

THE RELATIONSHIPS BETWEEN EPISODES OF PARENTAL INCARCERATION
AND STUDENTS' PSYCHO-SOCIAL AND EDUCATIONAL
OUTCOMES: AN ANALYSIS OF RISK FACTORS

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ABSTRACT

Children with incarcerated parents face a disproportionate number of risk factors for becoming incarcerated (Bilchik, Seymour & Kreisher, 2001; Jucovy, 2003; Martin, 2001).

The purpose of this study was to empirically analyze the relationship between episodes of parental incarceration and psycho-social and educational outcomes. This study aimed to find earlier indicators of incarceration risk, in order to provide points for intervention.

Concepts from the differential association and social learning theories (criminology), attachment theory (psychology and sociology) and Maslow's Hierarchy of Needs (motivational psychology, used often in the field of education) were used as a guide in order to create a unique conceptual framework that directs the statistical models selected in this study.

The data for the proposed study were drawn from the *National Data Archive on Child Abuse and Neglect*, which is a project of the *Family Development Center* at Cornell University. Specifically, the dataset from the Longitudinal Study of Child Abuse and Neglect (LONGSCAN) was used. ANOVAs and correlations were used preliminarily to explore relationships among variables. The impact that episodes of parental incarceration have on psycho-social variables and educational outcome variables was tested using sequential OLS regression models.

The major research question of this study was, "Do psycho-social variables or educational outcomes differ based on episodes of parental incarceration?" The results

suggest the only educational outcome that differs based on episodes of parental incarceration is externalized behavior problems. This difference is present in the full sample, but not in the matched sample, implying that this relationship is only significant when compared to low risk subjects, and is not significant when compared to equally at-risk subjects.

The secondary question in this research study was, “How does the relationship between attachment to parents and psycho-social variables (post-traumatic stress or self esteem) differ based on episodes of parental incarceration?” The results of this analysis showed that problems with attachment to parents did become a more significant predictor of post- traumatic stress and self esteem when frequency of parental incarceration was added to the regression model.

After analysis of the results, two themes are discussed: sample selection and its implication for socio-context of at-risk students and age implication and the role of elapsed time.

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This dissertation is dedicated to all the children who have wondered if “their daddy is a bad guy.” Specifically, this dissertation is dedicated to my mentee, and his family, for without his trust, I would have never been made aware of this topic. Our weekly meetings kept me from ever giving up or losing interest. I look forward to watching he and his brothers break the cycle.

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CHAPTER 1

INTRODUCTION

Although it is the tendency of policymakers and researchers to think of children and students as separate entities, they are in fact, one and the same. Oftentimes, pressure is placed on schools to improve the student, with little regards to addressing the needs of the child. The home life, environmental life, and social life of a child affects his/her performance as a student (Greenburg et al., 2003; Maslow, 1943; Romasz, Kantor & Elias, 2004; Zins, Weisberg, Wang & Walberg, 2004). This study will empirically examine the relationships between a traumatic family circumstance – parental incarceration – and students’ psycho-social and educational outcomes. Data drawn from LONGSCAN, a 13 year longitudinal study conducted by the National Archive for Child Abuse and Neglect, were examined using multivariate analysis to provide empirical evidence of the relationship between parental incarceration and psychosocial and educational outcomes.

Children with incarcerated parents face a disproportionate number of risk factors for becoming incarcerated themselves (Bilchik, Seymour & Kreisher, 2001; Jucovy, 2003; Martin, 2001). It is time that the schools look for warning signs so that they can intervene and give this population some much needed attention.

The accommodations that would be necessary to meet the diverse needs of the students with differing emotional needs would seem to be in direct dichotomy to the universal push towards standardization. Consequently, there are many groups of students whose emotional needs are not being met. Often overlooked by policymakers, however,

is the fact that not only are these unmet needs detrimental to the students' well-being, ability to thrive, self-image and functional behavior, they also affect educational outcomes that political stakeholders prioritize, such as test scores and graduation rates. According to Maslow's hierarchy of needs theory, if needs such as being loved and belonging are not being met, it is nearly impossible to reach the full capabilities of learning and understanding (1943). When a child is plagued with emotional stress, the goals of making adequate yearly progress on a standardized test do not seem as important. However, despite the tremendous amount of research on the importance of meeting emotional needs of students (Greenburg et al., 2003; Maslow, 1943; Romasz et al., 2004; Ross & Powell, 2002; Zins et al., 2004), the emphasis of educational reform policies, as evident by No Child Left Behind, is currently uniformity and standardization. Consequently, many groups of students with unaddressed emotional stress are failing in the school environment. Because of schools' inability to accommodate emotional needs, these groups of students will continue to fail.

Statement of the Problem

The purpose of this study is to empirically analyze the relationship between episodes of parental incarceration and psycho-social and educational outcomes. This study aims to find earlier indicators of risk of incarceration, in order to provide points for intervention.

Presently, children with particular emotional/behavior needs can be classified as students who are eligible for special education services. This classification is fairly new, and can be attributed to recognizing that extra attention is needed in this area for some children. However, this study is based on the assumption that the "special education"

classification does not exclusively identify all of the students who have exceptional emotional needs. Instead, this study will conceptualize students with emotional needs as students who have been exposed to a traumatic event. The contention of this study is that students can be studied by the risk factors they face for school failure. Therefore, some examples of groups of children that need to be studied may include children who live in extreme poverty, children who have been abused or neglected and children who have witnessed or dealt with a parental death. These groups have been explored throughout the literature, and teachers and society as a whole are aware of the difficulties these children may face (Greenwood, 2002; Gore & Janssen, 2007; Shinoda, 2001; Wood, Repetti & Roesch, 2004). In contrast, there are some groups of students that face risk factors that have gone under the radar. These groups have an additional risk factor— invisibility to people in power. These are the groups that do not necessarily cross the minds of school personnel, policymakers and politicians. Without recognizing the risks that these students face, and the needs that they may have, the difficulties of intervention increase exponentially. One of these groups is students with incarcerated parents. This group of students has some of the risk factors of other explored groups, but also is exposed to unique risk factors that warrant their own study.

Gaps in the Literature

The research literature affords little guidance for understanding the plight of students with incarcerated parents in American schools (Lopez & Bhat, 2007). Several scholars in the field have cited that children of prisoners are up to six times more likely than their peers without an incarcerated parent to become prisoners themselves (Bilchik et al., 2001; Jucovy, 2003, Martin, 2001). Although this statistic is seen widely

throughout the literature, the original study resulting in this statistic cannot be found (Myers et al., 1999; Murray & Farrington, 2005; Ziebert, 2006), and therefore cannot be treated as fact. Not only is the lack of origin of this statistic disturbing, it also speaks loudly about the amount of empirical research that still needs to be conducted on this topic.

The idea that a child of an incarcerated parent is more likely to become incarcerated him/herself will be treated as likelihood, not as fact, throughout this study. Due to the overexposure to risk factors for incarceration that these children face, it is more likely that these children will face incarceration than children who do not have these risk factors. In addition, while the aforementioned particular statistic is lacking empirical support, a research study did provide evidence for a similar fact. In a study examining boys' antisocial behavior and delinquency, Murray and Farrington (2005) found that a parental incarceration before the child reached the age of 10 was strongly associated with risk factors for delinquency. These risk factors had predicted outcomes throughout life. This predictive model showed that boys with incarcerated parents would be almost five times more likely to be incarcerated at the age of 40 than boys without any parental separation. It also showed that the boys would be significantly more likely to be incarcerated than other groups that were separated from their parents for other reasons. Any discussion about the increased probability for incarceration throughout this study will be based on the increased exposure to risk factors for incarceration, and Murray and Farrington's predictive model.

The Cycling Problem

Regardless of the factuality, the aforementioned “statistic” about children of incarcerated parents being six times more likely to be incarcerated themselves is prevalent throughout the literature, and therefore, has garnered attention and explanation from researchers. This research is useful in exploring the overexposure to risk factors that these children face. Researchers have turned to attachment theory to explain the cycle of prisoners (Jucovy, 2003; Martin, 2001). The basic premise of attachment theory is that children learn how to behave from their own parents. Attachment theory also explores the importance of forming early bonds with parents. If they are in jail, those early bonds may fail to form, leaving the child yearning for that connection. According to the application of this theory, if a child grows up with a parent in jail, there is a much greater chance that that child will become an incarcerated parent than if the child grows up with his/her parents at home. Moreover, the chain of prisoners will continue within families, generation after generation.

Furthermore, this problem is not just a school problem—it is a societal concern. If the strength of early attachment bonds is interrupted by episodes of parental incarceration, resulting in children of incarcerated parents at a higher risk of incarceration themselves, attachment theory would also indicate a never-ending chain of prisoners. If the number of students with incarcerated parents is increasing, and children of incarcerated parents are being exposed to more risk factors, theoretically, the number of future inmates will increase. If this cycle continues, spiraling wider with each generation, society will inevitably become plagued with increased prison costs and chronic crime. About one in fifty children have had an incarcerated parent at some point in their

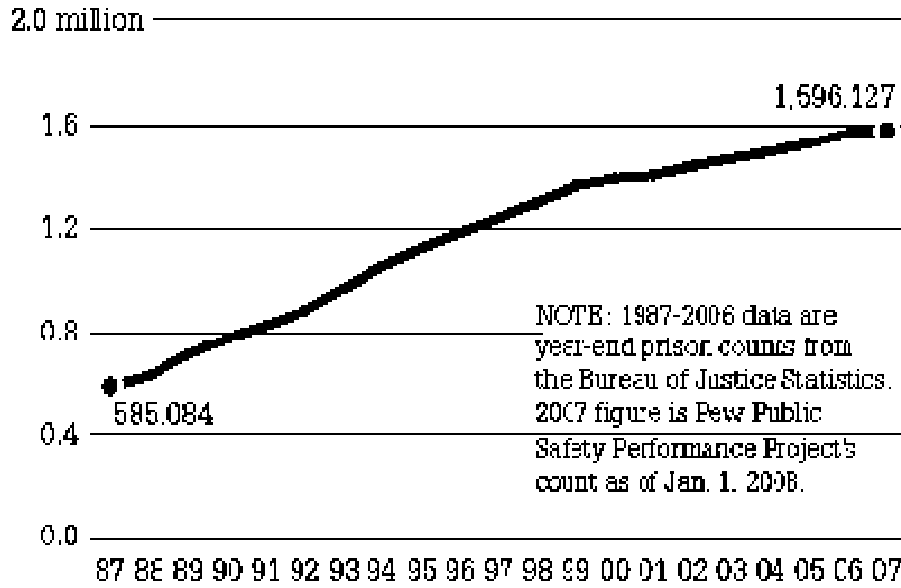
childhood (Bilchik, 2001). According to Bilchick, with the increase of “tough on” crime policies and politicians relying on punishment as a deterrent for deviant behavior, incarceration rates are increasing at a rate of six percent annually. In a recent New York Times article (Liptak, 2008), PEW Center of the States data reported that for the first time in history, the United States has more than 1 out of 100 people in prison. It reported substantial differences based on race and gender (1 in 15 African American men, compared to 1 in 355 white women), therefore indicating that these two descriptive variables become relevant in this discussion. The article went into great lengths discussing how much higher the incarceration rate is in the United States than any other nation. Disturbingly, this article discussed the potential harms and benefits of having more people incarcerated in depth, and never once discussed the effects it may have on children. See Figure 1.1 for a graph of the increasing prison population.

Conceivably, as the number of prisoners increases so does the number of children with incarcerated parents. Carolyn Kleiner (2002, 48) reported that “in 2000, more than 1.5 million children had a parent in prison, an increase of more than half a million since 1991.” These numbers show that in just nine years the amount of children affected has increased by 50 percent. This growing population occupies schools across America, and disproportionately plagues low income areas. If the rate of parental incarceration continues to increase this rapidly, and attachment theory holds true, the number of future prisoners will increase exponentially. Society will become full of disorder and law breaking, and prisons will become overpopulated. Tax payers’ costs will increase with each generation, and society’s productive-citizens-to-prisoners ratio will move in a

Figure 1.1. Increasing Prison Population¹

PRISON COUNT PUSHES UP

Between 1987 and 2007, the national prison population has nearly tripled.



SOURCES Bureau of Justice Statistics; Pew Public Safety Performance Project

¹ Note: From “One in 100: Behind Bars in America” by *Pew Center of the States*, 2008, Retrieved 18 April 2008 from <http://www.pewcenteronthestates.org/uploadedFiles/One%20in%20100.pdf>. Reprinted with permission.

negative direction. This phenomenon brings to the forefront current and future problems for our communities. This trend implies that in the future there will be an increasing number of our children becoming future prisoners each year. This is indicative of a major failure of our community. If children of incarcerated parents are at a higher risk for incarceration then this subgroup of children warrant their own attention and intervention.

The increasing incarceration rate is often a reflection of larger problems that schools face. The possibility of the end result—children becoming incarcerated—is often heightened if a student is struggling academically, socially or behaviorally in school (Baltodano, Mathur & Rutherford, 2005). The needs of clearly at-risk populations are not being addressed or ameliorated. These at-risk students are not being allowed the opportunity for social mobility. While politicians advocate laws such as “No Child Left Behind” to address the problems of social reproduction and an unequal education, the policy fails to address the need for schools to meet unique, individualized needs. Oftentimes, students with these needs are disproportionately placed in the same schools that are facing state sanctions and a strong push towards uniformity.

The school’s role in keeping students out of prison is not a new idea. Research has shown a strong correlation between educational attainment and crime (Lochner & Moretti, 2001). According to Lochner and Morretti, a high school graduate is 11 percent less likely to commit a crime than a high school dropout. This lack of educational attainment has as a dire effect on the future direction of children.

Students with incarcerated parents (students who, without intervention, face risk factors for incarceration) have emotional needs that are not addressed in schools.

Although there is a breadth of literature discussing these students as children, directly talking about the role of school in these children's lives will address and take ownership of the problem within the field of education. Broadening the domains within which this problem is discussed will also broaden the brainpower to begin to address it.

When studying a behavior (in this case, behaviors that lead to incarceration), it is valuable to isolate the antecedent, behavior, consequence and intervention. Although there are studies that use attachment theory as an explanation to discuss the risk of children of incarcerated parents becoming incarcerated (Jucovy, 2003; Martin, 2001), the studies do not break down attachment theory to reveal all the smaller relationships that may be taking place. How is the power of the attachment bonds used to predict risk factors influenced by episodes of parental incarceration? In the current literature, while it is clear what the antecedent is (parental incarceration), and the consequence (students' future incarceration), it is not clear what exactly the behavior is (is it poor academics, self-esteem, behavioral issues, etc.). Is there evidence in the schools that these students are exhibiting some of the signs of future inmates, discussed previously as risk factors for incarceration? Is there a connection between children of prisoners and school performance that would indicate these students as at-risk for incarceration? Is there a specific area where schools can begin to intervene before the problem spirals beyond repair?

There is a danger in the aforementioned trends occurring in society. The combination of school policies being formed that neglect emotional needs; schools forming as a means of social reproduction; and prisoners being mass-produced have dire theoretical consequences.

Purpose of the Study

The purpose of this study is to examine the relationships between episodes of parental incarceration and risk factors for incarceration, focusing on psycho-social variables such as attachment to parents, self esteem and post traumatic stress; school-related outcomes of academic, social and behavioral performance; and controlling for race, gender, and poverty. The study explores whether the episodes of parental incarcerations are related to psycho-social and educational outcomes that can be considered risk factors for future incarceration. It also examines the relationship among these variables, and identifies if episodes of parental incarceration heighten these relationships. Identifying the domains of school indicators which have variance that can be attributed to episodes of parental incarceration will lead towards further research that pilots interventions in these domains.

Research Questions

This section will show how the gaps in the current literature guided the formation of the research questions in this study. After reviewing the current literature on the topic, it is evident that the emphasis is on qualitative studies that describe the emotional problems society causes (Ardetti, 2003; Ardetti & Few, 2006; Breen, 1995; Franks, 1982; Lee, 2005; Shaw, 1999), how attachment theory works (Jocovy, 2003; Martin, 2001; Bilchik, Seymour & Kreisher, 2001), and the effects of incarceration on the caregivers (both pre- and post-incarceration) (Johnson & Waldfogel, 2003; Ruiz, 2002). There is also a body of literature on some micro-level solutions to better the children and families' situation (Adalist-Estrin, 1995; Harrison, 1997; Jucovy, 2003; Kester-Smith, 2002; Kleiner, 2002). Nevertheless, while there is some literature discussing the effects of a

parental incarceration on children, there is very little that discusses characteristics of these children as students. This gap in the literature is a costly one, as it provides no mention as to how teachers can be responsive to this subgroup. While these pieces all add important aspects to the field, there is a need for a wealth of conversation researching these children as students, and discussing how teachers can respond to their unique needs. Therefore, this study will pull from the research on incarcerated parents, but also rely on a great deal of interdisciplinary sources, to understand these children as students. In order to examine which domain of student performance (if any) is influenced by episodes of parental incarceration, the research questions compare academic, behavioral and social measures.

