responses to this question were then recoded, so that less than high school=1, high school or GED completed=2, some college=3, completed bachelor's degree=4, or completed an advanced degree=5. These categories match other studies (Foster and Hagan 2007) in this area of research allowing for easier comparisons. The second, *high school completion*, is created from the same base question and coded so that 0=did not complete high school and 1=completed high

school. This second measure allows for wider comparisons with other studies, as high school completion is a fairly common dependent variable in the parental incarceration literature (Nichols and Loper 2012; Trice and Brewster 2004).

Parental incarceration is the primary independent variable and is comprised of two Wave IV questions that ask about biological parents. Each respondent is asked if their biological mother or father ever spent or is spending time in jail or prison. These questions are used to construct two variables. *Parental Incarceration* indicates if a respondent ever had a parent in prison or jail, coded 0=no parent incarcerated and 1=at least one parent incarcerated. This dummy variable is used in the first sets of analyses to compare those who have and have not experienced parental incarceration. The second variable, *incarcerated mother*, is derived from two Wave IV questions and indicates if a respondent's biological mother or father was in prison or jail. This variable was coded so that a 1 indicates their mother was in prison or jail, and a 0 means their father was in prison or jail. Because the literature suggests that having an incarcerated mother is more detrimental, when both the respondents' biological mother and father had been to prison or jail, respondents were coded as having an incarcerated mother. There were 108 respondents in the final sample that had both and were coded as incarcerated mothers. This measure is used in more specific analyses to examine differences between respondents who have experienced parental incarceration.

Delinquency and mental health are modeled as mediating variables. In order to gauge *delinquency*, a fifteen item mean scale is constructed from Wave II ($\alpha = 0.84$). Each item asks how often in the past 12 months the respondent engaged in a behavior,

ranging from 0 (never) to 3 (5 or more times). This includes some of the following questions: hurting someone badly enough that they needed a doctor's care; getting into a serious physical fight; deliberately damage property that didn't belong to them; drive a car without its owner's permission; lie to your parents or guardians about where they had been or who they had been with; or take something that didn't belong to them. A higher score on the scale indicates a higher incidence of delinquency. The scale was then transformed to manage the skewed distribution by taking the logarithm of the scale. Because offending behavior accelerates during adolescence, the Wave II delinquency scale was chosen to allow some of the younger respondents in Wave I to age to a point where they were more likely to express possible delinquency. Mental health was captured by a *depression* measure, the nineteen item CESD-R scale from Wave I ($\alpha = 0.87$). Each item asks how often each of the questions was true in the last week, ranging from 0 (never) to 3 (most of the time or all of the time). Some of the included questions are: you felt that you could not shake off the blues; you felt that you were too tired to do things; you felt that your life had been a failure; you felt fearful; you were happy (reverse coded); and people were unfriendly to you. Four items were reverse coded such that a higher score on the mean scale is equal to a higher indication for depressive symptoms.

The moderating variables tested in the analysis are based on age and sex. The respondent's age at parent's first incarceration is from two Wave IV questions that ask the respondent to list their age when their biological father or mother was first incarcerated. The continuous age measures are then divided into categorical groups based on developmental stages (Travis, McBride and Solomon 2003). Creating these categories

was necessary because the data did not indicate how many years a parent was incarcerated before the child's birth (e.g., parent was incarcerated 3 years before the child was born). Without this information it was not possible to retain respondents whose parents were incarcerated before their birth while keeping age as a continuous measure. The categorical age groups indicate if the parent was first incarcerated before birth, between birth and two years of age, between three and six, between seven and ten, between eleven and fourteen, between fifteen and nineteen, and if the respondent was twenty or older. There were a number of respondents who said they didn't know how old they were when their parent had first been incarcerated; for the purposes of this study they were left out of the analyses. From these measures two variables were created: child's age when father was first incarcerated, and age when mother was first incarcerated.

Several demographic controls were included in the analyses. The sex of the respondent was recoded into a dichotomous variable named *female*, wherein male respondents are indicated by a zero and female respondents are indicated by a one. The respondent's race/ethnicity is recoded into six categories: White non-Hispanic (the reference group), Black non-Hispanic, Hispanic, Asian, Native American, and other non-Hispanic. All these race categories are used in the first set of analysis but the second set of analyses reduces the size of the Asian, Native American, and other non-Hispanic categories, limiting interpretation for these groups. *Parental education* is taken from the Parental Questionnaire which was administered as part of Wave I. The preferred respondent was the mother of the child, followed by a stepmother, other female guardian, father, stepfather, or other male guardian. As part of the interview the respondent was

asked what their highest level of education attained was. This measure was then recoded so that less than high school=1, high school or GED completed=2, some college=3, completed bachelor's degree=4, or completed an advanced degree=5.

Analysis Plan

The analytic strategy has three main components. The first component tested the hypothesis that there is a difference between educational outcomes between those who have experienced parental incarceration and those who have not. Linear regression is used to examine changes in educational attainment and binary logistic regression is used to examine changes in high school completion. Then, the hypothesis that depression and delinquency mediates the relationship between parental incarceration and educational outcomes was tested by introducing these variables into the model. The second component of the analysis examined the third hypothesis, that there are differences in outcomes depending upon if it was the mother or the father that was incarcerated. To do so, respondents who did not experience parental incarceration are removed from the sample and a dummy variable to indicate if the mother or father went to prison or jail is included. Using this incarcerated sample, linear regression is again used to examine differences in educational attainment, and binary logistic regression to examine changes in high school completion. The final component of this section explores the fourth hypothesis, that the age of the child when their parent was first incarcerated will impact their educational outcomes. A series of dummy variables are included to indicate seven mutually exclusive age categories and then the final models are run. Again linear regression is used to examine educational outcomes and binary logistic regression for high school completion.

RESULTS

The percentages in Table A1 show that there appear to be some differences between the full and incarcerated sample, which is the sample limited to respondents who have experienced parental incarceration. Most notable are the shifts in education outcomes. The mean educational attainment in the incarcerated sample is 1.62 compared to 2.09 in the full sample. The proportion of respondents who had completed high school also differed considerably between the two samples, 91% in the full sample compared to 83%. The parental education mean also differed, from 1.69 to 1.31 in the incarcerated sample. Remarkably, the mean of the delinquency scale stays the same between samples. However, there is a small difference in the mean depression score between samples, 0.85 in the incarcerated sample from 0.80 in the full sample. There are some notable differences in the respondent's age when their parent was first incarcerated, comparing fathers and mothers. Very few mothers were incarcerated before the respondent was born (4%), compared to 12% of fathers. However, more mothers were incarcerated after the respondent was 20 years old (22%) than fathers (11%). Other dramatic differences are in the zero to two age category, 19% of fathers were incarcerated when the respondent was this age, compared to 8% of mothers.

Full Sample

The first hypothesis proposed that parental incarceration negatively affects the child's educational outcomes, and the second hypothesis proposed that delinquency and depression will both mediate the relationship between parental incarceration and either educational attainment or high school completion. In order to use these measures as mediators, it must first be established that there is a relationship between parental

incarceration and each mediator. These relationships are tested in Table A2. Model 1 in this table regressed delinquency on parental incarceration and the control variables. Parental incarceration was not significant. Model 2 demonstrates that the relationship between parental incarceration and depression is significantly positive, such that parental incarceration increases depression scores on average. The non-significance of delinquency as a mediating effect is surprising considering the supporting literature (Huebner and Gustafson 2007). However, this may be due to some conceptual issues that are discussed in the limitations section. Having established the relationships, or the lack thereof, between parental incarceration and the proposed mediators this section can turn to the analyses of educational outcomes.

The estimated effects of parental incarceration on high school completion are displayed in Table A3. Four binary logistic regression models are used to demonstrate the basic relationship between parental incarceration, the controls, each of the mediators separately, and finally the full mediational model. Model 1 shows that the odds of completing high school for a respondent who experienced parental incarceration are 51% lower than for those who did not experience parental incarceration, while holding other factors constant. Model 2 steps in delinquency, which is significant and has a negative effect on high school completion. Inclusion of delinquency in the model only reduces the negative effect of parental incarceration on high school completion by 1%. Model 3 adds depression, which is not significantly associated with high school completion. The fourth model in Table A3 includes all of the control variables and both hypothesized mediating measures. Parental incarceration remains negatively associated with high school completion in the full model. The odds of a respondent with an incarcerated parent

completing high school are 50% lower than those who do not have an incarcerated parent. Delinquency remains negatively associated in the full model, suggesting a possible relationship between parental incarceration and delinquency. Depression has a non-significant effect upon high school completion. In light of these findings there is strong support for H1, that there is a difference in education outcomes, as measured by high school completion, between those who have experienced parental incarceration and those who have not. There is no evidence that supports H2, that the difference is mediated by depression and delinquency.

The estimated effects of parental incarceration on standardized educational attainment are shown in Table A4. Four OLS regression models are used to demonstrate the basic relationship between parental incarceration, the controls, each of the mediators separately, and finally the full mediation model. Supporting the first hypothesis, the first model shows that there is a significant negative relationship between parental incarceration and educational attainment, when holding the respondent's sex, race, and their parent's education constant. Model 2 steps in delinquency, which is non-significant. Model 3 includes depression, which is significant and negatively associated with educational attainment which indicates a potential mediating effect. The fourth model in Table A4 is the full model, including all controls and both proposed mediating variables. In the full model there is still a significant negative relationship between parental incarceration and educational attainment. A respondent who experienced parental incarceration will on average have 0.33 standard deviations less educational attainment than a respondent who did not, when holding other factors constant. The effect of delinquency in this final model is non-significant, while the depression indicator remains

significant. Despite this significance, the depression variable only reduced the effect of parental incarceration by 0.009 standard deviations between Model 1 and Model 4. This suggests that depression only partially mediates the relationship between parental incarceration and educational attainment at best, and that a strong direct effect of parental incarceration remains. Thus, there is strong support for the central tenant of H1, that parental incarceration negatively effects educational attainment. Regarding H2 however, there is no support for delinquency as a mediator, and only weak support for depression as a mediator.

Incarcerated Sample

The analysis now turns to the incarcerated sample in order to examine differences between respondents who have all experienced parental incarceration, focusing on the sex of the incarcerated parent and respondent, and the age of the respondents at parents' first incarceration. In these analyses, depression and delinquency were retained as control variables, given their association with educational outcomes. The first set of analyses is to determine if there are differences in educational outcomes based the sex of the incarcerated parent. Model 1 in Table A5 regressed high school completion on the control variables and the dummy variable representing the sex of the incarcerated parent. There was no significant difference in the odds of completing high school comparing the incarceration of a father to a mother. Model 1 in Table 6 regressed educational attainment on the control variables and the dummy variable representing the sex of the incarcerated parent. There is in fact a significant difference, such that a respondent whose mother was incarcerated had on average educational attainment 0.15 standard deviations lower than a respondent whose father was incarcerated. However, this finding is not mirrored in the

analysis of high school completion. Thus there is strong support for H3 when considering educational attainment, but no support in the analysis of high school completion.