To begin to address the problems previously stated, a study that examines the relationship empirically between parental incarceration and students' performance was necessary. This study aimed to answer the following research questions:

1. How does the relationship between attachment to parents and psycho-social variables (post-traumatic stress or self esteem) differ based on episodes of parental incarceration?
2. Do psycho-social variables or educational outcomes differ based on episodes of parental incarceration?

Significance of the Study

This study contributes to the extant literature by providing empirical data that connect school outcomes with parental incarceration. It provides the evidence in some capacities to support theories used in the field already, and in other ways, brings new

thoughts into the field. The new data will allow educational researchers to experiment with interventions.

This investigation serves as a starting point for several different discussions. Information that shows the relationship between parental incarceration and school performance will be interesting to many different groups.

This study is primarily conducted to enlighten educators, policymakers and researchers. This information generates statistics that could spark discussions between teachers and administrators. These statistics should provide teachers and administrators with insight into the domains of problems that may arise when educating children with incarcerated parents. With this awareness, these professionals can construct professional learning committees that troubleshoot and discuss possible interventions. Particularly, special education teachers can benefit from this study. As many as 20 percent of juveniles that are classified as having emotional disabilities are arrested at least once prior to leaving school (Barrel & Warboys, 2000). These students are served by special education teachers. Given the prior research of emotional problems triggered by a parental incarceration, it is possible that some of these students will be classified as having emotional disabilities, and therefore, background information on children with incarcerated parents would be of interest to special educators. The study also should serve as a sparkplug to acknowledge other groups who are having their needs overlooked, and initiate diversity training and discussions.

The new empirical evidence this study provides should be examined and considered by colleges, universities and organizations that provide in-service professional development to today's administrators and teachers. Currently, many college teacher

education programs conduct classes on “multicultural” education. Time is spent teaching future teachers how to be culturally competent and respond to different races, religions, native languages and disabilities. However, unique populations such as children with parents that are incarcerated are often overlooked. Therefore, more often than not, teachers enter the workforce having not even so much as engaged in a conversation about these students. With the data this study provides, these organizations can plan professional development and training that includes a discussion of the needs of this unique population, and other such distinctive groups. With new-found evidence concerning risk factors, academic organizations can experiment with interventions.

These data should also be viewed by child welfare agencies. Child welfare agencies provide many targeted family services to at-risk populations. The data could identify a population as at-risk, enabling Child Welfare agencies to target this population. This is beneficial because preventative services have been found to be more cost effective and productive than corrective services (Omaji, 1993).

Lastly, these data may be interesting to policy makers and academics involved with the criminal justice system. Data that this experiment will yield will show the at-risk characteristics of this population. With the incarceration rate on the rise, data that shows the “hidden victims” of incarceration may encourage policy makers to re-examine policies. Policy makers and researchers may be persuaded to review theories that incarcerate as a first option, when the effects of parental incarceration on children are discovered. Incarceration is increasing each year, and the rational choice theory suggests that punishment will deter behavior. However, these data may show that the unintended

consequences of punishment outweigh the intended results. These data may affect the theoretical framework for some policy makers in the field of criminal justice.

Section Summary

Today's schools are overloaded with responsibilities and obligations to meet certain expectations placed on them by federal and state governments. It is unreasonable to ask schools to control for all aspects of a child's home life. However, it is within the realm of the school's responsibilities to examine students' psychosocial and educational outcomes, and to provide as early intervention as possible. This study aids schools in this task, by providing empirical evidence of risk factors for a particular at-risk group.

This study takes one overlooked at-risk group – children with incarcerated parents – and examines their risk factors for becoming incarcerated themselves. It is the hope of this study to lead to much more research on this group, and other at-risk groups, resulting in early intervention programs.

CHAPTER 2

REVIEW OF THE LITERATURE

While the children of incarcerated parents face issues that have plagued children for decades, they are issues that inexcusably undeveloped in scientific research. Understandably, the intersection between the privacy rights of prisoners and children make the topic difficult to research. The lack of a mandated reporting system makes the scope of the issue, including exactly how many children are affected by incarcerated parents, available only by estimates. The nature of the research questions that researchers have chosen has led to almost exclusively qualitative studies (Ardetti, 2003; Breen, 1995; Franks, 1982; Lee, 2005; Martin, 2001; Shaw 1999), mostly found within the fields of child psychology, family psychology, child welfare and criminal justice. Research on this topic in the field of education is scarce, yet parental experiences with the criminal justice system appear to have an inter-generational effect on educational outcomes. In the following conceptual framework and literature review, there is an explanation of the common theories used in this subject, and an interdisciplinary approach to explore the problems these students face.

Affected Population

Before delving into a discussion about theory, it is important to get the best estimates available of the scope of the problem. The lack of precise numbers, due to the absence of a comprehensive reporting system, has been an ongoing setback when trying to describe the children affected by incarcerated parents. However, there are several similar estimates that, while they cannot be considered absolute, give a fairly accurate

idea of how many students are affected by the problem. Different studies estimate number of children with incarcerated parents to be 1.5 million (Kleiner, 2002; Mumola, 2000), 1.9 million (CWLA, 2006; Seymour & Wright, 2000), and 2 million (Bouldin, 2000). One study showed that 1 in 50 children have had an incarcerated parent at some point in their childhood (Bilchik, Seymour & Kreisher, 2001).

There are other common trends among the affected population. Incarcerated parents often have more than one child, living in more than one different setting (Mumola, 2000; Seymour & Wright, 2000). The majority of the children affected tend to be between ages 7-12, with 52 percent of them being girls, and 43 percent of them being African American (Seymour & Wright, 2000). According to Mumola, seven percent of all African American children have a parent in jail. Forty-four percent of fathers in state prisons lived with their children before incarceration (Martin, 2001; Mumola, 2000) as did 64 percent of mothers (Mumola, 2000). There are also commonalities in children's lives that occur before the incarceration, including poverty, alcohol and other drugs, crime, interfamilial violence, child maltreatment, previous separations, a parental history of abuse and enduring trauma, prior arrests and incarceration. It is recognized here that a child's life most likely had challenges before the parent's arrest, and it is therefore difficult to "sort out the results of crime, arrest and incarceration from ongoing life problems" (Seymour & Wright, 2000, 18). While this presents a valid limitation in this work, in order to account for this limitation this study will compare this population to other children who are at risk, therefore decreasing the difference of external risk factors.

The turmoil present in a child's life prior to a parental incarceration also presents the possibility that the parental incarceration may become a protective factor. It is

possible that if the living situation is chaotic, abusive or negligent, the removal of a parent may cause changes that provide relief and actually increase stability to the child's life. While this is a possibility that is acknowledged, the contention of this study is that this situation would be rare, and therefore, would be treated as outlier.

Theoretical/Conceptual Framework

When studying the plight of children of incarcerated parents in the matter that this study does, three distinctive domains are being addressed. First, the idea that these children are more likely to become criminals, begging the question, "what makes someone more likely to become a criminal," requires a view through the lenses of criminologists. Then, a psychological view must be taken to examine the emotional turmoil caused by the absence of a parent and the shame society places on these children. Thirdly, since this study is specifically looking at the role of schools and school data, it brings up questions of education and educational policy. Since the topic for this study is the cross section of criminal justice, psychology and educational studies, concepts from theories used in all three disciplines are extracted and combined to create a unique conceptual framework. Concepts from differential association and social learning theories (criminology), attachment theory (psychology and sociology) and Maslow's Hierarchy of Needs (motivational psychology, used often in the field of education) are used as a guide in order to create a unique conceptual framework that directs the statistical models selected in this study.

Differential Association and Social Learning Theory

Criminology theories were looked at and studied to examine why children of incarcerated parents may be more likely to chose a life of crime themselves. While

concepts from many different criminology theories presented relevant ideas on how criminals are influenced, when discussing this specific subgroup, the ideas of differential association and social learning theory presented the most applicable concepts. These theories are not the basis of this study; rather, a few of the important concepts are used to explain certain choices that were made by the researcher. The following is a very brief explanation of the major tenants of the two theories, as well as mention of the concepts that were applicable to the current study.

Edwin Sutherland's (1939) Differential Association Theory expresses in clear terms the way that criminal behavior can be learned. Sutherland's theory of Differential Association is based on the premise that conflict and social disorganization are the underlying causes of crime (Akers, 1999). Sutherland defines differential association as the greater learning of definitions, including rationalizations and attitudes. These definitions of rationalization and attitudes push people in the direction of crime, rather than the avoidance of crime.

Sutherland's theory is based on nine laws. It is important to note that each of his nine laws use the word "learned." Akers (1999) explains Sutherland's laws (1947). His first tenant is simply that criminal behavior is learned. He expands on this idea in law number two by saying "criminal behavior is learned through interaction with other persons in a process of communication" (Akers, 1999, 6). Next, he discusses that the majority of learning of criminal behavior takes place within an intimate personal group. His fourth law makes the distinction that two different types of learning takes place when a criminal behavior is learned—the actually techniques of committing the crime, and the incentives, motives and drive behind the actions. Fifth, the same motives and drives are

learned from way the legal codes are defined. Expanding on the idea of definitions, Sutherland explains in his sixth law, that a “person becomes delinquent because of an access of definitions favorable to violation of law over definitions unfavorable to violation of law.” (Akers, 1999, 7). The seventh law brings out the idea of frequency, duration, priority and intensity. Next, Sutherland declares that learning a criminal behavior takes one through the same process of any other type of learning. His last law claims that criminal behavior expresses general needs and values but is not explained by those same needs and values (Akers, 1999, 7).

After an examination of these nine laws, certain pertinent concepts were applied to the set-up of this study. First, the reference to learning from a “primary group,” is relevant to this study, since parents are included within this group. Most applicable is Sutherland’s ideas that priority, frequency, duration and intensity of exposure to law breaking behavior increases the likelihood of imitation. It is because of this concept that this study will look at children early on in life (priority), and account for how often the parent is incarcerated (frequency) and look at the most primary relationship only—parents (intensity). If this idea from Sutherland’s theory holds true, children that were exposed to many episodes of parental incarceration, early on in their lives, should be more likely to commit crime.

Originally based on Sutherland’s work, the most recent and popular version of differential association theory is Akers and Burgess’ (1966) theory of Social Learning. Akers takes Sutherland’s work and combines it with ideas from Bandura’s Social Learning Theory of Aggression (a theory which focuses on how children imitate aggressive behavior through the process of behavior modeling), to create his own theory,

which emphasizes four new concepts. First, he builds on the idea of differential association, and discusses two dimensions. The interactional dimension of differential association is when there is direct association to someone who acts a specific way. Children with incarcerated parents typically experience this in the interactional dimension. This study uses a variable that measures attachment to parents which will be one measure of whether or not there was a direct association between the parent and child. The normative dimension of differential association is how this association exposes people to different patterns of norms and values. Again, Akers emphasizes the ideas of priority, duration, frequency and intensity.

The next concept considered in Akers' study is the idea of differential reinforcement. This refers to the weighing of rewards and punishments received or anticipated after a behavior. This is an interesting concept to apply to children of incarcerated parents. Since the children have seen the punishment (incarceration) for their parents' crime, will they be less likely to commit the same crime? While on the surface this may seem true, patterns in similar situations, such as child and domestic abuse, suggest that this is not always the case. Relevant is the idea that rewards are not always just tangible, and do include things like perceived social respect and approval.

Next, Bandura's influence is felt as Akers discusses his approach to imitation—quite simply that people engage in behavior after observing similar behaviors in others. A child imitating his or her parents is often the first and most basic type of imitation. This concept is seen throughout a plethora of different theoretical frameworks, including the attachment theory.

Once the concepts of learning criminal behavior through priority, frequency, intensity, and duration, the creation of definitions through interactive and normative dimensions, and imitations were extracted from Sutherland and Akers' work, psychology and sociology theories were examined to explain the possible emotional and social effects of an incarcerated parent on a child.

Attachment Theory

While the criminology theory was valuable in explaining the factors that may make someone with a primary relationship with a criminal more inclined to commit crime, there was still a desire to examine the specific emotional effects of not only having close contact with a person who committed crime, but the idea of this person being a parent. Attachment theory served to explain that relationship.

Attachment theory is often cited in literature to explain why children of incarcerated parents are more likely to become incarcerated parents themselves (Bilchik, Seymour & Kreisher, 2001; Jocovy, 2003; Martin, 2001). The basic premise behind attachment theory originated from John Bowlby (1979, 1988). Bowlby's work includes a collection of theories that postulate the impact that the bonds children form with their primary caregivers will have on both early and later childhood experiences. If the parent is incarcerated throughout portions of the child's young life, they may fail to form these early bonds, and therefore seek to delinquent peers to fill those emotional gaps. Researchers within the field of incarcerated parents have used this theory to explain why children of incarcerated parents are more likely to become incarcerated themselves (Jocovy, 2003; Martin, 2001). Bowlby theorizes that children learn how to parent from their own parents. The more positive interactions a child has with his/her caregiver, the

more likely that child is to interact positively with his/her own children, and vice versa. The household that a child grows up in sets the expectations and precedence for what is normal for that child's future household. Therefore, attachment theory would postulate that if children grow up with a parent in jail, they learn to accept this lower standard of parenting and fail to have positive feelings of attachment, resulting in a much greater chance that they will become a parent who is incarcerated.

Attachment theory can be related to a concept that is more widely spoken of in educational research – social reproduction. Social reproduction claims our schools and society play a role in reproducing citizens of the same class generation after generation. It is therefore logical that a child of a prisoner would be likely to become a prisoner. The application of attachment theory reflects some fears of society –that this cycle will continue, causing society greater costs and a never ending chain of social reproduction.

It is now appropriate to examine how attachment theory has been presented within the literature on incarcerated parents. The theory is present when fathers in jail are interviewed and asked questions about their own fathers, their perception of a “good” father, and how they think they measure up as fathers (Martin, 2001). It is also used as a rationale for intervention programs, particularly ones that advocate the need for a positive role model in the lives of children with incarcerated parents (Jucovy, 2001). This shows how programs are introduced to try to alter the social reproduction that attachment theory suggests.

This study once again uses the idea of imitation (from attachment theory), but more specifically, the idea of imitative norms and values. Attachment theory will be used to see if the bonds a child feels early on are related to psycho-social factors, and how a

parental incarceration can affect the strength of this relationship. This theory also indicates that these children, who are more likely to become incarcerated, are also more likely to become incarcerated parents.

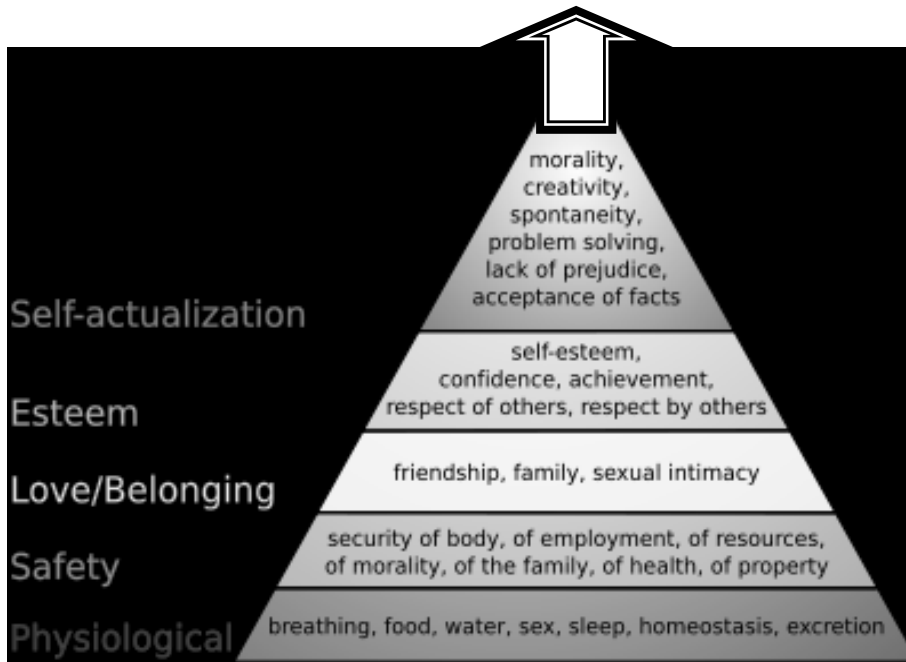
Maslow's Hierarchy of Needs

The next bridge to construct is an explanation as to why and how the schools are involved in this matter. Maslow's Hierarchy of Needs is used to best explain this relationship.

Although Maslow's theory is actually considered "a theory of motivation" it is often used in education. According to Abraham Maslow, there is a hierarchy of needs that need to be met in a pyramidal order, before a person can reach the self-actualization stage. Figure 2.1 shows one version of this pyramid.