Having examined the differences between mother and father, the next step was to examine the differences between male and female respondents, depending on if it was the mother or father who was incarcerated. Model 2 in Table A5 displays the analysis for those who had an incarcerated father and shows that there are significant differences in the odds of completing high school between sons and daughters of an incarcerated father. A daughter's odds of completing high school are 2.26 times greater than a son's, holding other factors constant. Model 3 show the results for respondents with incarcerated mothers, but there are no significant differences between sons and daughters. This non-significance is confirmed by a Chow test for the effect of sex of the respondent between the incarcerated father and mother samples ($F=1.13$, $p>.05$).

Model 2 in Table A6 shows the analysis for those who had an incarcerated father, which regressed educational attainment on respondent sex and the control variables. Daughters of an incarcerated father will on average have significantly higher educational attainment (0.24 standard deviations) than a son of an incarcerated father, holding other factors constant. Model 3 shows the analysis for those who had an incarcerated mother, and indicates no significant differences between a son and a daughter of an incarcerated mother upon educational attainment. Additionally, a Chow test for the effect of sex of the respondent between the incarcerated father and mother samples confirms that the outcomes for daughters compared to sons are significantly more impactful when the father is incarcerated ($F=2$, $p<.05$). Overall, H3 is largely supported by these results. There are significant differences in a respondent's educational outcomes depending upon

if their father or mother was incarcerated (0.15 standard deviations). Furthermore, daughters on average fare significantly better than sons when their father is incarcerated (0.24 standard deviations; 2.26 times the odds of completing high school). Although there is no significant difference between sons and daughters of an incarcerated mother, having any parent incarcerated is detrimental to educational outcomes.

The final step in this section of the analysis is to examine how the age of the respondent when their parent was first incarcerated impacts educational outcomes. In order to determine significant associations between the different age categories, seven different exploratory models were run for both incarcerated fathers and mothers. In each of these models the reference category was alternated in order to see all possible relationships. Table A7 shows four of the resulting models, in which the first focus on a father's incarceration the last two on a mother's. Model 1 shows that the odds of completing high school for those who were zero to 2 years old were 72% lower than whose father was incarcerated before the respondent's birth. Using the same comparison group the odds of completing high school for those who were 3 to 6 years old are 67% lower; the odds for those who were 7 to 10 years old are 83% lower; and the odds for those who were 11 to 14 years old when their father was first incarcerated are 83% lower; than those who had not be born yet. Similarly, Model 2 shows that the of odds completing high school for those who were 7 to 10 years old are 66% lower than those who were 20 or more years old when their father was first incarcerated. Unfortunately, as Models 3 and 4 show, there were no significant differences in the odds of completing high school when looking at the age of the respondent at the time of their mother's first incarceration. Therefore there is mixed support for H4. Age does make a difference, but it

is not necessarily younger children are more severely impacted. Instead it appears that the middle categories, ages 7-14, are most affected when considering high school outcomes, but only for incarcerated fathers.

The last phase of this analysis section examines differences in educational attainment according to the age of the respondent when their parent was first incarcerated. The same technique of alternating reference categories in order to find all possible relationships was used to find the models displayed in Table A8. The first two models examine age differences when a father is incarcerated, and the last one examines differences when a mother is incarcerated. Model 1 shows that compared to respondents whose fathers were first incarcerated before their birth: respondents who were 3 to 6 years old have educational attainment that is 0.27 standard deviations lower; respondents who were 7 to 10 years old have educational attainment that is 0.32 standard deviations lower; and respondents who were 11 to 14 years old have educational attainment that is 0.42 standard deviations lower, holding other factors constant. Similarly when compared to respondents whose fathers were first incarcerated for the first time when they were between 15 and 19 years old, respondents who were 7 to 10 years old and respondents who were 11 to 14 years old had lower educational attainment when holding other factors constant (0.36 and 0.47 respectively). Model 3 in Table A8 shows that compared to respondents who were ages 11 to 14 at their mother's first incarceration and educational outcomes, those who were 15 to 19 years old had better educational attainment, (0.45 standard deviations higher), as did those who were 20 years old or more (0.64 standard deviations higher), and those who were not yet born (0.61 standard deviations higher). Once again, there is support for H4, such that there is a clear difference between different

age categories. But similar to the logistic regression models, it suggests that the most vulnerable years are those between ages 7 and 14, as that is where the largest affects are seen.

Several other intriguing finds emerged from the analysis of those whose parents were incarcerated. First, when examining high school completion depression is non-significant in the full sample. However, in the incarcerated sample it becomes a significant predicting factor. Second, delinquency is not significant when predicting educational attainment, but is significant when predicting high school completion, in both the full and incarcerated sample. Finally, when predicting educational attainment, Black non-Hispanic and Native American respondents are significantly worse off than White non-Hispanics and there are no other racial differences (Table A4). In the incarcerated sample though, only Hispanics are different than White non-Hispanics, and they have higher educational attainment on average (Table A6).

DISCUSSION

The United States continues to incarcerate record numbers of criminals, sparking several research areas such as private prisons, prisoner reentry, and parental incarceration. Parental incarceration is somewhat unique in that it addresses problems that are not faced directly by the imprisoned. Instead the focus is on the unintended victims of the American criminal justice system, the prisoner's children. This thesis specifically examines how parental incarceration affects educational outcomes, both high school completion and overall attainment. This association was hypothesized to be mediated by both delinquency and depression, such that parental incarceration results in higher risk for both, which then impacts education outcomes. This detrimental link is

thought to be more severe when the child's mother is incarcerated, compared to their father, and also when a parent's first incarceration occurs earlier in the child's life.