The most basic needs are considered psychological needs. They include the physical needs of a human, including air, food, water and sleep. Without these needs being met, no other needs can be addressed. The next level of Maslow's theory addresses safety needs. These are the needs that give people security, including a stable home, job and healthy family. The next level is the need for love and belonging. These needs are met by having friends, family and even an intimate relationship. The next level is the esteem level, which is characterized by having respect for oneself, and feeling respected by others. The last level is the self-actualization level. It is at this level that people are comfortable enough to ask questions, explore curiosities, accept new facts and implement

Figure 2.1. Maslow's Hierarchy of Needs²



problem solving techniques (Self-esteem to Go, 2008; Maslow, 1945). The arrow on the preceding diagram was added to Maslow's pyramid to reflect the current ideas of Dr. Joan Keil (1999), who revisited Maslow's model and suggested that the stage of self-actualization is a never ending stage. Because self-actualization is a state of curiosity, and self-growth, an open triangle represents more accurately the true intention of the stage--endless self-learning and growth.

The important concept behind Maslow's Hierarchy of Needs is that if there is a deficiency in one of the lower levels, the higher levels cannot be reached. This is important in this study, because a student who has a physical, emotional or social need not being met is not going to be able to reach the level of self-actualization, which is

² Note. With the exception of the arrow at the top of the pyramid, this image is from "Selfesteem2go.com", 2008. Retrieved 24 January 2009 from <http://www.selfesteem2go.com/hierarchy-of-needs.html>. Reprinted with Permission.

where the most important learning takes place (Maslow, 1945). Maslow's theory is used to explain the connections between psycho-social factors and academic outcomes.

Conceptual Framework

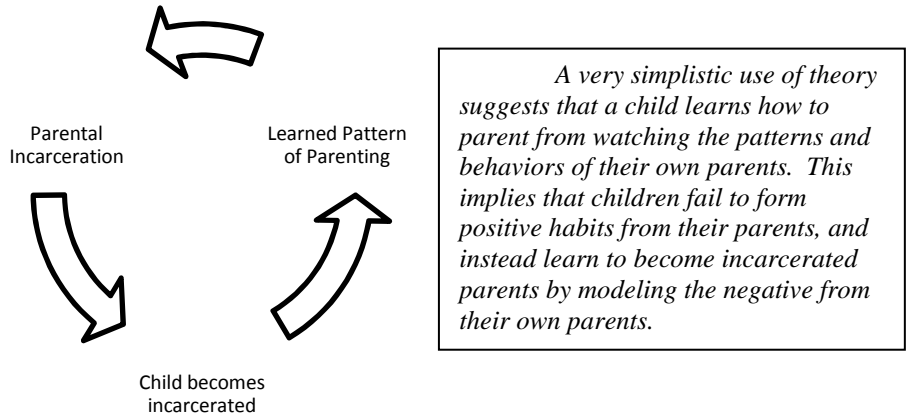
This study supports the aforementioned theories. It pulls ideas from the three different disciplines as possible explanation for this intergenerational chain of incarceration. In order to search for a more comprehensive explanation of the course these students may take, this study breaks down the child's impending incarceration into smaller steps and takes into account a major intervening influence on children's lives—school. This conceptual model uses these theories as a guide to explain a possible chain of different relationships that occur *before* the ultimate result (the child becoming incarcerated). In actuality, viewing future incarceration as a three event procedure (parent gets arrested, child learns parenting from prison patterns, child becomes a parent in prison) provides very few points for intervention. Alternatively, a parental incarceration can be seen as the start of a cycle of likely events linked to each other, with each event being both a risk factor for incarceration within itself, as well as an indicator for likeliness of other risk factors. The ideas from differential association and social learning theories are used as one possible explanation as to why an increased frequency of parental incarceration can suggest increased signs of deviance in the children. The premise of attachment theory implies that the early attachment bonds may have more influence on psycho-social factors in children whose parents are incarcerated. An attachment theorist would postulate that an event like this would make the early bonds more influential on a child's emotional well-being. Maslow's theory is used to show how

the psycho-social factors may be related to educational outcomes. Figure 2.2 depicts a model of this alternative view of intergenerational incarceration.

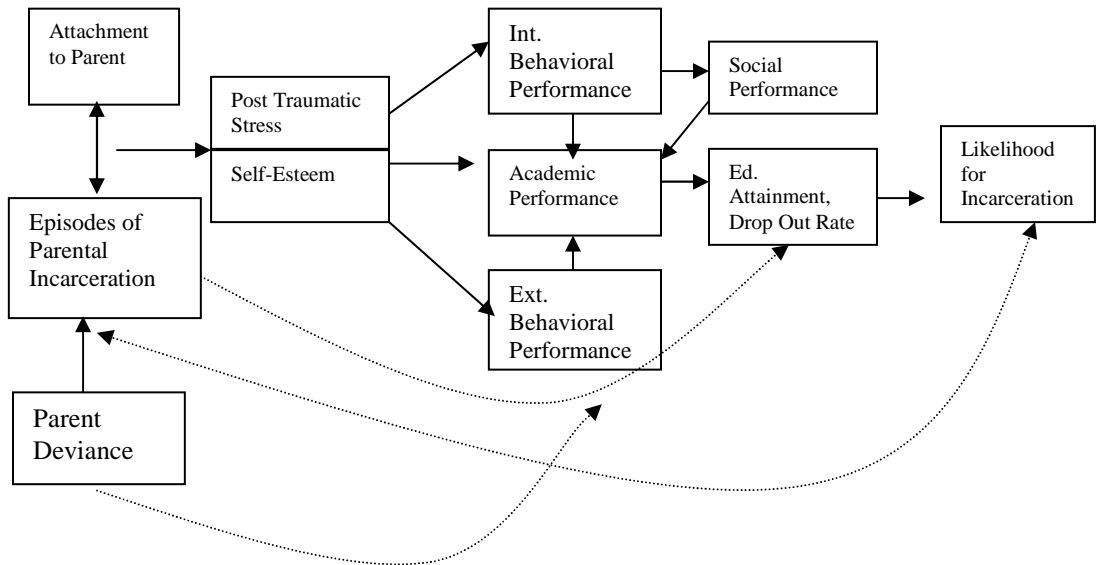
This alternative view provides many different points for intervention. By applying research in the different fields of education, child psychology and criminology, a more specific chain of events can be used to explain the possibility of a disproportionate number of children of incarcerated parents who end up incarcerated themselves. This conceptual model also predicts that the parent-child bond becomes particularly vulnerable after a parental incarceration, therefore influencing psycho-social issues, such as self-esteem and post traumatic stress more so than would be experienced by non-affected peers. The uniqueness of this model shows how not only can these risk factors lead to incarceration, but they can also be related to other risk factors that put the child at additional risk for incarceration. Although mentioned in passing, few sources have specifically examined the relationship between parental incarceration and school failure. Many studies name risk factors of children of incarcerated parents, such as academic failure, behavior problems, and withdrawal, but fail to show empirical evidence of these relationships. Therefore, this study examines the relationships between parental incarceration and psycho-social and educational variables. In addition, the study proposes two major relationships which will be described quantitatively: how episodes of parental incarceration alter the relationship between attachment to parents and psycho-social constructs, and the impact of episodes of parental incarceration on the relationship between psycho-social constructs and educational outcomes. The third relationship shown in the conceptual model – the connection between poor school performance and future incarceration– will rely on the current literature basis for evidence. Some of these

Figure 2.2. Conceptual Models Explaining Interfamilial Incarceration

3 Point Model Often Used In Discussion



Conceptual Model: The Theoretical Path of Intergenerational Incarceration



This interdisciplinary framework was created by using multiple theories and current literature as a guide. Parental incarceration may heighten the affects of poor attachment, therefore leading to a lack of self-esteem and post traumatic stress. Concepts from the attachment theory are used as a guide to predict that poor parent relationships or absent parenting bonds could be related to post traumatic stress and self esteem. Ideas from the Differential Association and Social Learning theories are used to predict a relationship between parent deviance and externalized behavior problems in children. According to Maslow's hierocracy of needs, these unmet emotional needs make learning difficult. The difficulty learning, lack of self-esteem and the interruption of routine is linked to academic and school failure, resulting in a lower educational achievement. The lower educational achievement and higher dropout rates is directly correlated with the probability of becoming incarcerated.

This study uses the aforementioned theories to make predictions about the path of children with incarcerated parents, as well as the current literature.

relationships are based on theory, and others are based on prior research.

One of the first relationships in the conceptual model is based on ideas from the criminology theories. A child witnessing intense parental deviance from the norms will be more likely to imitate these behaviors (Akers, 1999). This will be obvious in externalized behavior problems, both at home and in the school. Therefore, the link between parent deviance and a child's externalized behavior problems is drawn based on theory.

Concurrently, assuming that this deviant behavior by the parent leads to parental incarceration, a parental incarceration can be connected with low self esteem and high post-traumatic stress for the child. This relationship has been explored by the current literature, and will be examined as an important relationship in this study. It is logical, based on the literature that will be discussed shortly, to predict children will feel greater stress and lower self esteem if they have experienced a parental incarceration. The relationship between the attachment bonds that children form with their parents early on in life becomes particularly important after a highly stressful event (Bolwby, 1988) like a parental incarceration, and therefore, is expected to increase the relationship between attachment and self-esteem and post-traumatic stress.

Next, high post-traumatic stress and low self esteem are connected to educational outcomes – academic problems, externalized and internalized behavior problems and eventual social problems. These relationships, as well as the relationships between academic problems and social problems, and internalized behavior problems and externalized behavior problems, can be explained by Maslow's Hierarchy of Needs.

Instead of passively saying “parental incarceration causes school failure” as many studies tend to do, this study explores empirically how a parental incarceration may put a child at-risk for factors connected with school failure. Parental incarceration has been found to be connected to poor self-esteem and a major disruption of routine, which, using Maslow’s theory is a risk factor for academic failure. Social problems, seen as the need for belongingness on Maslow’s Hierarchy of Needs, and behavior problems which show the absence of approval, are theoretically related to academic problems. Psycho-social factors are predicted to have even more influence on educational outcomes in this population that experienced such a drastic event.

The final connection – school failure to incarceration – is more quantitatively research-orientated in the literature, therefore not analyzed empirically in this study. A poor educational experience increases the likelihood of dropping out of school, and becoming a drop-out increases the probability of incarceration (Lochner & Moretti, 2001). This explanation provides an opportunity for research at each step of the way, and will speak loudly about the implications for intervention.

In this literature review, the connections between each of these relationships that rely on current literature will be examined using an interdisciplinary approach. Each section will show how one risk factor can be related to the next.

Definition of Terms

Several terms will be imperative to understanding the conceptual model and the variables chosen in the analytic model presented in this study. They are defined as such:

- Attachment to Parents: A measurement of a child’s perception of the closeness and trust between him/her and his/her parents.

- Psycho-Social Outcomes: Outcomes measured outside of school
 - Post-Traumatic Stress: Feelings that cause an imbalance of typical emotions, including anxiety, depression, stress, dissociation, anger that happen after an event that significantly alters someone's life.
 - Disruption of Routine: An event that interrupts the daily life of the student in such a significant way that major emotional or physical adjustments need to be made by the student, in such a manner that it is reasonable to assume additional emotional stress may be present.
- Educational Outcomes: Outcomes measured within school.
 - School Failure: Failing in academic, behavioral and social aspects in school.
 - Academic Performance: Measure of subject competency by using grades.
 - Behavioral Performance: School measures using teacher- and parent-completed behavior checklists.
 - Acting In or Internalizing: Internalizing behavior, such as withdrawal, crying, or having fears.
 - Acting Out or Externalization: Externalizing behaviors, such as fighting, aggression, truancy and verbal outbursts.
 - Social Performance: Peer relationships, ability to work in a group and belongingness, measured by teacher and parent rating scale.

- Educational Achievement: Last grade completed by student; Indication of dropping out of high school or graduating.

Risk Factors

Before examining the proposed conceptual model explaining the exposure of children with incarcerated parents to multiple risk factors for incarceration, it is imperative to the argument to clearly identify the risk factors for incarceration. Risk factors for incarceration can be grouped into several different categories—community, family, school and individual (County of Fresno: Juvenile Justice Coordinating Counsel, 2008). This literature is the justification for the selection of the variables in this study. Examples of community risk factors include poverty and mobility (Farrington, 1991). Some family risk factors include poor discipline at home, poor parenting (Graham & Bowling, 1995), and family management problems (Thornberry, 1994). School factors include low intelligence, low achievement (Farrington, 1996), truancy (Ball & Connolly, 2000) and poor peer interaction (American Psychological Association, 1993). Individual factors include early problem behaviors and friends who engage in problem behavior (Farrington, 1991). The next section will discuss two individual factors that will be controlled for in this study.

Coping and Resilience

It is important to realize that while a conceptual framework uses theory and prior research to predict certain relationships, individual attributes are often hard to account for among the masses. Resilience variables can affect the path of a student, and the relationships the variables have amongst themselves. Being that resilience is based on individually ascribed characteristics, finding a way to define it presents difficulties and

often can lead away from the individualized nature of the concept itself (Panter-Brick, 2002).

Despite the dangers of defining such an ambitious term, researchers continually are trying to find a way to measure the concept of resilience. Henderson and Milstein (1996) theorize and discuss the idea of resilience at great depth. They adapted a definition from Rirkin and Hoopman (1991) that reads “resilience can be defined as the capacity to spring back, rebound, successfully adapt in the face of adversity, and develop social, academic, and vocational competence despite exposure to severe stress or simply to stress that is inherent in today’s world” (7). With that definition in mind, it becomes clear that the idea of resilience is an important factor in this study.

So what makes a person resilient? Resilient children tend to have an understanding of a variety of problem solving techniques and critical thinking skills (Bernard, 1991; Henderson & Milstein, 1996). Characteristics of resilience are often broken into two categories—internal characteristics and environmental protective factors (Bernard 1991; Hawkins, Catalano & Miller, 1992; Henderson & Milstein, 1996; Richardson et al., 1990; Werner & Smith, 1992). Some ideas from the internal factors include giving of oneself, using problem solving skills, sociability, sense of humor and impulse control. Ideas from the environmental protective factors include an environment that promotes close bonds, has supportive relationships with many caring others, uses little criticism in interaction, and provides access to resources for meeting basic needs.

Henderson and Milstein present resilience as an alternative to risk theory. Their work is based on finding ways to build resilience through a process and is aimed at educators. This study takes two available measures of resilience—coping skills (a

measure of how a child plans on dealing with hyper-theoretical problems) and support system (a measure of the degree of supportive figures in the child's life) and uses them as a control, therefore, aiming to produce results that would be indicative of how these relationships exist if all students had the same level of resilience. Resilience research can be used in intervention as well.

Section Summary

This preceding section introduced the affected population, presented different theories used to create the conceptual framework, provided definitions, identified risk factors and concluded with a discussion about the importance of accounting for individualized attributes. The remainder of this chapter will discuss how the different relationships marked in the conceptual framework are supported by previous studies and literature.

Relationship 1: Parental Incarceration is Related to Self Esteem and Post-Traumatic Stress

Children with Incarcerated Parents are Distinctive Due to Shame

Children with incarcerated parents are one subgroup of the larger group of children raised predominately by one parent. With the increasing divorce rate and number of children born to single mothers, it is becoming more likely that a child will be raised for a period of his/her childhood by one parent. In fact, four to seven out of ten white children and nine out of ten African American children born in 1980 lived with one parent for a duration of their childhood (Hetherington & Arstech, 1988). Any separation from an active parent can have negative effects on children, including financial burden and emotional and behavioral stress. A connection has been found between the parental

stress that an event such as a divorce causes and children's adjustment problems (Stolberg & Anker, 1983; Wolfe, Jaffe, Wilson & Zak, 1985). It has been theorized that this parental stress leads to a decrease in tolerance and patience, therefore causing inept discipline eventually leading to the children's antisocial behavior (Hetherington & Arstech, 1988). It is without question that divorced parents, like parents with incarcerated spouses, feel the effects of finances and stress (Lin, 2008). Therefore, it is logical to believe that the effects felt by children with parents who are divorced or separated also are felt by those children who have an incarcerated parent. The studies completed on students raised in single parent and broken homes are relevant, but not adequate in entirety, when explaining the emotional effects a parental incarceration can have on a child.

What makes children of incarcerated parents unique from children with divorced, absent or deceased parents? A parental incarceration tends to influence children in ways additional to the typical effects felt by children with parents that are separated for other reasons. There are several pieces of literature that look at the children of incarcerated parents and the difficult emotional problems they endure, especially because of the burden society places on them (Arditti, 2005, 2003; Franks, 1982; Lee, 2004; Shaw, 1992). This literature unites to say that the incarceration of a parent is a specifically difficult time for a child, differing from death and divorce because of the level of shame associated with the event. According to Arditti, a child with an incarcerated parent becomes stigmatized and thrown into a social network that is not accepted by society (2005). Even the death of a parent incites a different type of grief and mourning. While a death of a parent is something society treats with great sympathy, children of

incarcerated parents do not typically receive that support. Arditti describes the incarceration of a parent as a “social death” and points out that the grieving needs to be done in secret. In addition, as Shaw distinguishes, death is a permanent event, whereas children with incarcerated parents have to question the duration of their mourning. It is that feeling of guilt and shame that causes these children to be categorized as having poor self-esteem. This pattern is worth mentioning because it has implications for intervention. Surprisingly, very few of the current interventions include targeting the self-esteem of students.

Parental Incarceration Causes a Disruption to Routine—A Trigger of Emotional Stress

A parental incarceration can interrupt the routine of a child from many different angles, which adds to the emotional stress a child experiences. In many cases, the incarceration of a parent affects the child’s living arrangement. Forty six percent of incarcerated parents report that they lived with their children before being incarcerated (Mumola, 2000). According to Mumola, the prisoners (both male and female) reported that 85 percent of those children now live with the other parent, while 16 percent live with a grandmother, 11.7 percent live with friend or relative and 2.4 percent live in foster homes³. Mumola also reports that if the mother is incarcerated, these numbers change significantly: 52.9 percent of children with an incarcerated mother live with a grandparent and 25.7 percent live with another relative. In addition, 34 percent of children who attended a summer camp for children with incarcerated parents had moved in the past year (Mackintosh et. al., 2006). If a child’s mother has been incarcerated, the child is significantly more likely to move four or more times in a period of five years

³ These numbers add up to more than 100% because some of the prisoners had more than one child with different caregivers.

(Phillips et al., 2006). If a child physically has to move, or has a different primary caregiver, his/her routine and home stability is altered significantly. Even if the physical setting remains the same, but the child's other parent is no longer at home, the stability and routine of the home is interrupted by the added stress (financial, emotional, time-management) of becoming a single family home. For example, a former stay at home mother may need to start working full time to compensate for the lack of income of the incarcerated parent.

Parental Incarceration and Post Traumatic Stress

The literature also makes mention of other possible emotional effects that a parental incarceration could have on a child. This event can trigger much emotional stress. The list includes the possibility of mental instabilities, including flashbacks and moments of uncertainty, and emotional effects including, "fear, anxiety, anger, sadness, loneliness, abandonment, embarrassment, guilt, resentment and emotional withdrawal from friends and family" (Lee, 2005, 7). Some research has united to say that if the mother is arrested, these emotional effects are more common (Frank, 1983; Shaw, 1999). In Martin's (1999) qualitative study, he found that if the mother is incarcerated, the child acts "in" (behaviors such as crying, withdrawal), while if the father is incarcerated, the child acts "out" (aggression, absenteeism and drug and alcohol use). Shaw also noted the tendency of children to become clingier and wet the bed. The time elapsed after the arrest has been found to be relevant towards emotional stress. Terror and confusion have been found to be immediate feelings after the arrest has been made. Behavioral effects, such as aggression, set in while the parent is in prison (Bilchik, Seymour & Kreisher, 2001), and after the parent is released there are feelings of resentment, anger and hurt.

These feelings of post-traumatic stress may lead towards acting in, or internalized behavior problems in school.

There is reason to suspect that if parental incarceration triggers heavy feelings of shame, stress and self-doubt, then the early bonds and attachment formed before the incarceration are going to become increasingly important in predicting the child's emotional well being. In that period of stress, a child may have security concerns. If there is a weak bond, and a parental incarceration, based on the above reviewed literature, it can be predicted that a child will have less resilience to the event, and may feel greater shame, lower confidence and higher stress. Reyes and Asbrand point out that the way a child reacts to trauma is often determined by the child's closeness to the perpetrator and family dynamics (2005). Ovaert, Cashel and Sewell (2003) conducted research on post-traumatic stress in juvenile offenders and made the point that adjustment disorders (which could form as the response to a lack of attachment) tend to be connected with high post-traumatic stress and criminal behaviors. It is therefore logical to use the early bonds children form with their parents as predictors of the emotional resilience to a highly stressful event such as parental incarceration.

Relationship 2: Post-Traumatic Stress and Self Esteem are Related to Educational Attainment

The relationship between parental incarceration and school failure is understudied. However, the previously discussed literature showed proof that there is a link between parental incarceration and poor self-esteem, disruption in routine and post-traumatic stress. The connections between these factors and school failure are topics that have been explored by researchers. Therefore, the following discussion will show the

connection educational research provides between the named psycho-social variables and expected school performance.

Self-Esteem is Related to Academics, Social and Behavioral Performance

Relationship Illustrated by Maslow's Theory

First of all, poor self-esteem can lead to the lack of motivation to learn. It is during the self-actualization stage that a child allows him/herself to express him/herself creatively, ask and answer questions and seek new knowledge (Maslow, 1945). It is at this stage that a child does the most meaningful learning. A parental incarceration can affect almost every stage of needs that a child would have to meet before true learning takes place. The most basic needs – the physiological or physical needs – include the needs of eating, sleeping, stimulation and activities. Meeting these needs may be hindered by the financial status of having a parent incarcerated. Next on the hierarchy are security needs. A child with an incarcerated parent may have extra security needs, including fear of someone harming them, and fear of abandonment, as well as not knowing if or when his/her parent is coming back. The next two levels – love and belonging and esteem needs – are the ones most clearly affected by incarceration. Socially, a child with an incarcerated parent faces abandonment and questions the love of his/her parent. Self-esteem was discussed earlier as the main distinguishing characteristic of children with incarcerated parents. All of these barriers can be seen as obstacles that interfere with a child's route to academic success. With all of these obstacles in the way, it is logical to conclude that a child whose parents have been incarcerated may lack motivation to learn.

Self-Esteem and Academic Performance

Furthermore, while low self-esteem is correlated with poor academics, the inverse is also true—confidence is correlated with positive academics. The connection between confidence and learning is logical and clear (Eldred et al., 2005). Children who are confident ask more questions, engage more readily and have a more enjoyable schooling experience. Students who are able to set goals have an increased chance of reaching higher educational attainment, such as completing a specific academic program (Golden, 2003). Self-esteem and aspirations, including goal setting are positively correlated (Ahamavarra & Houston, 2007; Leary, 1999). Children who are plagued with shame and guilt are shorted these opportunities. There also has been found to be a positive correlation between self-esteem scores and national test scores (Davies & Brember, 1999).

Self-Esteem and Behavioral Performance

This section will explore the connection between self-esteem and behavioral performance. Self-esteem has been found to be one of the strongest indicators of future emotional and behavioral problems (Leary, Shcreindorfer, & Haupt, 1995). Based on self-reports, and teacher and parent rating scales, low self-esteem has a positive correlation with externalizing behavior problems (Donnellan, Trzesniewski, Robins, & Moffitt, 2005). Students with low self-esteem have been found to use disruptive behaviors to detract from any possible difficulties they may be having with the work. Furthermore, when students felt they were expected to master a goal in class, and therefore felt self-conscious when they did not achieve mastery, they had a tendency to avoid asking for help and had an increase in disruptive behavior (Friedel, Marachi &

Midgley, 2002). If the student has low self-esteem, he/she will take measures to protect his/her self-worth and image, using acting out as a coping mechanism.

Self-Esteem and Internalized Behavior Problems and Social Performance

Previously, it has been explained how self-esteem can affect motivation (using Maslow's theory) and how it is related to academic performance. This next section will explore the relationship between self-esteem and internalized behavior problems and social performance.

The operational definition of social performance is an individual's ability to establish peer relationships, work in a group and belong. At this point, the sociometer theory is applicable. The sociometer theory uses self-esteem as measure of the quality of interpersonal relationships. This theory says that people possess a tool, referred to as the sociometer, and it is used to constantly evaluate the success of relationships. Sociometer theory provides a pertinent distinction—that while self-esteem is a self-perception, it is affected by the perceived acceptance of others. Consequently, people act in ways to avoid rejection (Leary, 1999). Consider a child whose parent has recently become incarcerated and apply the sociometer theory. There was an event (the parental incarceration) that the child may fear would cause others to reject or criticize him/her. Because the child is afraid of this rejection by others, he/she avoids associations or events that may expose this insecurity. Therefore, the child's social interaction is limited. By avoiding social interaction as a means of steering clear of the opportunity for rejection, the children are not only missing out on socialization, but they are also missing a chance for acceptance. This acceptance would raise their sociometer and trigger more social interaction. It is evident that social interaction and self-esteem are interrelated.

Increased Relationship for Students with Incarcerated Parents

There are numerous reasons why dealing with self-esteem and stress may become more difficult for students with incarcerated parents, and therefore hinder educational outcomes at an increased rate. On top of the self-esteem and stress difficulties a child with an incarcerated parent experiences, there is the disruption to routine caused by a parental incarceration. This disruption to routine makes a child's life even more disorganized and can heighten the effects of emotional turmoil. This section will show the way a parental incarceration affects routine and can influence a student's academic and social performance.

An interruption to routine can cause a child to have problems in school. Routine and stableness is critical to a child's development and educational success. In fact, the importance of routines in the classroom has been stressed by researchers (Feldman, 2000; Leinhardt, Weidman & Hammond, 1987; Truby, 2007; Wong, 2004). If the children in a classroom know what to expect and what will happen every day, their anxiety is reduced, and they are able to focus on learning. The same principle can be assumed for the home. Children who have their home routines disturbed can be expected to experience a period of anxiety and uncertainty. Therefore, high emotional stress may be a result of a disturbed routine.

Borrowing research from the child welfare department, one can see the effect of a disturbed routine on children's academic, social and behavioral performance. Foster children, whose routines are chronically disturbed, are at higher risk for academic failure, and have less involvement in extracurricular sports than their peers that live with their parents (Kortenkamp & Macomber, 2002). Involvement in extracurricular activities can

help children form a valuable social identity that gives them meaning and value (Ahamavarra & Houston, 2007; Tajfel & Turner, 1979). This social identity also enhances peer relations, social skills and self-esteem (Abrams & Hogg, 1988; Ahamavarra & Houston, 2007; Houston & Andreopoulos, 2003). A student's social identity also has implications for that student's behavior. In fact, group belongingness was found to have a negative correlation of -0.47 with internal behavior problems, and a negative correlation of -0.43 with external behavior problems (Newman, Lohman, & Newman, 2007). These behavior problems are present at home as well as in school. A parental incarceration has been found to lead to the disturbance of the social network and a change in family structure, resulting in a reduction in the control the guardian has over the child (Arditti, 2005). These factors often faced by children of incarcerated parents, put the children at risk for poor academic, social and behavioral performance.

Home life instability can result in poor school attendance. Among predictor factors for poor attendance are the extent that parents monitor homework, how important it is to the family to do well in school, and a child's relationship with his/her teachers (Attwood & Croll, 2006). These factors can change if a child needs to move, or if a child's prime caregiver changes. In Attwood and Croll's study, interviews showed that out of 17 interviewed students, 9 students discussed significant precipitating events as explanations for truancy. Three of these students named changing schools as the reason for truancy (Attwood & Croll, 2006). If a child moves, there is often time lost in the transition from one school to another. This is an example of one of the reasons why it is predicted that if a student has episodes of parental incarceration, the student's stress level will have a stronger relationship with academic performances. Truancy has been found

to be the number one indicator among teenage boys for having a future criminal record (Robinson, 2007).

Post-Traumatic Stress Can Affect Student's Behavior in School

Earlier, it was established that parental incarceration can be linked to post-traumatic stress. This section will show how that stress can lead a student to have behavioral problems in school.

“Problems in behaviour in educational settings are usually a product of a complex interaction between the individual, school, family, community and wider society,” (William & Daniels, 2000, 230). Behavior problems can be caused by many different factors, some of which have been discussed prior as results of parental incarceration. Emotional feelings such as anger, aggression, depression, loneliness and abandonment can make a child rebel in school or act out seeking attention. Eighty percent of incarcerated fathers surveyed reported that their child's behavior in school was affected by the incarceration (Hanrahan et al., 1996). A specific, stressful life event has been found to be related to behavior problems in schools (Wolfe, 1987). These behaviors may also present themselves in internalized ways, as a child may chose to withdraw to escape from their post-traumatic stress. Therefore, there is reason to explore the connection between a parental incarceration and both types (internal and external) of behavior problems in school.

Relationship 3: Educational Attainment and Incarceration

Educational Attainment and Dropouts

The prior section showed how a parental incarceration can affect the self-esteem and academic performance of students. It also discussed the effect that disrupting the

routine of home life can have on a child's stress level. Stress was found to be linked to behavior problems at school. This section will show that these five issues – self-esteem, post-traumatic stress, and poor social, behavioral and academic performance – are proper indicators to label the student as “at risk” of dropping out of school.

Common characteristics of students who drop out of high school is a topic well explored throughout literature. Research has dictated that students at risk of dropping out have poor self-esteem, lower academic achievement and lower test scores at earlier grades, a higher number of disciplinary actions and a lack of a significant adult in their lives (Bracy, 1997; Headen, 1997; Langenfeld & Cumming, 1996; Sherman, 1987; Sherrow, 1997). In addition, male students reported having a hard time getting along with peers and teachers as a reason for their drop-outs (Sherman, 1987). All of these warning signs are the variables that will be studied empirically throughout this study.

Many smaller studies have been conducted to explore the different reasons for drop-out rates among high school students. According to the 1999-2000 Texas Survey of drop-outs, the number one reason given for dropping out was problems with attendance, cited by 24 percent of the drop-outs. The remaining answers were well dispersed; however, low grades were among the leading remaining reasons, named by 1.3 percent (Kallus, 2001). In a study conducted in Illinois with similar research questions but a very different sample, the drop-outs cited not having enough credits as the most common reason for dropping out (Richard, 1999). The lack of credits could be caused by poor academic performance or attendance. Using National Data from 1979, Zvi Ekstein and Kenneth Wolphin (1999) completed a quantitative study showing that high school drop-

outs have lower school ability, lower motivation, lower expectation of rewards from graduation and lower school attendance.

The consensus of these different methodological studies with differing samples is that grades, ability, attendance, behavior and motivation are all primary indicators for students dropping out of school. Therefore, if these are all problems that can result from parental incarceration, it would be logical that these children are at risk for dropping out of school.

Using the concept of learned norms from the differential association, social learning and attachment theories, we can provide another explanation for the expected low educational attainment of this population. According to 2002 Bureau of Justice data, 12.3 percent of inmates had only an 8th grade education or less, 31.6 percent had some high school education, 17.1 percent had a GED and 25.9 percent had a high school diploma (James, 2004). In addition, in a study only looking at parents in prison, 70 percent of them were found not to have a high school diploma (Mumola, 2000). The theories reviewed would say that the children imitate the values and beliefs of their parents. Since a high educational attainment was not obtained by their parent, they may have learned to place a low value on this accomplishment, therefore explaining their low educational attainment.

Dropouts and Incarceration

This section will examine the last link of the conceptual model—the connection between lower educational attainment and increased likelihood for incarceration. Like the last relationship discussed, this relationship will not be tested in this study, therefore making prior research even more important. There is a strong negative correlation

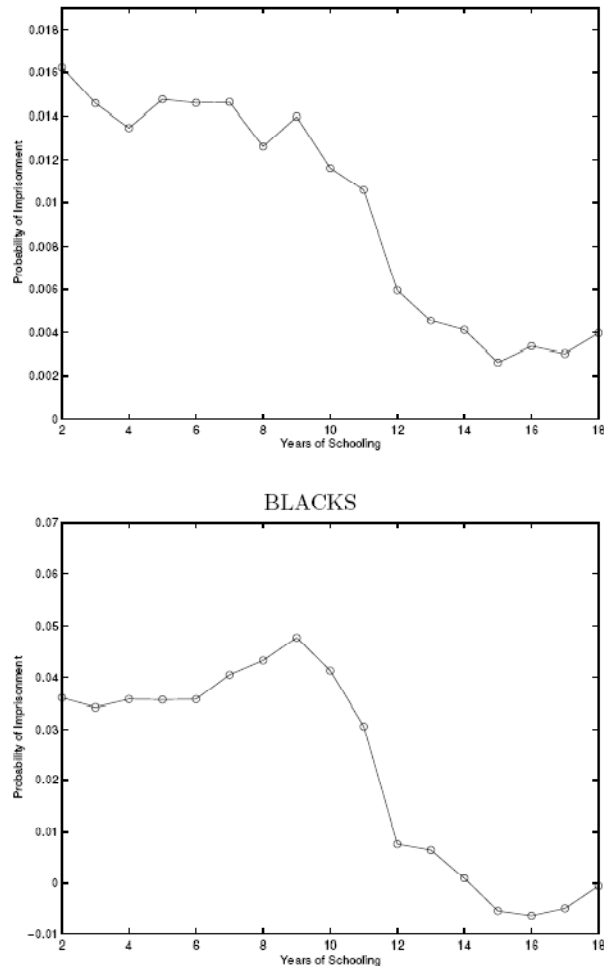
between years of schooling and incarceration. Figure 2.3 shows the Regression-Adjusted Probability of Incarceration by Years of Schooling from Lochner and Moretti, 2001. Lochner and Moretti found that in 1980, a white high school drop-out had a .93 percent chance of being incarcerated, whereas a high school graduate's likelihood for incarceration was .39 percent. An African American high school dropout had a 4.1 percent chance of being incarcerated, whereas an African American high school graduate's likelihood for incarceration was 2.35 percent. High school graduates in 1980 were 11 percent less likely to commit a violent crime than a high school dropout. The highest correlation between education and incarceration was found for violent crimes, such as murder and assault. Lochner and Moretti also found that the data on human capital and incarceration also speaks loudly regarding race—the difference in educational attainment can explain 23 percent of the variance in African American and white incarceration rates. It is therefore conclusive that a person with less education, particularly a dropout, is much more likely to be incarcerated than a person who completes his/her education.