Parental Incarceration and Education Outcomes

Overwhelmingly, the results from both analyses support that parental incarceration has a significant negative effect on their children's high school completion and their educational attainment. Thus, there is ample evidence supporting the first hypothesis, that children who have experienced parental incarceration have lower educational outcomes, compared to those who have not. This finding supports other research that found negative associations between parental incarceration and high school completion (Cho 2011; McLeod and Kaiser 2004; Nichols and Loper 2012; Trice and Brewster 2004) and educational attainment (Foster and Hagan 2007). Although these specific findings are not particularly unique, they do establish a common baseline with preexisting studies on which to build. They also tell a very simple and compelling story. Children who have experienced parental incarceration have much lower odds of graduating school, and those who make it past high school will on average have lower academic achievement than those children who did not ever have a parent in prison or jail. These children will on average have lower lifetime income, increased chances of unemployment, and having higher risk of being incarcerated themselves (Nichols and Loper 2012). Furthermore, their own lower education outcomes will then impact their future children, as a parent's education has a strong influence on their children's outcomes (Foster and Hagan 2007; Sirin 2005). The incarceration of a parent adds a new layer of adversity for the child to deal with; it may not be the first, but it does matter.

Despite the strong support for the first hypothesis, there is much less for the proposed mediating variables. The delinquency measure failed the initial test of mediation, in that parental incarceration did not appear to significantly impact delinquency. This is an unexpected finding as researchers have been predicting delinquent outcomes due to parental incarceration throughout the literature (Aaron and Dallaire 2010; Farrington et al. 2001; Swisher and Roettger 2012). Delinquency was also not associated with educational attainment in any of the analyses, which was again not consistent with the literature (Foster and Hagan 2007). Delinquency was negatively associated with high school completion in both the full and incarcerated sample. However, this significance disappeared once the variable for the child's age at their parent's first incarceration was added to the models. Delinquency in this context is at best an adequate control variable that is particularly salient when examining high school completion. Overall, there is no support for delinquency as a mediating concept when examining broader educational outcomes in these analyses.

The proposed depression variable traces an interesting path through this analysis. When examining educational attainment outcomes it works as hypothesized, albeit weakly, and provides a partial mediation between parental incarceration and educational attainment. This is a finding that is consistent with the current literature (Dallaire and Wilson 2010; Murray and Farrington 2008; Swisher and Roettger 2012). Interestingly, once the analysis turns to high school completion as an outcome, depression becomes non-significant in the sample. However, after the sample is restricted to only those respondents who have experienced parental incarceration, depression becomes negatively associated with high school completion, which brings these findings back in line with the

current literature. This suggests that although depression is negatively associated with overall educational attainment for everyone in the sample, it is only relevant for high school completion to those who have experienced parental incarceration. Another caveat is yet needed though, because when the incarcerated sample is restricted again to only those with incarcerated mothers, the significant association between depression and high school completion disappears, though it remains for fathers.

Therefore, there is mixed support for the second hypothesis, that depression and delinquency would mediate the relationship between parental incarceration and the two education outcomes. Based off of these findings delinquency can be rejected as a mediator, though it clearly remains an important control to include in analytic models, particularly those analyses concerned with high school completion. The measure of depression used here seems to work as a weak mediator for educational attainment and high school completion in the incarcerated sample, but the change in significance in the sample of only incarcerated mothers is puzzling. However, this may be an effect of sample size which is addressed in the limitations section.

Are The Effects Worse When A Mother Is Imprisoned vs. A Father? A Son vs. A Daughter?

One of the unique aspects of this thesis is that direct comparisons between the effects of incarcerated mothers and fathers can be made. Many previous studies typically looked at only fathers (Foster and Hagan 2007) or just mothers (Huebner and Gustafson 2007) and were unable to say if there was a difference between the two. Respondents had lower educational attainment outcomes when they experienced a mother incarcerated compared to a father. This supports the third hypothesis, that the effects of parental

incarceration would be worse when it is the child's mother who is incarcerated, compared to their father. Interestingly, this result is not mirrored in the analysis of high school completion where there is no significant difference between an incarcerated mother and father. This result may be due to the higher percentage of mothers who are first incarcerated when their child is in their twenties or older, well after the range in which high school completion could be affected.

Overall, it is not surprising that respondents are worse off when their mother is incarcerated. Glaze and Maruschak (2008) showed that when a mother is incarcerated the child is more likely to be taken care of by extended family or go into foster care, but when a father is incarcerated the child is most often is taken care of by the mother, meaning that at least one positive influence remains stable. Additionally, children with an incarcerated mother are more likely to have both parents in prison instead of just one. The child is also more likely to have witnessed more events related to their arrest and criminal activities when a mother is incarcerated, and the new caretakers of children also report higher anxiety, depression, and rule-breaking behavior for children who have a mother in prison (Dallaire and Wilson 2010). Children with an incarcerated mother face more sources of strain and can potentially lose their positive socialization agents as they are shifted into homes of extended family or foster care. That the analysis only reveals this difference in educational attainment may demonstrate that these disadvantages are a gradual accumulation, and take time to fully manifest.