The Implications for Intervention

There are many short-term solutions to aide children with incarcerated parents. While well intended, these programs are also reflective of the lack of understanding of the depth of the problems. There are programs that range from parenting classes, to mentoring programs, to busing for visitation. The literature shows agreement that some effort should be made to aide either/both the parents and/or children, but there is an uncertainty of the extent that programs should focus on repairing relationships, exploring relationships, or building new relationships. There are programs that focus on exploring

Figure 2.3. Regression-Adjusted Probability of Incarceration, by Years of Schooling.⁴

Figure 1: Regression-Adjusted Probability of Incarceration, by Years of Schooling



Note: Regression-adjusted probability of incarceration is obtained by conditioning on age, state of birth, state of residence, cohort of birth, and year effects.

⁴ Note. From “The Effect of Education on Crime: Evidence from Prison Inmates, Arrest, and Self-Reports” by Lance Lochner and Enrico Moretti, December 2001, *American Economic Review*, Retrieved 18 April 2008 from http://www.jcpr.org/wpfiles/lochner_moretti.pdf.

the children's relationships with their parents and discussing issues that they feel (Kleiner, 2002; Jucovy, 2003), while other programs focus more on building closeness with incarcerated mothers and their children (Kester-Smith, 2002). In addition, programs such as ones that offer parenting classes fall more towards the repairing relationships goal, as they acknowledge a parental deficiency and work to fix it (Adalist-Estrin, 1995; Arditti, Joyce & Few, 2006; Harrison, 1997). These programs vary greatly in their goals and approach but their variance speaks loudly to the field of research—the point for intervention has not yet been identified. More information on why the cycle of incarceration takes place will lead to a more successful intervention approach. Pinpointing what issues the schools could address and studying these children as students will allow a different venue to take some ownership and action to help these children in a role that they play for over half of their waking hours.

Section Summary

Children and students are two separate groups as far as research is concerned. While children are expected to have their emotional ups and downs, students are expected to perform consistently and productively. As our nation moves towards a push for uniformity and standardization, children need to be explored additionally as students. The assumption that policies such as “No Child Left Behind” make is that regardless of emotional hardship or troubles, students need to academically improve at the same rate as their classmates. Likewise, the reality pushed on schools is that they must find a way to intervene with the emotional hardships of their students to avoid the effects it may have on their academic progress. It is therefore the contention of this study that the role that

schools play in continuing this interfamilial chain of incarceration should be closely examined.

Students with incarcerated parents cross bridges over various disciplines, and therefore literature from one field alone, or one theory alone, is not sufficient. Differential association, social learning and attachment theory all contribute the idea that norms are learned from imitation and modeling. Some of the current literature treats the path of these students as predestination. This study acknowledges one major intervening factor in a child's future—the role of the school. By examining the path of psycho-social and school outcomes, this study examines the predicted relationships early on in a student's life. The tremendous role of intervention that schools play in a child's life should be utilized and studied to the maximum. Maslow's Hierarchy of Needs is utilized as a guide to examine why psycho-social outcomes may be related to educational outcomes. This study goes back to the proposed model explaining why children of incarcerated parents might become incarcerated parents themselves, and seeks to describe quantitatively whether or not these stages and connections are identifiable with school data. If this study can prove the correlation between a parental incarceration and other signs of school failure, an important stepping block between parental incarceration and future student incarceration can be identified. It is that stepping block that will allow for more successful interventions.

CHAPTER 3

DATA & METHODOLOGY

The data for the proposed study were drawn from the *National Data Archive on Child Abuse and Neglect*, which is a project of the *Family Development Center* at Cornell University. Specifically, the dataset from the Longitudinal Study of Child Abuse and Neglect (LONGSCAN) informed this study. Analytic procedures included univariate and bivariate comparisons, followed by Ordinary Least Squares (OLS) regression analysis. LONGSCAN is a 13-year, longitudinal survey that compiled rich information on numerous social and policy-relevant topics from 1991 through 2004. Data gathering took place at five different settings around the country. Three of these sites are considered urban; one site was rural and one site was suburban. These sites are located across different geographic areas, with one in the Midwest, Southwest, Northwest, South and East. Data from all of these locations will be used in this study.

Researchers from multiple fields, including medicine, sociology, psychology, social work and biostatistics, formed a consortium to complete this study. A sample size of more than 1300 children and families was included, and the study followed them from ages 4-18. This data set includes data collection from the children, their parents, and their teachers at child-participant ages 4, 6, 8, 9, 12, 14, 16, and 18; however, only data from ages 4-11 were archived by the completion of this study. The consortium conducted yearly telephone interviews to keep track of families and changes in the children's lives and checked Child Protective Service records every two years.

Appropriateness of LONGSCAN for this Study

LONGSCAN was the ideal dataset for answering the research questions in this study for a number of reasons. First, it incorporates the voice of three different groups of people who are all relevant to this study – children, parents and teachers. Second, it is one of few datasets that contains incarceration information, demographics, psycho-social variables and educational outcome variables. It asks the children to report any life changing events each year, particularly asking if anyone in their family was arrested that year, and if so, who. It also includes a control sample, which will allow comparisons to peers without incarcerated parents. It has the appropriate school data – teacher assessments of academic, behavioral, and social performance, as well as the appropriate demographic information-- race, gender of the student, family income and parental educational attainment.

Although the sample size for LONGSCAN is large (n=1274), the sample size of children with parents who have been incarcerated by time the child was age 9 was not as large (n=305 in matched sample, n=309 in full sample⁵). However, this section of the sample is much larger than what would be expected from the population (24.3% compared to 2% that would be expected based on 1 in 50 children having an incarcerated parent (Bilchik, Seymour & Kreisher, 2001)). This larger portion of children who have experienced a parental incarceration speaks loudly about the high-risk of the sample. Choices about the data analysis were made with this in mind. Since the sample size in

⁵ It should be noted that the matched sample selection did exclude four subjects that had experience parental incarceration, due to a substantial lack of data. While in the full sample, pairwise deletion would eliminate these subjects in most analysis, the decision was made to delete them prior to any analysis in the matched sample selection in order to maintain as close to equal numbers between selection groups and control groups in each regression model. These four subjects were found to add very little data to the study.

the matched selection study was 610, choices had to be made on the selection of variable, to keep the amount of variables appropriate given the sample size.

Instruments

LONGSCAN used several different instruments for data collection (Larrabee-Warner, 2006). Among these methods were telephone interviews, face-to-face interviews, surveys, review of files such as child protective files and central registry records, and questionnaires. Information was collected from parents, caregivers, teachers, and the children themselves.

Sample

LONGSCAN's sampling strategy differed depending on the site at which the data were collected. In the Eastern cohort, the children were selected from the client list of three pediatric clinics that served low income, inner city children (Labarre-Warner, 2006). According to the User Guide 3, in the Midwest, two thirds of the sample came from families that were reported to child protective services. Of these families, half were receiving comprehensive services and half were receiving Child Protective Service Intervention. The other third consisted of neighborhood controls. In the Northwest, the children were selected from Child Protective Service, who considered them all to be at moderate risk. In the Southern area, the children were considered high risk at birth, using public health tracking information. Labarre-Warner explains that this sample was then matched with non-reported children in a 2:1 ratio. In the Southwest, the children were selected when they were four years old because they had all entered a country dependency system. See Table 3.1 for a description of the selection of the sample used by LONGSCAN.

Table 3.1. Description of the Sample used by LONGSCAN⁶

Site	Birth Years	Risk Group	Comparison Group
EA (282)	1988-1991	Failure to thrive (103) <ul style="list-style-type: none"> • Prenatal drug use of HIV infected mother (68) 	Same pediatric clinic, no extra risk factors (111)
MW (245)	1991-1994	Family report to CPS and 6 months of family treatment (65) Usual CPS Care (84)	Neighborhood controls (96)
NW (254)	1988-1994	<ul style="list-style-type: none"> • CPS report/moderate risk and substantiated (144) 	CPS report/moderate risk NOT substantiated (110)
SO (243)	1986-1987	High risk at birth-Reported to CPS by age 4 (76) Low risk-Reported (7)	High risk at birth-NOT reported (138) Low risk-NOT reported (22)
SW (330)	1989-1991	Still in foster care at age 4, With kin (58) Non kin (78) In foster care adapted by age 4 By kin (20) By non kin (51)	Foster children returned home by age of 4 (112)

It is important to note that by nature of the sample selection, the comparison group (subjects that have never experienced an episode of parental incarceration) did not represent typical children – they included children with other at-risk factors. Because of that, the differences between the comparison group may not be as strong as expected when being compared to the general population of children, who are not as commonly exposed to at-risk factors. On one hand, this can be viewed as an asset because it allows the analysis of incarceration among other at-risk factors. In the statement of the

⁶ Note. From “Longitudinal Studies of Child Abuse and Neglect (LONGSCAN), Assessments 0-9 User Manual” by Holly Larrabee-Warner, 2006, 12, National Data of Child Abuse and Neglect. Reprinted with permission.

problem, it was stated that children of incarcerated parents face some of the same risks as other at-risk groups, but also face their own unique risk factors. The comparison to other at-risk students allowed this claim to be investigated. However, it is also important to keep this non-randomized comparison sample in mind when interpreting the results. Comparing one risk group to other students with some risk factors themselves will produce results that are based off an atypical group with elevated levels of risks.

Two different samples will be used for this study. The first sample, the matched sample, will be created for this study. Subjects that have experienced a parental incarceration will be separated and analyzed on the basis of risk group, race and gender. They will be matched on these three variables as close as possible to subjects that have not experienced a parental incarceration. The second sample, the full sample, will use the entire LONGSCAN sample, with the exception of subjects missing required demographic or parental incarceration information. More details on the selection of these two samples follow.

Since the question “Has anyone in your family been arrested this year” was used to select the sample, the size of the matched selection sample used for this study differs significantly from the size of the sample used in full sample analysis. Because the original maltreatment group classification may dramatically affect the dependent variables, matched sampling was used to create a comparison group.

In addition, this study was completed a second time, including all subjects in LONGSCAN without a parental incarceration as part of the control group (with adequate data), and using the original at-risk factor as a control. This was done to see the

comparison to a more typical population. Both results will be provided in the results and discussion sections.

Data Analysis Procedures

The following sections will outline the different variables chosen, primarily data design choices, and sample selection criteria used throughout this study.

Variables and Constructs

This section will review the major variables of the study, as listed in Table 3.2. The unit of analysis is the child.

The preceding chart provides the variables in the analysis and a brief description of the coding and metrics of each variable. Following each variable is a brief description, the indication of any necessary preliminary tests and an indication of how the variable was conceptualized for the analytical models.

Selection of Sample: Episodes of Parental Incarceration, Matched Sample and Full Sample

The independent variable for this study is episodes of parental incarceration. Table 3.2 shows the coding information for this variable. Data from age 9 and younger were used to select the targeted sample. Each time a student reported the incarceration of a parent, they were given a point. The total points reflect the number of episodes of incarceration. After the information was collected, it was checked for outliers, and collapsed into groups accordingly. When this was done, there were three groups - students who had never experienced a parental incarceration, students who had

Table 3.2. Proposed Variables and Constructs used in Study

Variables	Description
*Race of student	Dummy variable for African American, White, Multi-racial and Other
*Socio-Economic Problems	Mean annual Income coded 1=\$15,000 or above, 2=\$5,000-\$15,000, 3=<\$5,000
*Gender of student	0: Female 1: Male
*Parental Educational Attainment Problems	Coded: 0=Degree/GED 1=Dropped Out
**Risk Factor	0=Not At Risk, 1=At Risk
*Coping Problems	0-100, Higher Score=Higher presence of a problem, Composed by taking 100 and subtracting the percentage of times the subjects used compromise, help seeking or verbal assertion as a problem solving techniques
*Lack of Support	0-60, Higher Score=Less support systems. Composed by taking the sum of the ratings of support the subject gave for each supportive figure (as identified by the subject) in different domains, and then reverse coding.
Frequency of Parental Incarceration	0=Never had a parent incarcerated, 1=Experienced 1 Episodes of Parental Incarceration, 2= Experienced more than 1 Episodes of Parental Incarceration
Problems with Attachment to Parents	1-4, Higher Scores, child perceives a lower support/stronger attachment to parents. Mean of each parental score, scores collapsed within +1/-1 SD and then reversed coded. Score calculated with rating questions such as: <i>How often do each of these people do or say things that help make you feel good about yourself?</i> <i>When you talk to person x about your feelings, how much better does s/he make you feel?</i>
Self Esteem Problems	Coded: Score 0-7 Higher Scores=Higher worry that they are not meeting expectation of others
Post Traumatic Stress	Coded: 0-30, Higher Score =Higher Stress <i>(Score calculated with rating questions such as:</i> <i>Scary ideas or pictures just pop in your head.</i> <i>Remembering things that happened that you didn't like.</i> <i>Can't stop thinking about something bad that happened to you.)</i>
Academic Performance Problems	Coded on a scale of 1-4. Mean of the Teacher Report Form grade report and the School Scale T-Score from Child Behavior Checklist. Scores were collapsed and reversed, so the higher score shows the greater presence of a problem.
Behavior Performance	Coded: Total Internalizing Score 33-100, Total Externalizing Scores 34.5-100 Scores were averaged from the Teacher Report Form and Child Behavior Checklist
Social Performance	Coded: 50-100, higher score indicate more of a presence of a problem Mean of scores from the Teacher Report Form and Child Behavior Checklist (Score calculated with rating questions such as: <i>Clings to adults or too dependent/ Complains of loneliness/Doesn't get along with other pupils)</i> Teacher Report Form

*Control Variables

**Used for Matched Sample Selection Choice

experienced one episode of parental incarceration, and students who had experienced more than one episode of parental incarceration.

Students were selected for LONGSCAN based on their original maltreatment group. This variable is important because it indicates who was in the original control group, and who had experienced prior maltreatment, abuse or neglect. Because this information may affect the risk factors analyzed in this study, this analysis was run with two different samples. Matched sampling was used for one study. This decision was made to compensate for the differences in the original maltreatment groups and control groups. This assured, with as much accuracy as possible, that equal numbers of “high risk” students are represented in the matched comparison groups. Students were each given a risk factor number, indicating if they came from a group considered by LONGSCAN as “at-risk” or a group considered by LONGSCAN as a “comparison group.” After identifying examples with an incarcerated parent, samples matched one-to-one on the basis of risk group, race, gender, and completion of data (data were separated by the first three of these factors respectively). Once it was determined that there was an adequate number to match in risk group, race and gender, subjects with inadequate data were excluded, and then SPSS randomly selected the appropriate number of remaining subjects. Since the frequency of parental incarceration was the true variable of interest in this study, it was chosen to be the primary indicator in the selection of the matched comparison group. This technique also allowed deletion of subjects without complete data, therefore allowing for an analysis with subjects with fewer missing data issues. Four subjects that experienced a parental incarceration were excluded from the study because they lacked almost all of the dependent variables needed for analysis.

When the analysis was repeated with the full sample of LONGSCAN being used, risk group was inserted as a control. Only subjects that were missing gender and the information explained below in parental incarceration were excluded.

Missing data will affect the selection of the sample. In both samples, data were not collected each year for every sample in this study. Only subjects that answered “yes” or “no” to the questions regarding incarcerated parents were used for this study. Subjects that answered “I don’t know” to the question any time it was asked were excluded from the study.

Control Variables

Demographics serve as control variables in this study. Certain control variables (gender of child, race of child, family income (SES), parental educational attainment, coping problems and lack of support system) were of interest to this study. These variables provided more enriching data to the researcher. Descriptive data in each of these variables were provided before analysis. Descriptive data are valuable in these domains since prior research indicated that there is a discrepancy in incarceration rates based on these factors (James, 2004; Lochner & Moretti, 2001; Mumola, 2000).

In the analytic models, the relationships of these variables with the dependent variables are partialled out, in order to draw a true relationship between the independent variable and dependent variables. The first level of each model shows if there is any significant difference in each dependent model based on the control variables.

Missing data did not present many issues for demographic data. Gender was one hundred percent complete, since it was used as a selection variable. Only one subject in the full sample study was missing a race description. SES and parental educational

attainment used means throughout the years to combat missing data issues. While completeness of data was used a selection variable for the matched sample, matching upon risk group, gender and race took precedent, and therefore, there were still some variables with missing data. The matched sample had 42 subjects missing data on SES, and 32 subjects missing parental education attainment, and the full sample had 103 subjects missing data on SES, and 125 subjects missing data on parental education attainment. Subjects were excluded pairwise in each model. Missing data analysis were run, using t-tests and chi-square tests, which compared subjects with missing data to subjects with complete data.

Throughout the study, missing data was eliminated using pairwise deletion. Listwise deletion was considered, but rejected, because of the large number of subjects that would be deleted. Listwise deletion would have eliminated many of the subjects who had experienced a parental incarceration, greatly compromising the results of this study. It is recognized here that by using pairwise deletion, the sample changes for each analysis. A missing data analysis was ran, and found few substantial differences among variables of interests. However, those few differences are acknowledged as a limitation of this study and recognized that they could affect the results.

Resilience variables were also used as a control variable. Two different variables were constructed to control for individual resilience. The first variable, coping problems, was constructed using data from the Behavior Intent Scales. Hypothetical problem situations were presented to the subjects, and their responses were coded. The coping problem score used in this study started at 100 and subtracted the number of times the subject responded to the problem situation in a positive way, defined as a response

coded as help seeking, compromise or verbal assertion. The higher the score, the less likely the subject was to use positive problem solving skills to solve a problem. Data were available for these data for n=496 in the matched sample, and n=1051 for the full sample. Pairwise deletion was used for the missing data. Missing data analysis found no significant difference in any of the dependent variables.

The second measure of resilience was the lack of support system. This variable was created by data from the Inventory of Supportive Figures. This variable was constructed by adding all the different ratings the children gave measuring the ways they felt when supported by different supportive figures. This figured was then reversed to represent an absence of support. Data were available for 542 subjects in the matched sample and 1140 in the full sample. Pairwise deletion was used for the missing data. Missing data analysis found no significant difference in any of the dependent variables.

Attachment to Parents

Attachment to parents was created by using data in the survey given to the subjects labeled “My Family and Friends” and taking the mean of the scores that measured the closeness to the subject’s father and the closeness to the subject’s mother. These scores were then collapsed into groups that were plus one or minus standard deviation⁷ to address non-normality issues and reverse coded so that a higher number indicated the presence of an attachment problem. Data on this variable were available for 459 subjects in the matched sample and 965 subjects in the full sample. Pairwise deletion was used for the missing data.

⁷ Collapsing +1/-1 standard deviation was a technique used on several variables throughout the study. By placing a continuous variable into bins, based on an even increment, a smaller variance of the variable is created, responding to the inherent nonlinearities in the data. SPSS analyzes the variable to choose an appropriate number of groups,

Dependent Variables

These constructs were used to answer the following research questions:

- How does the relationship between attachment to parents and psycho-social (post-traumatic stress or self esteem) variables differ based on episodes of parental incarceration?
- Do psycho-social variables or educational outcomes differ based on episodes of parental incarceration?

Psycho-Social Constructs: Self-Esteem and Post-Traumatic Stress. The self esteem rating came from the Social Concern Scale, and measured how well children felt they were meeting the expectations of others.

The post-traumatic stress construct is a subscale from the Trauma Symptoms checklist. Examples of questions used to compile this score can be seen in Table 3.2.

These scales presented some missing data issues, as they were only completed once by each subject, and means could not be used to combat missing data issues. The matched selection sample had 499 subjects with self esteem data, and 497 subjects with post-traumatic stress data. The full sample had 1060 and 1049 subjects with data, respectively. Although missing data for this variable were somewhat higher than expected, there were no alternative measures of these variables. Since the remaining data size was still acceptable for the number of variables, pairwise deletion was used.

Educational outcomes constructs included academic, behavioral and social variables. The academic performance construct was compiled by using the means of the Teacher Report Form's academic performance score, which is an average of the teacher's rating of the student's success in each subject and the School Scale Score from the Child

Behavior Checklist, which is the parents' report of average grades, special and remedial classes and repeated grades. These scores were highly correlated in both the matched and full sample ($r=.50^{**}$; $r=.51^{**}$ respectively). These scores were then collapsed into groups to adjust for non-normality at \pm one standard deviation, and reversed, to represent an indication of academic problems on the scale of 1-4. After these measures were taken, the matched selection had all subjects with complete data, and the full selection had 967 subjects with data on this variable.

Behavioral outcomes were measured with two different variables. For the specific behavior research question, there was an internalization score, and an externalization score. While these two variables were highly correlated in both the matched and selection samples ($r=.53^{**}$, and $r=.58^{**}$, respectively), they were kept as two different scores, since they are measuring two different types of behaviors. These scores were calculated by using the means of the scores from ages 6-9 from the Teacher Report Form subscales and combining them with the means of the scores from ages 6-9 of the Child Behavior Checklist subscales. These two tools are made to coincide and since they were significantly correlated (internalized subscales $r=.10^{**}$, externalized subscales $r=.34^{**8}$), the combinations of the two subscales reflect the average opinion of the child's parents and teachers. This combination also allowed for no missing data in both samples.

Likewise, social performance was measured using a combination of the means from ages 6-9 from the Teacher Social Rating Checklist, which is a subscale of the Teacher Report Form and the Child Behavior Checklist social sub-score. Again, these scores were significantly correlated ($r=.28^{**}$). This combination allowed for no missing

⁸ Correlations based on full sample.

data in both samples. Examples of questions used in this subscale can be found in Table 3.2.

Models

The following section will outline the models chosen to answer the research questions of this study. ANOVAS, correlations and regression models were used to answer the research questions.

ANOVAs and Correlations

ANOVAS were conducted to show if there were any significant differences between the three groups (children that never had a parental incarceration, children that experienced one parental incarceration, and children that experienced more than one parental incarceration), among the continuous variables. This was followed by Tukey's Post Hoc tests to further examine the significant differences. Correlations were examined among all the continuous variables.

Regression Models

The sequential regression method allowed variables to be entered one at a time, allowing for any difference to be credited to the variable entered at the step the difference was found. This was the appropriate method because the research questions essentially want to know how episodes of parental incarceration altered specific relationships among variables. This method allowed episodes of parental incarceration, the variable of main interest, to be plugged in at its own step, therefore allowing all differences in correlations to be attributed to its presence.

It is important to distinguish between the hierarchical regression model chosen for this study and a stepwise regression model. While a stepwise model would result from

making assumptions about the amount of variance each variable attributes, a sequential regression does not make these assumptions. A hierarchical regression adds one variable at a time so its individual influence can be examined, without any assumption on the basis of how much variation the variables explain. Therefore, while a stepwise model would make costly assumptions and would not be appropriate for this study, a hierarchical regression model avoids making these assumptions and consequently is an appropriate model for conceptual reasons.

Because there are two different sets of dependent variables—psycho-social and educational outcomes—two different sets of models are used. Models A and B describe regression using psycho-social variables as the dependent variables, and models C through F use educational outcomes as the dependent variables.

Psycho-Social Models A-B. These models will answer the research questions:

1. Do episodes of parental incarceration change the relationship between how attachment to parents is related to psycho-social variables (post-traumatic stress or self esteem)?
2. Do psycho-social variables differ based on episodes of parental incarceration?

Models A and B (See Table 3.3 for descriptions, and Figure 3.1 for a diagram) use the psycho-social variables labeled post-traumatic stress and self esteem as dependent variables.

Block 1 checks the correlations between the control variables and the psycho-social variables. The basic Pearson correlation model is used.

Table 3.3. Models with Psycho-Social Dependent Variables

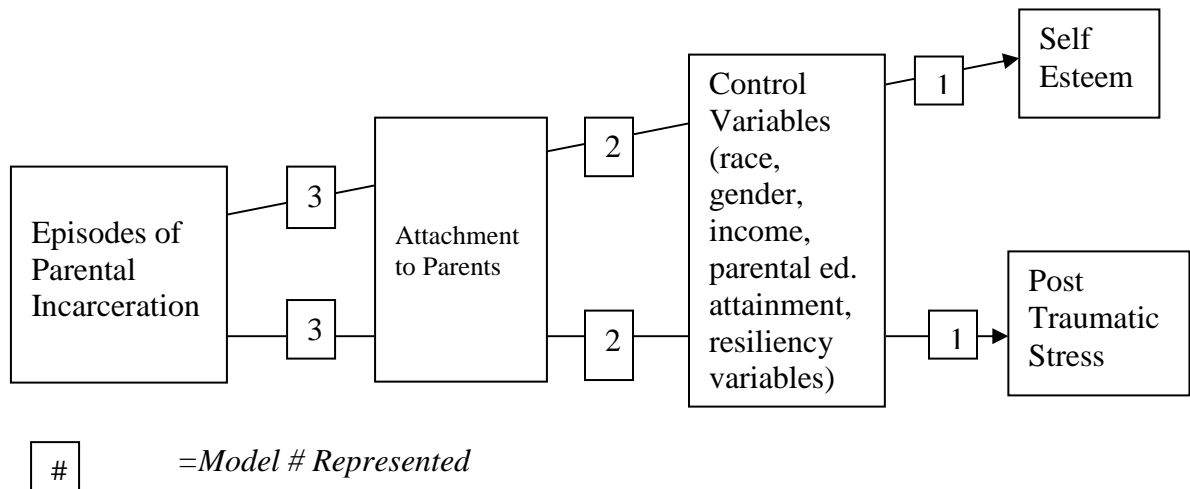
Model 1	Model 2	Model 3
Control Variables	Model 1 + Attachment to Parent	Model 2 + Episodes of Parental Incarceration
DEPENDENT VARIABLES: POST TRAMAUTIC STRESS AND SELF ESTEEM		

Block 2 took Block 1 and added to it the attachment to parents variable. This showed how the control factors and the attachment to parents intervene to predict the psycho-social variables. This model tested attachment to parents as a continuous moderator between the control factors and the psycho-social variables. The following model isolated the influence of control factors and attachment to parents on psycho-social variables.

$$r_{y(1) \bullet y(2)} = \frac{r_{y2} - r_{y1}r_{12}}{\sqrt{(1 - r_{y1}^2)} \sqrt{(1 - r_{12}^2)}}$$

(Wendorf, 1997)

Figure 3.1 Diagram of Models A-B with Psycho-Social Dependent Variables.



Block 3 took Block 2 and added to it the episodes of parental incarceration. This model used parental incarceration as a moderator, in order to show how the relationships between control factors and attachment to parents with psycho-social variables are altered by episodes of parental incarceration. This also tested for a direct relationship between episodes of parental incarceration and psycho-social variables.

In multiple regression, this model showed the change of y while based on the change of x, while controlling for other factors.

$$\Delta\check{Y} = \beta_1\Delta x + \beta_2\Delta y + \beta_3\Delta z$$

where β_1 = OLS slope estimate

(Cengage Learning, 2007)

Completion of these three models suggests whether or not episodes of parental incarceration altered the relationship between attachment to parents and psycho-social

variables. This indicated whether or not parental incarceration is an important predictor variable on these specific psycho-social variables.

Educational Outcomes Models C-E. These models answered the research questions:

1. Do episodes of parental incarceration change the relationship between psycho-social variables (self-esteem and/or post traumatic stress) and educational variables (social, behavioral and academic performance)?
2. Do psycho-social variables differ based on episodes of parental incarceration?

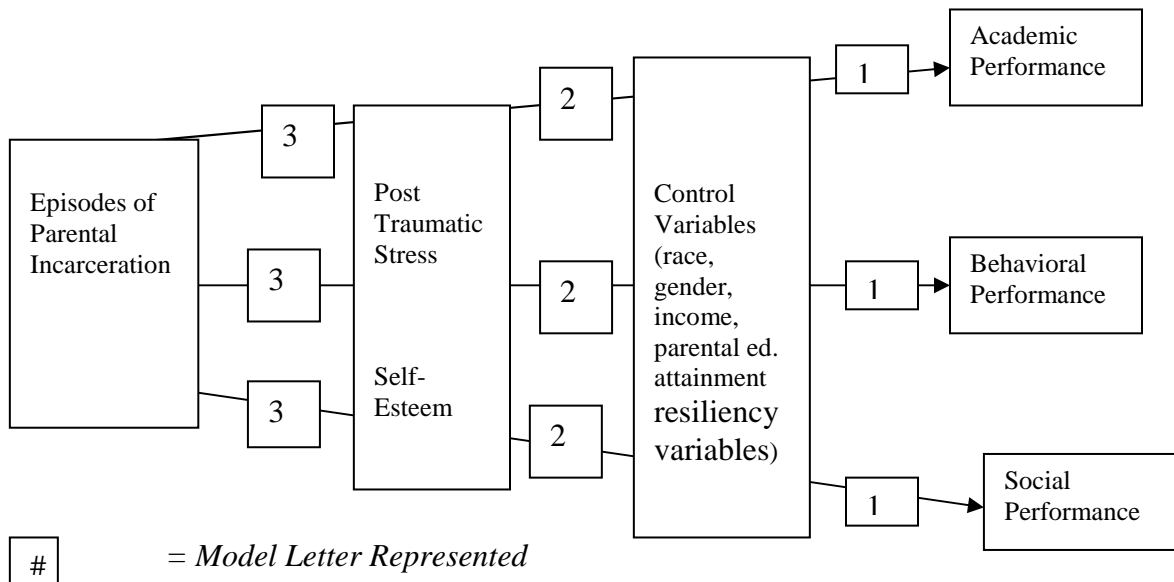
These models followed a similar format of Models A and B, but used the educational outcomes as the dependent variables. (See Table 3.4 for descriptions and Figure 3.2 for a diagram)

Block 1 is identical to Block 1 in Models A and B, only using educational outcomes as the dependent variables. Block 2 took Block 1 and added to it the psycho-social variables. This block showed how the psycho-social variables are related to the educational outcomes while using the controls. Block 3 took Block 2 and added to it the episodes of parental incarceration. This step showed how episodes of parental incarceration changed the relationship between the psycho-social variables and educational outcomes, while using controls. This important step indicated if episodes of parental incarceration strengthens or weakens the relationship between psycho-social variable and educational outcomes. This tested parental incarceration as a moderator of the relationship between psycho-social variables and educational outcomes. It also

Table 3.4. Models with Educational Dependent Variables

Model A	Model B	Model C	Model D
Control Variables	Model A + Self Esteem and Post Traumatic Stress	Model B + Episodes of Parental Incarceration	Model C + Interaction Between Self-Esteem and Post Traumatic Stress and Episodes of Parental Incarceration
DEPENDENT VARIABLES: EDUCATIONAL OUTCOMES			

Figure 3.2. Diagram of Models C-F with Educational Outcome Variables.



examined the direct relationship between episodes of parental incarceration and educational outcomes.

Hierarchical regression was performed in SPSS by using blocks (DeCoster, 2007). A new block represents each new model. For each model, the multiple correlations (R) between the independent variables and the dependent variable are reported, as well as the amount of variance in the dependent variable that can be attributed to the independent variable (R^2). The model of fit is an adjusted R^2 , which is adjusted for the number of independent variables in the model. Hierarchical regression also runs ANOVAs to see if the difference in the dependent variables that is attributed to the independent variables is significant.

Section Summary

The analysis of the data in this study was based on the constructs identified in the conceptual model in Chapter Two. The variables were adjusted and measured, and underwent preliminary tests. Issues of missing data and non-normality were combated using means, combining and replacing variables, collapsing into groups based on standard deviation, and pairwise deletion. ANOVAs and correlations were used to explore relationships among variables. The impact that episodes of parental incarceration have on psycho-social variables and educational outcomes variables was tested using sequential OLS regression models.

CHAPTER 4

RESULTS

Of the eight psycho-social and school outcomes tested, only externalized behavior problems followed the path predicted by theory and prior research. As the results will show specifically, externalized behavior problems showed a significant relationship with parental incarceration, as well as a significant change in psycho-social impact, based on parental incarceration. The other psycho-social variables (post-traumatic stress and self-esteem) did not show a significant relationship with parental incarceration (after controls were put in place), and the remaining school outcomes (social problems, academic problems and internalized behavior problems) showed neither a relationship with parental incarceration nor an increased impact of the psycho-social variables after the addition of parental incarceration to the model. Attachment to parents was a significant predictor of self-esteem in the full sample regression model, but was not a significant predictor of post-traumatic stress syndrome.

While attention to the lack of findings leads to conclusions, it is also imperative to not undermine the one set of models that did support the conceptual model—the externalized behavior problem models. This model shows that externalized behavior problems are predicted by both self esteem and post- traumatic stress, and when parental incarceration is added, these relationships remain significant, as is the relationship between parental incarceration and externalized behavior problems. Conceivably,

externalized behavior problems may be the most visible and glaring type of “school outcomes” that dominated the literature used to create the conceptual framework.