Extending beyond the differences between mothers and fathers, this thesis also examines if there is a sex difference in educational attainment between the children of incarcerated parents, and if this difference depends upon the sex of the incarcerated

parent. The results show that there is indeed a significant difference in both education outcomes between sons and daughters when a father is incarcerated, such that daughters usually fare better. There is very little literature that discusses differences in the parental incarceration experiences between sons and daughters. What is discussed suggests that daughters of an incarcerated father are at higher risk for sexual assault and running away from home, which can create numerous disadvantages (Finkelhor et al. 1990; Foster and Hagan 2007). This thesis, however, does not find any support for daughters being worse off than sons, and finds overall that daughters fare better on average than sons regarding education outcomes in this situation.

Does The Age Of A Child When Their Parent Is First Incarcerated Matter?

In addition to directly addressing differences between fathers and mothers, this thesis was also uniquely concerned with the role a child's age might play in the relationships between parental incarceration and educational attainment. The literature suggested that there should be some differences in outcomes depending upon how old the child was at the time of their parent's first incarceration, but studies were scarce (Travis, McBride, and Solomon 2003). It was hypothesized earlier that respondents who had been younger when their parent was first incarcerated would be the most severely affected in educational outcomes. The findings reveal that there are some significant differences, but it is not the youngest that are worse off. Instead, it seems that the age ranges of 7-10 and 11-14 are most susceptible to negative impact due to parental incarceration. This is particularly noticeable when looking at educational attainment with an incarcerated father. Respondents who were 7-10 or 11-14 years of age when their father was first incarcerated had lower educational attainment compared those whose were not yet born

or those were 20 years old or older at the time. These results were somewhat mirrored for incarcerated mothers. Those who were ages 11-14 when their mother was first incarcerated were found to have lower educational attainment than those who were ages 15-19, 20 or older, or were not yet born. This suggests a peak in vulnerability between 7 and 14 that diminishes in both directions. The same age range, 7-14, is also found to be the worst affected when examining high school completion with an incarcerated father.

These results clearly show that the fourth hypothesis was incorrect by proposing that the younger age ranges would be the most affected by parental incarceration. Instead, the greatest negative effect appears to be concentrated in the range of ages 7 to 14, and then lessens as respondents grow both older and younger. This suggests that the disadvantage experienced by these children may be best described as a two-tailed curve, centered between the ages 7 and 14. In some ways it is not surprising that this age range experiences the greatest impact of parental incarceration. Children in this age range are characterized by an increased independence from caregivers and the growing importance of peers, along with puberty, and increased aggression (Travis et al. 2003). Removing a parent during this time frame, who could counter the influence of new peers and remain a source of social control and positive socialization, is obviously problematic (Nesmith and Ruhland 2008). At the same time, economic hardships are introduced due to parental incarceration that reduce the ability of the remaining parent to monitor and supervise the child (Arditti et al. 2003; Foster and Hagan 2007; Glaze and Maruschak 2008). Furthermore, the child has to learn how to manage the stigma of parental incarceration (Goffman 1963) while also dealing with possible transitions into new schools and negotiating new friendships (Birch and Ladd 1998). It is hard to imagine a more perfect

scenario in which education would become deprioritized as depression and delinquent behaviors find fertile ground to grow.

Race: Additional Findings

One of the interesting findings that can be seen in the results is how the intersection of parental incarceration and race affects educational outcomes. When the full sample is being used, non-Hispanic blacks and Native Americans had significantly lower educational attainment or lower odds of completing high school when compared to non-Hispanic whites. However, once the analysis switches to the incarcerated sample a change occurs in the direction of this relationship. In the incarcerated sample, containing only respondents who have experienced parental incarceration, Hispanics have significantly higher educational attainment and higher odds of completing high school when compared to non-Hispanic whites. This suggests that there is something very different going on with the effects of parental incarceration on educational outcomes when considering race. It is important to stress that this change in direction does not indicate that incarcerating parents of racial minorities will result in better educational performance. Rather, it may indicate that conditioning factors not considered in this analysis, such as social support, family networks, and religious beliefs, may operate differently across racial/ethnic groups in managing the strain or stigma associated with incarceration. The specific interplay that is being seen in these findings is well beyond the scope of this thesis in its current form, but may be a fruitful area of interest in the future.

Limitations and Future Directions

This study is limited by several factors. The first is that incarceration itself is not a random event. Prisoners, on average, come from a disadvantaged background before they are ever incarcerated. They are more likely to have lower social class, more mental health problems, and other confounding risk factors (Murray and Farrington 2008). This makes it difficult to determine how much of the child's adverse outcomes are resultant of parental incarceration apart from disadvantages they were already facing. Propensity score models offer some potential to address this issue by matching respondents with similar probabilities and comparing outcomes across groups. By using this technique you can compare educational outcomes of those who had the same probability of experiencing parental incarceration and actually did, and those who had the same probability, but did not experience parental incarceration. This technique has been used successfully (Wakefield and Wildeman 2011) and future research may utilize propensity score models to reevaluate the outcomes discussed here.

A second limitation was the limited pool of respondents to use in analysis. In particular, the analyses performed examining the respondent's age when their mother was first incarcerated may have suffered from a lower than preferred sample size. This could be partially alleviated in the future by using multiple imputation to handle missing data instead of listwise deletion. An additional source of missing cases in the age analysis is that a number of respondents said they didn't know how old they were at the time of their parent's first incarceration. It is possible that there may be some way to include these cases in a meaningful way into the analysis in the future, perhaps comparing those who knew and those who did not. Another possible respondent problem is that 110 respondents were unreachable due to being imprisoned at the time of Wave IV may

remove several vital respondents from the possible sample (Brownstein et al. 2010). It may be possible in further AddHealth data collection waves to collect data from these individuals after their release, but it seems that there is little that can be done to address this currently. Finally, the lower number of complete parent interviews reduced the final sample by 1,076 cases. It is highly unlikely that these missing interviews are completely at random, introducing a source of potential bias. In the future it should be possible to use the child's estimation of their parent's educational attainment to fill some of these missing data gaps.