Selection and Merging of Variables

While the codebook (see Appendix A) and plan in the method section offers specific details on how variables were selected, merged and recoded, this section will highlight the choices that impact the ability of a reader to understand the results.

First of all, since the variable of interest – frequency of parental incarceration – theoretically increases with the enhancement of a problem, all of the variables were recoded to represent such a relationship. Therefore the numbers that represent self-esteem are called “self esteem problems” and the presence of a support system was recoded so that the variable could be called “lack of a support system.” This task was conducted to increase the readability of the results.

Second of all, there were many missing data issues which were combated with the use of means between highly correlated variables, or means of the same variable collected at different ages. Significantly, behavior scores used a mean of the Child Behavior Checklist, which was conducted by parents, and the Teacher Report Form. Therefore, the scores represent a mean between the opinions of the two.

Composite Scores: Reliability Tests

This study implemented many composite scores pre-calculated by LONGSCAN. Cronbach’s alphas were computed to test the internal reliability of any composite used that was composed of more than three items. These analysis were conducted with the entire LONGSCAN sample.

Post-traumatic stress ($\alpha=.82$), academic problems ($\alpha=.92$), Teacher's Report Form social rating ($\alpha=.82$), teacher's report form externalized behavior problem scale ($\alpha=.95$), child behavior checklist externalized behavior problem scale ($\alpha=.93$) and attachment to father ($\alpha=.71$) were all found to be highly reliable. However, several of the remaining composites were below the acceptable minimum of .70. Some composites that had lower reliabilities were combined with a highly correlated variable that had a higher reliability rating. Attachment to mother ($\alpha=.67$) was combined with attachment to father, to create the variable "attachment to parents," resulting in a Cronbach's alpha of .74. The social rating from the Child's Behavior Checklist (Cronbach's $\alpha=.60$) was combined with the aforementioned Teacher's Report Form social rating, resulting in an alpha of .81. Both measures used to compose the internalized behavior problems score were slightly under the acceptable Cronbach's alpha, as the Teacher Report Form had an alpha of .66 and the Child Behavior Checklist had an alpha of .70, but when combined, the reliability increased, resulting in a Cronbach's alpha of .76. Yet, there were still some variables that were slightly below acceptable range, but could not be combined with any other variables. The self esteem rating, taken from the Scale of Social Concerns, had a Cronbach's alpha of .56. LONGSCAN reports this as low, but does not advise against its use. LONGSCAN justifies the use of the Child Behavior Checklist subscales by stating that it is one of the most highly used scales of child psychopathology and pointed out that it is normalized on a national level (Hunter et al., 2001). Similarly, LONGSCAN discusses how the "TRF is perhaps the most widely used teacher report measure of these constructs," (Hunter et al., 2002, 520). Being that this was used in a study by such a respectable university, the

composites will be used in this study. However, the fact that specific scores were less than acceptable according to alpha levels will be something that is kept in mind when analyzing the findings.

Any composites created specifically for this study did not combine more than three specific survey questions, but rather, averaged different composite scores. All of these combinations (which are described in the methods sections) were made with composite scores that were significantly correlated with one another.

Two Samples

As the method section prescribed, this study was done with two different samples. In the matched sample study, subjects with parental incarceration were matched with subjects in the same original maltreatment group, without parental incarceration. This was done, but little significance was found. The implications of the lack of findings will be discussed further in the discussion section.

Next, the full LONGSCAN sample, minus a few selected subjects who were missing relevant data, was used as the same study was repeated. Both results will be presented in this section and the implications of needing two different samples will be discussed in the discussion section.

Sample One: Matched Sample

Selection

This sample was selected in the way described in the methods section. The total sample size was 610, 305 subjects who had experienced a parental incarceration and 305 subjects who had not. The original sample was labeled 1-4, based on whether it was composed of subjects that were considered at risk at the original selection time, and

whether there was a parental incarceration. The number of control subjects from all four groups matched the number of subjects that had experienced parental incarceration from each group. The entire samples of children with incarcerated parents were selected⁹, and SPSS randomly selected an equal number of students that did not have parental incarceration from the two remaining groups.

Missing Data

Missing data presented issues throughout this study. To reduce methodological problems associated with missing data, many variables were combined with other variables, which were significantly correlated, usually using means. Details of this can be found in the codebook. Data were excluded using pairwise deletion during the regression models. This decision was made in order to include the most possible samples in the analysis.

A missing data analysis was completed to see if subjects who were missing data on any of the first block variables scored significantly differently in any of the block two or block three variables than subjects that had complete block one data. T-tests showed that the only variable that differed significantly based on completeness of any first block variable was frequency of parental incarceration. Cases who had missing data for any first block variable, had an average score on the variable "frequency of PI", that was .22 units lower than the average for cases who had complete block one data ($t=-3.42^{***}$).

A missing data analysis was also completed to see if subjects who were missing data on any block two, block three or dependent variable, scored significantly differently

⁹ It should be noted that the matched sample selection did exclude four subjects that had experienced parental incarceration, due to a substantial lack of data. While in the full sample, pairwise deletion would eliminate these subjects in most analysis, the decision was made to delete them prior to any analysis in the matched sample selection in order to maintain as close to equal numbers between selection groups in each regression model. These four subjects were found to add very little data to the study.

than subjects with complete data on any of the variables that would appear in the same regression model. T-tests showed that the only significant difference was between subjects with missing academic problem data and subjects with complete academic problem data on the variable frequency of parental incarceration. Cases who had missing data for academic problems had an average score on frequency of parental incarceration, that was .3 units lower than the average for cases who had academic problem data ($t=4.80^{***}$).

Descriptives

The independent variable, parental incarceration, was calculated based on frequency and then collapsed into three groups—children who have never experienced a parental incarceration, children who have experienced one episode of parental incarceration, and children who have experienced more than one episode of parental incarceration. Descriptive details will be provided on these three groups.

As the data in Table 4.1 show, the demographic numbers were fairly even between the control sample and the subjects that had experienced parental incarceration. Gender is within three percent of being even, and the only racial group that has more than a five percent discrepancy is multi-racial. This was due to the large portion of multi-racial that had experienced parental incarceration, as compared to the remaining multi-racial subjects.

Further descriptive statistics are included in Appendix B.

Test for Normality

Next, the measures were tested for normality. This was done by measures of skewness and kurtosis. The majority of the variables were normally distributed. The

Table 4.1. Matched Sample: Demographic Frequencies

Variable	Total	0 Episode	1 Episode	More than 1 Episode
Total				
<u>n</u>	610	305	190	115
<u>%</u>		50%	31%	19%
Male				
<u>n</u>	307	149	105	53
<u>%</u>	50 %	48%	34%	17%
Female				
<u>n</u>	303	156	85	62
<u>%</u>	50%	51%	28%	20%
At Risk				
<u>n</u>	372	186	116	70
<u>%</u>	61%	50%	31%	19%
White				
<u>n</u>	158	76	45	37
<u>%</u>	26%	48%	28%	24%
African American				
<u>n</u>	319	174	99	46
<u>%</u>	52%	55%	31%	14%
Multi-racial				
<u>n</u>	82	29	27	26
<u>%</u>	13%	35%	33%	32%
Other Race				
<u>n</u>	51	26	19	6
<u>%</u>	8%	51%	37%	12%

*Note: Total Percentages are based on the total sample size (610) but percentages in each of the subcategories are based on the n for that variable. For example, the percentages in 0 Episode, Male shows what percentage of the total Males experienced 0 episodes of parental incarceration.

codebook presented in Appendix A gives exact information about the procedures taken to normalize data that originally were not normally distributed. When analysis was conducted, SES problems and lack of parent Education were platykurtic (-1.45, SD .21; -1.45, SD 2.03), problems with attachment to parents was very slightly positively skewed (1.12, SD .11) and social problems was slightly positively skewed (1.16, SD .10) and leptokurtic (1.60, SD .20). Figure 4.1 shows the frequency distributions and normal curves for each variable that remained non-normal at the time of analysis. While these non-normal variables presented some hesitance to use regression models for analysis, LONGSCAN did not advise against proceeding in this matter. Appendix C provides full results of the tests for skewness and kurtosis.

ANOVAS

ANOVAS, as shown in Table 4.2, were conducted to see if there were any significant differences between the three groups (children that never had a parental incarceration, children that experienced one parental incarceration, and children that experienced more than one parental incarceration). These ANOVA's found only one significant difference—in coping problems ($F=4.16^*$). A Tukey's Post Hoc Test was then conducted to further analyze this difference and it was found that the group that never had a parental incarceration had significantly higher coping problems scores than the group that had experienced more than one parental incarceration ($p=.01^*$). Because this difference in coping skills may have altered the relationships between the dependent variables and parental incarceration, coping problems were inserted into the model as a control variable. Means for each group can be found in Appendix B.

Figure 4.1. Matched Sample: Non-Normal Variables

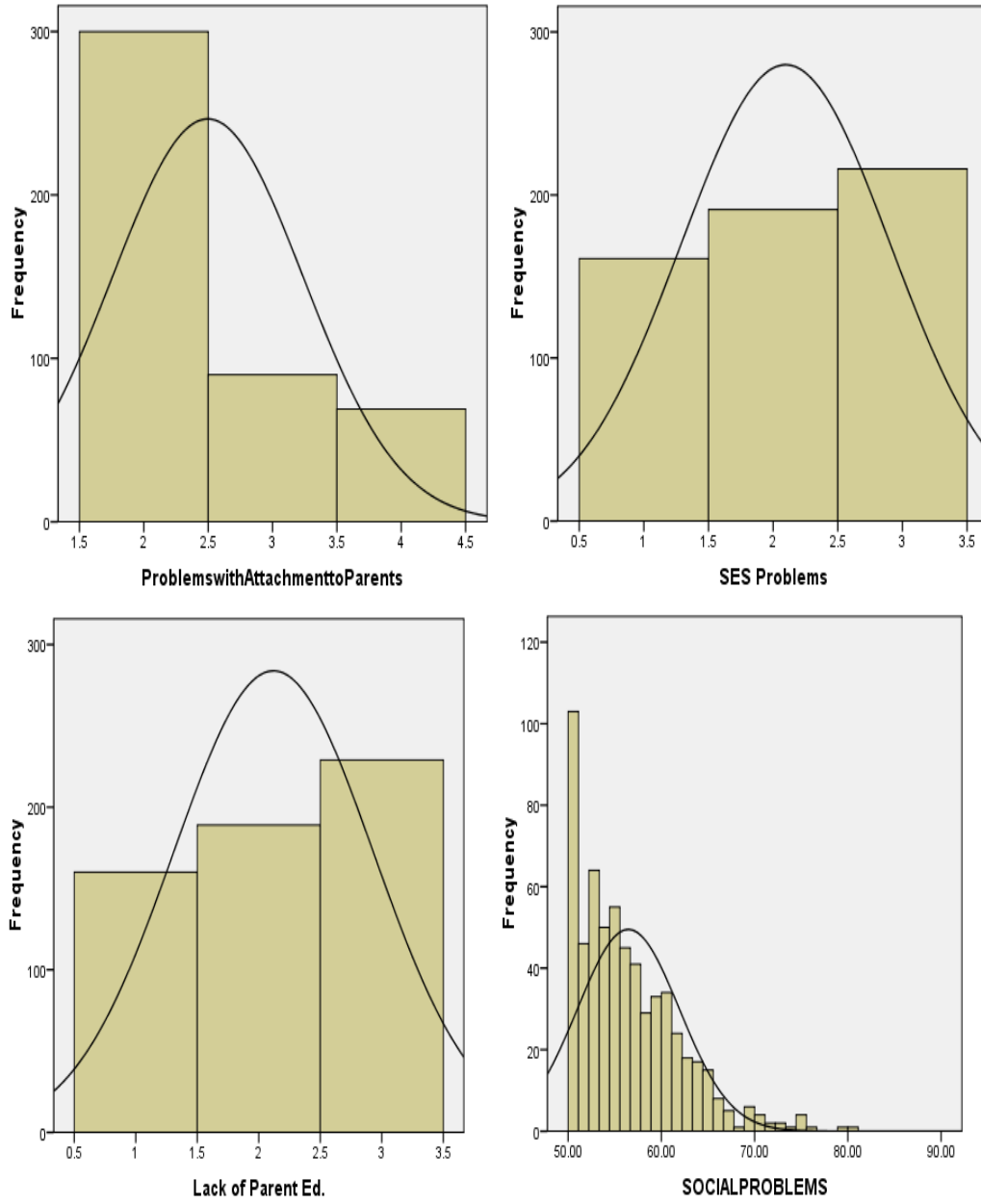


Table 4.2. Matched Sample: ANOVAS Using Frequency of Parental Incarceration as Grouping Variable.

<u>Source and Variable</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Lack of Parent Education					
Between Groups	2	3.68	1.84	2.81	.06
Within Groups	575	377.08	.66		
SES problems					
Between Groups	2	2.19	1.09	1.67	.19
Within Groups	565	369.49	.65		
Self Esteem Problems					
Between Groups	2	5.12	2.56	.80	.45
Within Groups	496	1580.48	3.19		
Post-traumatic Stress					
Between Groups	2	89.11	44.55	.91	.40
Within Groups	494	24262.95	49.12		
Internalized Behavior Problems					
Between Groups	2	1.16	.58	.01	.99
Within Groups	607	30001.04	49.43		
Externalized Behavior Problems					
Between Groups	2	242.71	121.35	1.67	.19
Within Groups	607	44048.27	72.57		
Social Problems					
Between Groups	2	58.62	29.31	.98	.38
Within Groups	607	18106.17	29.83		
Lack of Support					
Between Groups	2	260.43	130.21	1.11	.33
Within Groups	539	63092.39	117.06		
Academic Problems					
Between Groups	2	.04	.02	.02	.98
Within Groups	462	370.76	.80		
Coping Problems					
Between Groups	2	4975.98	2487.99	4.16	.02*
Within Groups	493	294674.11	597.72		
Problems with attachment to parents					
Between Groups	2	.03	.01	.02	.98
Within Groups	456	252.72	.55		

*p<.05

Correlations

The Pearson correlations are reported in Table 4.3. Primarily of concern are the variables that are significantly correlated with frequency of parental incarceration. Lack of parental education had a positive correlation with frequency of parental incarceration ($r=.10^*$), showing that as parental education went down, frequency of parental incarceration increased. Consistent with the results of the ANOVA, coping problems had a negative correlation ($r=-.12^*$), showing that students who experienced episodes of parental incarceration had less coping problems. Further descriptive statistics on these three groups are available in Appendix B.

Table 4.3. Matched Sample Intercorrelations Between Control Variables, Psycho-Social Outcomes, Educational Outcomes and Frequency of Parental Incarceration

Var.	1	2	3	4	5	6	7	8	9	10	11	12
1. PI	—	.10*	.03	-.12**	.06	.06	.03	-.01	-.01	-.03	.00	.06
2.L. PE		-----	.01	.06	.32**	-.01	.02	.11*	.09*	.04	.09*	.02
3. L. SS			-----		.01	.06	.05	.11*	.11*	.06	.19**	.08
4. Cop.				-----	.09	.00	.00	.04	.03	.07	.10*	.12**
5. SES					-----	.00	-.05	.00	.01	-.03	-.07	-.02
6. SE						-----	.23**	.12**	.16**	.19**	.15**	.16**
7. PTS							-----	.12**	-.01	.12**	.11*	.14**
8. Att.								-----	.03	.00	.02	-.01
9. Aca.									-----	.38**	.30**	.30**
10. Soc.										-----	.65**	.63**
11. IB											-----	.56**
12. EB												-----

Notes. *p.05, ** p<.01. L. PE= Lack of Parent Education; L. SS= Lack of Support System; Cop.=Coping Problems; SES=SES Problems; SE=Self Esteem Problems; PTS= Post Traumatic Stress; Att.= Attachment Problems; Aca.= Academic Problems Soc=Social Problems; IB=Internalized Behavior Problems and EB= Externalized Behavior Problems

Other interesting correlations were found among the dependent variables. Self esteem was found to be significantly positively correlated with all future dependent variables, including post-traumatic stress ($r=.23^{**}$), academic problems ($r=.16^{**}$), social problems ($r=.19^{**}$), internalized behavior problems ($r=.15^{**}$) and externalized behavior

problems ($r=.16^{**}$). Post traumatic stress was also significant positively correlated with all dependent variables, with the exception of academic problems.

Regressions

Next the regression models were conducted. The variables were entered in blocks. In all models, block 1 contained the control variables, which included initial risk group, gender, race, lack of parent educational attainment, SES, lack of support system and coping problems. The second and third blocks differed based on the model. Full results of the regressions can be found in Results Tables 4.4-4.9. A brief description of the results follows.

Psycho-social models

Model A and Model B used self esteem problems and post-traumatic stress respectfully, as the dependent variables. In block two, problems with attachment to parents was inserted. These models aimed to answer the first research question of the study.