A third limitation in this study is the imprecision of establishing a timeline of events. Although we can determine how old the respondent was at the time of their parent's first incarceration, our smallest unit of analysis is a year. This can be problematic if parental incarceration occurred close to when depression and delinquency are measured. There is no way of distinguishing between an incarceration event that occurred almost a full year before a data collection wave or just a few days. This also becomes a problem when considering parental incarceration that occurred before the respondent was born. Although we know the event happened, we do not know how long ago their parent was incarcerated. Despite these difficulties in establishing a truly precise timeline, the inclusion of delinquency and depression measures are important additions to the models and provide meaningful information about educational outcomes, although they may serve primarily as controls instead of mediators. An additional way to explore the effects of delinquency would be to break the scale into smaller subscales, such that one would handle more serious delinquency and another would be more minor forms. By creating these subscales it could be determined if the type of delinquency is more relevant for

parental incarceration, instead of just the existence of any form of delinquency. A similar concern is the small number of respondents who had both biological parents incarcerated at some point. This paper was primarily concerned with the differences between incarcerated mothers and fathers, not the total number of parents incarcerated, or even the number of times a parent has been incarcerated. These are all potentially fruitful areas of research, but beyond the scope of this thesis.

There are also some limitations in what can be measured. Incorporating theoretically driven measures for stigma and strain that fit a more precise timing of events is limited by the dataset. A measure of stigma would have to account for a wide variety of negative manifestations and their relative impact on different respondents. Particularly for parental incarceration that occurred when the respondent was younger, this would have to involve significant input from parents and other adult supervisors who were aware of the event, and could provide information on how that knowledge changed their reactions to, and around, the respondent. Despite these difficulties, finding ways to bring accurate measures of theory into the models would improve future research.

Another measurement issue is the inability to determine if, and how, the living arrangements of the child changed after their parent was incarcerated. These changes figure largely in the literature but are not available in this dataset. A more comprehensive examination of living arrangements could provide remarkable insight into how this aspect of the parental incarceration process operates. In a similar vein, it would also be useful to incorporate measures of family structure into the analysis. Understanding if the child was in a single parent, widower, divorcee, or other type of family structure would provide a glimpse at some of the living arrangements experienced by the child. Bringing these

elements into the analysis would also allow direct comparison of educational outcomes between those who experienced parental incarceration and those who lost a parent for other reasons. This type of comparison would strengthen the existent literature and provide more strength to the claims that parental incarceration is a uniquely detrimental experience. Not including these family structure measures this analysis shifts these results into a more conservative estimate of outcomes, but they remain relevant.

Finally, a very interesting possible direction for future research is religious engagement. Although much of the literature discusses stigma management, increased financial and caretaker strain, and losses of agents of positive socialization and social control, the exploration of religious engagement as a source of resiliency is surprisingly absent. There are established links between involvement in church activities and improved educational outcomes (Regnerus 2002) in addition to links to lower distress and higher social adjustment (Mosher and Handal 1997). Religious affiliation and measures of religious engagement should be excellent additions to this field of research as a source of resilience and as buffers between children and the disadvantages resulting from parental incarceration.

CONCLUSION

Despite the limitations of this analysis, a powerful story can still be told. The children of prisoners are unquestionably worse off in their educational outcomes than those children who have never had a parent incarcerated. Their odds of completing high school are 50% lower, and on average their maximum educational attainment will be lower. These detrimental experiences can cascade into further generations as lower education impacts future income and job status (Sirin 2005) of not only the children of

parental incarceration, but their own children as well. The experience is a subtle accumulation of disadvantage, triggered by an event outside of the child's control, but one that will leave its mark well into the future.

The educational disadvantage experienced by children of parental incarceration is not equally distributed. A child whose mother is incarcerated will on average have an educational attainment that is significantly lower than if it had been their father who was incarcerated. Sons also are impacted more severely than daughters. A daughter of an incarcerated father will be 2.3 times more likely to finish high school than a son, and on average she will have greater educational attainment. Not only does the sex of the parent and child matter, but so too does their age. This thesis provides strong evidence that the most harm done to educational outcomes occurs if a parent is incarcerated when the child is between 7 and 14. Although negative experiences are shown in children younger and older than this, the most severe negative impacts seem to manifest in this range of ages. Overall, it is important to remember that these differences in educational outcomes are distinct from disadvantages due to divorce or other forms of parental separation (Murray et al. 2012).

This thesis demonstrates that parental incarceration hampers educational success. This effect is more pronounced for children of incarcerated mothers, and sons in general. Therefore efforts to create preventive policy should first focus on children, ages 7 to 14, with an incarcerated mother. Although incarcerated mothers currently make up a small percentage of the prison population, their share of prison cells is rapidly growing. Focusing on children of incarcerated mothers allows programs to address those who on average fare worse, while working with a population that is still fairly small. The

population's smaller size means that programs would require fewer resources and perhaps more innovative approaches could be taken. If successful, these small-scale approaches can be used as a framework to address the larger issue of incarcerated fathers.

The first approach these programs could take is to facilitate contact between child and parent. Helping organize visits to prisons, or alleviating telephone costs could go a long way in maintaining a tenuous thread of contact. Ideally, shifting parents with minor crimes towards probation or early parole programs instead of longer incarceration terms, and therefore reducing the time of separation could alleviate the harm caused by parental incarceration. Particularly programs that avoid any removal that is not necessary (e.g. abusive parents) would avoid potential shifts in living arrangements for the child and reduce entry into the foster care system.

Another approach is to focus completely on the child. Counseling for children of newly incarcerated parents could be provided to help them navigate the transition and understand what is happening. At the same time establishing support mechanisms within schools to reduce the chance of the child becoming disengaged from the school would also be helpful. Within the school it is also necessary to ensure that teachers do not lower their expectations for the child (Dallaire 2010), something which has been demonstrated to occur. This would be particularly important when the child has to change schools and is entering a system in which the faculty has no prior experience with the child.

Perhaps the most important first step may be to simply recognize that these children exist, to acknowledge the problems they face, and work to alleviate their burdens. This group of children, despite currently containing 2.3% of all children in the U.S. under the age of 18 (Glaze and Maruschak 2008), has been referred to as forgotten

victims, or orphans of justice (Murray et al. 2012). They are innocent, yet suffer from both the crimes committed by their parents, and the justice served by the public; latent consequences of our society's approach to crime control which develops into disadvantages that can stretch out to the next generation, and possibly beyond. Laboring under their parents' sins, moving forward under this double jeopardy, one must wonder what their final destination will be, and how much it was altered through the application of American justice.

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APPENDIX A

Table A1: Descriptive Statistics

Variable	Full Sample			Incarcerated Sample		
	Mean	Std. Dev.	Range	Mean	Std. Dev.	Range
Parental Incarceration	.16	.378	0/1	1.00	.000	0/1
Incarcerated Mother				.26	.414	0/1
Female	.50	.499	0/1	.48	.498	0/1
Delinquency	.62	.178	0/8	.62	.196	0/8
Depression	.80	.336	0/8	.85	.333	0/8
Educational Attainment	2.09	1.084	0/4	1.62	1.020	0/4
High School Completion	.91	.272	0/1	.83	.358	0/1
Parent's Educational Attainment	1.69	1.177	0/4	1.31	1.090	0/4
Race						
White non-Hispanic	.68	.497	0/1	.59	.499	0/1
Black non-Hispanic	.15	.408	0/1	.23	.455	0/1
Hispanic	.12	.362	0/1	.14	.372	0/1
Asian	.03	.216	0/1	.01	.142	0/1
Native American	.02	.139	0/1	.03	.168	0/1
Other non-Hispanic	.01	.092	0/1	.01	.007	0/1
N	8339			1362		

Age when Parent First went to Prison/Jail	Incarcerated Sample					
	Father			Mother		
Before Birth	.12	.322	0/1	.04	.203	0/1
0-2	.19	.391	0/1	.08	.272	0/1
3-6	.17	.378	0/1	.12	.329	0/1
7-10	.18	.386	0/1	.22	.413	0/1
11-14	.13	.335	0/1	.10	.341	0/1
15-19	.10	.297	0/1	.19	.389	0/1
20+	.11	.335	0/1	.22	.413	0/1
N	1248			350		

Table A2: OLS Regression, Test of Mediating Variables

Variable	Delinquency	Depression
	Model 1	Model 2
	b	b
Parental Incarceration	.009 -(.01)	.050 *** -(.01)
Female	.011 * -(.01)	.065 *** -(.01)
Parent's Education	.008 ** (.00)	-.014 ** -(.01)
Black	-.016 -(.01)	.068 *** -(.01)
Hispanic	.029 * -(.01)	.028 -(.02)
Asian	.025 * -(.01)	.084 * -(.03)
Native American	.018 -(.02)	.074 * -(.03)
Other	.052 -(.05)	-.036 -(.04)
Intercept	.438 ***	.766 ***
R-Squared	.008	.026

Notes: Standard errors are in parentheses (N=8,339).

White is the omitted racial category.

*p<.05 **p<.01 ***p<.001

Table A3: Logistic Regression of Parental Incarceration on High School Completion, Odds Ratios

Variable	High School Completion - Yes/No			
	Model 1	Model 2	Model 3	Model 4
	expb	expb	expb	expb
Parental Incarceration	.488 ***	.491 ***	.494 ***	.496 ***
Delinquency Index		.392 ***		.408 **
Depression Index			.747	.769
Female	1.546 ***	1.556 ***	1.584 ***	1.591 ***
Parent's Education	2.197 ***	2.216 ***	2.177 ***	2.199 ***
Black	.751	.738	.769	.753
Hispanic	.915	.947	.924	.954
Asian	2.478 *	2.548 *	2.527 *	2.584 **
Native American	.499 *	.517 *	.512 *	.528 *
Other	1.112	1.216	1.112	1.209
Pseudo R-Squared	.104	.108	.107	.110

White is the omitted racial category.

*p<.05 **p<.01 ***p<.001

Table A4: OLS Regression of Parental Incarceration on Educational Attainment

Variable	Standardized Educational Attainment			
	Model 1	Model 2	Model 3	Model 4
	b	b	b	b
Parental Incarceration	-.337 *** -(.04)	-.336 *** -(.04)	-.329 *** -(.04)	-.328 *** -(.04)
Delinquency Index		-.123 -(.09)		-.100 -(.09)
Depression Index			-.158 *** -(.04)	-.153 *** -(.04)
Female	.246 *** -(.03)	.248 *** -(.03)	.256 *** -(.03)	.257 *** -(.03)
Parent's Education	.348 *** -(.02)	.349 *** -(.02)	.346 *** -(.02)	.347 *** -(.02)
Black	-.141 * -(.05)	-.143 ** -(.05)	.130 * -(.06)	-.132 * -(.06)
Hispanic	-.032 -(.04)	-.028 -(.04)	-.028 -(.04)	-.025 -(.04)
Asian	.145 -(.09)	.148 -(.09)	.158 -(.10)	.160 -(.10)
Native American	-.269 ** -(.10)	-.267 ** -(.10)	-.257 ** -(.10)	-.256 ** -(.10)
Other	.192 -(.14)	.198 -(.14)	.186 -(.14)	.192 -(.14)
Intercept	-.658 ***	-.604 ***	-.538 ***	-.497 ***
R-Squared	.213	.214	.216	.216

Notes: Standard errors are in parentheses (N=8,339).

White is the omitted racial category.

*p<.05 **p<.01 ***p<.001

Table A5: Logistic Regression of Sex of Parent and Child on High School Completion, within the Incarcerated Sample - Odds Ratios

Variable	High School Completion Yes/No		
	Model 1	Incarcerated Father	Incarcerated Mother
		Model 2	Model 3
	expb	expb	expb
Female	1.824 **	2.263 ***	1.083
Incarcerated Mother	.752	--	--
Delinquency Index	.191 *	.204 *	.178
Depression Index	.495 *	.385 *	.965
Parent's Education	2.001 ***	2.053 ***	1.885 *
Black	1.194	1.140	1.391
Hispanic	1.614	1.648	1.689
Pseudo R-Squared	.086	.090	.066
N	1355	1080	270

White is the omitted racial category.

*p<.05 **p<.01 ***p<.001

Table A6: OLS Regression of Sex of Parent and Child on Educational Attainment, within the Incarcerated Sample

Variable	Standardized Educational Attainment		
	Model 1	Incarcerated Father	Incarcerated Mother
		Model 2	Model 3
	b	b	b
Female	.222 *** (.06)	.243 *** (.07)	.143 (.14)
Incarcerated Mother	-.149 * (.07)	--	--
Delinquency Index	-.233 (.20)	-.244 (.21)	-.290 (.43)
Depression Index	-.195 * (.08)	.227 * (.10)	-.073 (.20)
Parent's Education	.272 *** (.03)	.277 *** (.03)	.252 *** (.07)
Black	.064 (.09)	.002 (.10)	.278 (.19)
Hispanic	.236 * (.09)	.302 ** (.11)	.004 (.02)
Intercept	-.671 ***	-.656 ***	-.851 *
R-Squared	.114	.117	.108
N	1362	1087	275

Notes: Standard errors are in parentheses

White is the omitted racial category.

*p<.05 **p<.01 ***p<.001

Table A7: Logistic Regression of Child's Age at Parent's First Incarceration on High School Completion, within the Incarcerated Sample - Odds Ratios

Variable	High School Completion Yes/No			
	Incarcerated Father		Incarcerated Mother	
	Model 1	Model 2	Model 3	Model 4
	expb	expb	expb	expb
Delinquency Index	.214	.214	.094	.094
Depression Index	.377 *	.377 *	2.158	2.158
Female	1.905 *	1.905 *	.889	.889
Parent's Education	1.759 ***	1.759 ***	2.278 *	2.278 *
Black	2.088	2.088	1.347	1.347
Hispanic	1.538	1.538	1.675	1.675
Age at Parent's First Incarceration				
Before Birth	--	2.023	--	1.728
0-2 Years Old	.275 *	.556	.359	.621
3-6 Years Old	.331 *	.670	.437	.754
7-10 Years Old	.170 ***	.343 *	1.088	1.879
11-14 Years Old	.167 **	.338	.353	.610
15-19 Years Old	1.064	2.153	1.020	1.762
20+ Years Old	.494	--	.579	--
Pseudo R-Squared	.086	.086	.075	.075
N	879	879	241	241

White is the omitted racial category.

*p<.05 **p<.01 ***p<.001

Table A8: OLS regression of Child's Age at Parent's First Incarceration on Educational Attainment, within the Incarcerated Sample

Variable	Standardized Educational Attainment		
	Incarcerated Father		Incarcerated Mother
	Model 1	Model 2	Model 3
	b	b	b
Delinquency Index	-.234 (.25)	-.234 (.25)	-.471 (.50)
Depression Index	-.228 * (.11)	-.228 * (.11)	.148 (.20)
Female	.184 * (.08)	.184 * (.08)	.060 (.13)
Parent's Education	.227 *** (.04)	.227 *** (.04)	.272 *** (.08)
Black	.118 (.12)	.118 (.12)	.311 (.19)
Hispanic	.344 *** .124	.344 *** .124	.032 -.197
Age at Parent's First Incarceration			
Before Birth	-- --	-.045 (.18)	.611 * (.24)
0-2 Years Old	-.180 (.13)	-.225 (.18)	.251 -.287
3-6 Years Old	-.269 * (.12)	-.314 (.18)	.447 -.260
7-10 Years Old	-.316 ** (.12)	-.361 * (.18)	.399 -.242
11-14 Years Old	-.421 *** (.16)	-.466 * (.22)	-- --
15-19 Years Old	.045 (.18)	-- --	.446 * -.194
20+ Years Old	-.107 (.16)	-.152 (.20)	.641 ** (.20)
Intercept	-.364 *	-.320	-.135 ***
R-Squared	.109	.109	.172
N	884	884	246

Notes: Standard errors are in parentheses.

White is the omitted racial category.

*p<.05 **p<.01 ***p<.001