How does the relationship between attachment to parents and psycho-social variables (self esteem and post-traumatic stress) differ based on episodes of parental incarceration?

And the first half of the second research question, rephrased as:

Do psycho-social variables differ based on episodes of parental incarceration?

Model A, using self esteem problems as the dependent variable, found that while problems with attachment to parents significantly altered the model ($p\Delta F=.02^*$), there was no significant change in self esteem problems or in the relationship between

problems with attachment to parents and self esteem problems, when frequency of parental incarceration was added to the model ($p\Delta F=.29$). Furthermore, the model without frequency of parental incarceration explained 4 percent of the variance ($r^2=.04$) in self esteem problems, as did the model with frequency of parental incarceration indicating no significant change. Full results of Model A can be found in Table 4.4.

Model B, using post-traumatic stress as the dependent variable, found there was no significant difference when problems with attachment to parents ($p=.77$) was added to the model or when frequency of parental incarceration ($p=.81$) was added to the model. In fact, these variables interacted with the controls variables to decrease the adjusted r^2 (.03, .02, .02; Blocks 1-3 respectively). However, it was found that the initial risk group was a significant predictor in all three blocks of the model ($\beta=.13^{**}$). The implications of this finding will be discussed in the discussion section. Full results of Model 2 can be found in Table 4.5

Educational Outcomes Models

Models C-F looked at the educational outcomes. In block two of these models, the psycho-social variables (post- traumatic stress and self esteem problems) were inserted.

The goals of these models were to answer the other portion of research question two:

Do educational variables differ based on episodes of parental incarceration?

Model C used academic problems as the dependent variable. It was found that while there was a significant change in the model when the psycho-social variables were entered ($p\Delta F=.004^{**}$), there was no significant change in the model when frequency of

Table 4.4. Matched Sample Regression Model A: Models with Self Esteem as Dependent Variable

	Models 1		Model 2		Model 3	
	β	t	β	t	β	t
Constant		5.66***		3.65***		3.52***
White	.09	1.76	.08	1.57	.08	1.47
Multi-racial	.02	.31	.01	.18	.00	.02
Other	.04	.70	.03	.63	.03	.65
Male	.17	1.37	.07	1.58	.08	1.56
SES	.03	.49	.02	.42	.02	.36
Risk Factor	.10	2.07*	.10	2.08*	.10	2.08*
Lack of Parent Ed.	-.01	-.18	.00	.63	.00	-.08
Lack of Support	.04	.87	.03	.61	.03	.59
Coping Problems	-.01	-.11	-.01	-.28	-.01	-.15
Attachment Problems			.12	2.41*	.12	2.42*
Freq. of PI					.05	1.06

Model Summary									
Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					ΔR^2	ΔF	df1	df2	P ΔF
1	.16	.03	.00	1.78	.03	1.18	9	414	.30
2	.20	.04	.02	1.77	.01	5.81	1	413	.02*
3	.20	.04	.02	1.77	.00	1.13	1	412	.29

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

Table 4.5. Matched Sample Regression Model B: Models with Post Traumatic Stress as Dependent Variable

	Models 1		Model 2		Model 3	
	β	t	β	t	β	t
Constant		4.56***		3.76***		3.71***
White	.15	2.79**	.14	2.75**	.14	2.72**
Multi-racial	.12	2.29*	.12	2.27*	.11	2.20*
Other	.07	1.34	.07	1.33	.07	1.33
Male	.00	-.04	.00	-.02	.00	-.02
SES	-.03	-.48	-.03	-.49	-.03	-.50
Risk Factor	.13	2.69**	.13	2.68**	.13	2.68**
Lack of Parent Ed.	.03	.60	.03	.62	.03	.60
Lack of Support	.04	.72	.03	.68	.03	.68
Coping Problems	.03	.51	.03	.49	.03	.52
Attachment Problems			.014	.29	.01	.29
Freq. of PI					.01	.24

Model Summary										
Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics					
					ΔR^2	ΔF	df1	df2	P ΔF	
1	.21	.05	.03	6.92	.05	2.21	9	414	.02*	
2	.21	.05	.02	6.93	.00	.09	1	413	.77	
3	.22	.05	.02	6.93	.00	.06	1	412	.81	

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

parental incarceration was entered ($p\Delta F=.71$). Model C accounted for 5 percent of the variance in academic problems ($r^2=.05$), with self esteem problems being the highest predictor ($\beta=.17^{***}$) and lack of parental education attainment ($\beta=.11^*$) and lack of support ($\beta=.10^*$) being the other significant predictors. Full results can be found in Table 4.6.

Model D used internalized behavior problems as the dependent variable. It was found that while inserting the psycho-social variables changed the model significantly ($p\Delta F=.005^*$), frequency of parental incarceration had no significant effect on the model. The full model explained 9 percent of the variance in internalized behavior problems ($r^2=.09$), with lack of support being the most significant predictor ($\beta=.17^{***}$) and other significant predictors including self esteem problems ($\beta=.12^*$), lack of parental educational attainment ($\beta=.12^*$), and SES problems ($\beta=-.11^*$). Full results can be found in Table 4.7.

Model E used externalized behavior problems as the dependent variable. While the psycho-social variables changed the model significantly ($p\Delta F=.00$), frequency of parental incarceration changed the model slightly, and was not statistically significant ($p\Delta F=.20$). The completed model explained 7 percent of the variance in externalized behavior problems ($r^2=.07$). Self esteem problems were the strongest predictor ($\beta=.14^{**}$), while coping problems ($\beta=.12^{**}$) and post-traumatic stress ($\beta=.04^*$) contributed significantly. Frequency of parental incarceration ($\beta=.06$) was not statistically significant. Full results can be found in Table 4.8

Model F used social problems as the dependent variable. Once again, psycho-social variables changed the model significantly ($p\Delta F=.00^{**}$), but frequency of parental

Table 4.6. Matched Sample Regression Model C: Models with Academic Problems as Dependent Variable

	Models 1		Model 2		Model 3	
	β	t	β	t	β	t
Constant		8.46***		7.53***		7.52***
White	.01	.09	.00	-.03	.00	.00
Multi-racial	-.02	-.46	-.02	-.36	-.02	-.30
Other	.01	.13	.01	.10	.01	.10
Male	-.01	-.13	-.02	-.36	-.02	-.35
SES	-.02	-.44	-.03	-.56	-.03	-.54
Risk Factor	.06	1.26	.06	1.09	.06	1.09
Lack of Parent Ed.	.10	1.87	.10	1.96	.11	1.98*
Lack of Support	.11	2.12*	.10	2.04*	.10	2.05*
Coping Problems	.03	.58	.03	.64	.03	.59
Post Tram. Stress			-.01	-1.30	-.07	-1.28
Self Esteem Prob.			.17	3.30***	.17	3.31***
Freq. of PI					-.02	-.37

Model Summary									
Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					ΔR^2	ΔF	df	df2	P ΔF
1	.16	.03	.00	.89	.03	1.16	9	387	.32
2	.23	.05	.03	.88	.03	5.61	2	385	.00***
3	.23	.05	.03	.88	.00	.14	1	384	.71

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

Table 4.7. Matched Sample Regression Model D: Models with Internalized Behavior Problems as Dependent Variable

	Models 1		Model 2		Model 3	
	β	t	β	t	β	t
Constant		27.91***		25.79***		25.67***
White	.07	1.35	.05	.93	.05	.94
Multi-racial	.01	.23	.00	.03	.00	.06
Other	.01	.19	.00	.00	.00	.00
Male	.03	.62	.02	.45	.02	.46
SES	-.10	-2.11*	-.11	-2.16*	-.11	-2.14*
Risk Factor	-.02	-.42	-.04	-.88	-.04	-.88
Lack of Parent Ed.	.12	2.37*	.11	2.38*	.16	2.38*
Lack of Support	.18	3.90***	.17	3.76***	.17	3.76***
Coping Problems	.09	1.96	.09	1.96	.09	1.92
Post Tram. Stress			.07	2.36	.07	1.42
Self Esteem Prob.			.12	2.56*	.12	2.57*
Freq. of PI					-.01	-.20

Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					ΔR^2	ΔF	df	df2	P ΔF
1	.26	.07	.05	6.84	.07	3.64	9	447	.00***
2	.30	.09	.07	6.78	.02	5.30	2	445	.01*
3	.30	.09	.07	6.79	.00	.05	1	444	.85

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

Table 4.8. Matched Sample Regression Model E: Models with Internalized Behavior Problems as Dependent Variable

	Models 1		Model 2		Model 3	
	β	t	β	t	β	t
Constant		25.63***		23.50***		23.30***
White	-.01	-.33	-.05	-.89	-.05	-.98
Multi-racial	.07	1.49	.06	1.21	.05	1.01
Other	-.03	-.71	-.05	-.97	-.05	-.95
Male	.01	.25	.00	.06	.00	.03
SES	-.04	-.86	-.04	-.90	-.05	-.97
Risk Factor	.03	.65	.00	.07	.00	.08
Lack of Parent Ed.	.03	.61	.03	.58	.02	.47
Lack of Support	.07	1.52	.06	1.33	.06	1.32
Coping Problems	.12	2.45	.12	2.45*	.12	2.59**
Post Tram. Stress			.10	2.16*	.10	2.16*
Self Esteem Prob.			.14	2.91**	.14	2.85**
Freq. of PI					.06	1.28

Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					ΔR^2	ΔF	df	df2	P ΔF
1	.18	.03	.01	8.48	.03	1.58	9	447	.12
2	.26	.07	.04	8.35	.04	8.27	2	445	.00***
3	.26	.07	.04	8.34	.00	1.64	1	444	.20

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

incarceration did not. The full model explained 6 percent of the variance ($r^2=.06$). Self esteem problems were the only significant predictor ($\beta=.17^{***}$). Of interest was that frequency of parental incarceration had a negative beta weight (-.04), however, it was not statistically significant. Full results can be found in Table 4.9.

Conclusion

To answer both research questions, according to the results yielded from running the regression models with the matched sample selection, there is no significant change in the relationship between attachment to parents and psycho-social variables based on frequency of parental incarceration, and there is no altering of psycho-social variables or educational outcomes based on the frequency of parental incarceration. However, these models did confirm a strong relationship between the psycho-social variables and educational outcomes.

Sample Two: Full LONGSCAN Sample

Selection

This analysis used the full available LONGSCAN sample. Seventy-six subjects were excluded from this study due to a substantial lack of data, including demographics deemed necessary for the study (either missing data on the incarceration of parents or gender). Therefore, this sample has a size of 1274.

Missing Data

Pairwise deletion was used throughout the regression models. A missing data analysis was completed to see if subjects who were missing data on any of the first block variables scored significantly differently in any of the block two or block three variables

Table 4.9. Matched Sample Regression Model F: Models with Social Problems as Dependent Variable

	Models 1		Model 2		Model 3	
	β	t	β	t	β	t
Constant		41.24***		38.62***		38.51***
White	.05	1.05	.03	.55	.03	.61
Multi-racial	.00	.08	-.01	-.14	-.00	-.02
Other	-.06	-1.16	-.07	-1.40	-.07	-1.41
Male	.01	.14	-.04	-.09	-.00	-.07
SES	-.04	-.86	-.05	-.92	-.04	-.87
Risk Factor	.08	1.67	.05	1.13	.05	1.12
Lack of Parent Ed.	.05	1.05	.05	1.06	.06	1.12
Lack of Support	.06	1.23	.05	1.04	.05	1.06
Coping Problems	.07	1.35	.07	1.36	.06	1.25
Post Tram. Stress			.07	1.48	.07	1.48
Self Esteem Prob.			.17	3.47***	.17	3.50***
Freq. of PI					-.04	-.81

Model Summary									
Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					ΔR^2	ΔF	df	df2	P ΔF
1	.16	.03	.01	5.45	.03	1.29	9	447	.24
2	.25	.06	.04	5.36	.04	8.58	2	445	.00***
3	.25	.06	.04	5.36	.00	.65	1	444	.42

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

than subjects that had complete block one data. T-tests showed that the only variable that differed significantly based on completeness of any first block variable was frequency of parental incarceration. Cases who had missing data for any of the first block variables, had an average score on the variable "frequency of parental incarceration", that was .09 units lower than the average for cases who had valid data ($t=-2.42^*$).

A missing data analysis was also completed to see if subjects who were missing data on any block two, block three or dependent variable, scored significantly differently than subjects with complete data on any of the variables that would appear in the same regression model. Four variables (problems with attachment to parents, self esteem problems, post traumatic stress and academic problems) were missing enough data to warrant a missing data analysis. T-test were done to see if these variables differed in the variables that came later in the regression model. Cases who had missing data for self esteem problems, had an average score on externalized behavior problems that was .65 units higher than the average for cases who had valid data ($t=-2.55^*$). However, cases who had missing data for post traumatic stress had an average score on externalized behavior problems that was 1.32 units lower than the average for cases who had valid data ($t=-2.08^*$). Cases who had missing data for academic problems scored .15 units lower in frequency of parental incarceration than the average for cases who had valid data ($t=-4.09^{***}$).

Descriptive Data

Descriptive data, as seen in Table 4.10, was provided based on groups of parental incarceration. The frequency data shows that 76 percent of the sample was used as a control, while 24 percent had experienced at least one episode of parental incarceration.

These percentages are used to compare the distribution among the three groups in other demographic variables. The division of males and females among the three groups based on parental incarceration differs within three percent of the proportion of the entire population. Surprisingly, the proportion of subjects originally considered at-risk was within two percent of remaining consistent. The only variable that was more than three percent different than the original proportion was multi-racial. Only 65 percent of the original sample was multi-racial race, which is an 11 percent difference from the total proportion.

Test for Normality

The Shapiro-Wilks was used again to test for normality. Results can be found in Appendix E. There were some variables that were not originally normally distributed. Some of these could be resolved by using mean scores or collapsing scores; however, a few issues remained unresolved. Full results of these tests are seen in Appendix E. Two variables--SES problems and lack of parental educational attainment-- were platykurtic (-1.49, SD 1.43; 1.44, SD .14, respectively). Problems with attachment to parents were slightly positively skewed (1.05, SD .08). Social problems were positively skewed (1.13, SD .07) and leptokurtic (1.36 SD -.14). These non-normal variables are seen in Figures 4.2.

ANOVAS

After conducting ANOVAS using parental incarceration as the independent variable and all the other variables in the study as dependent variables followed by Tukey's Post Hoc Tests, it was found that subjects that had no episodes of parental incarceration had significantly less externalized behavior problems than subjects that had

Table 4.10 . Full Sample Charts: Control Descriptive Data, Demographic Frequencies

Variable	Total	0 Episode	1 Episode	More than 1 Episode
Total	1274	965	192	117
<u>n</u>		76%	15%	9%
<u>%</u>				
Male				
<u>n</u>	623	462	107	54
<u>%</u>	49%	74%	17%	9%
Female				
<u>n</u>	651	503	85	63
<u>%</u>	51%	77%	13%	11%
At Risk				
<u>n</u>	710	524	116	70
<u>%</u>	56%	74%	16%	10%
White				
<u>n</u>	324	239	47	38
<u>%</u>	25%	74%	15%	12%
African American				
<u>n</u>	691	546	99	46
<u>%</u>	54%	79%	14%	7%
Multi-racial				
<u>n</u>	150	97	27	26
<u>%</u>	12%	65%	18%	17%
Other Race				
<u>n</u>	108	82	19	7
<u>%</u>	8%	76%	18%	6%

*Note: Total percentages are based on the total sample size (1274) but percentages in each of the subcategories are based on the n for that variable. For example, the percentages in 0 episodes, male shows what percentage of the total males experienced 0 episodes of parental incarceration.

experienced one episode of parental incarceration ($p = .03^*$). There were no significant differences found between the other groups.

Subjects that had experienced two or more episodes of parental incarceration had significantly less problems with coping skills than those who had never experienced an episode of parental incarceration ($p = .01^*$). The implication of this finding will be discussed in the discussion section. There were no significant differences among the other groups. Full ANOVA results can be seen in Table 4.11. In addition, descriptives on the three groups can be found in Appendix D.

Correlations

The Pearson correlation matrix, shown in Table 4.12, shows that many more variables are significantly correlated with frequency of parental incarceration than appear in the regression models.

Table 4.12. Full Sample Intercorrelations Between Control Variables, Psycho-Social Outcomes, Educational Outcomes and Frequency of Parental Incarceration

Var.	1	2	3	4	5	6	7	8	9	10	11	12	13
1. PI	---	.05*	-.01	-.08**	.06*	.05*	.05	.05	-.01	.03	.02	.04	.08**
2.L. PE		----	.02	.10**	.34**	-.07*	.01	.02	.00	.13**	.02	.06*	.02
3. L. SS			----	.04	.00	.09**	.07*	.03	.13**	.12**	.11**	.15**	.09**
4. Cop.				----	.12	-.03**	.01	-.00	.01	.09	.10**	.05*	.09**
5. SES					----	-.06*	.00	-.06	.01	.05	-.01	.00	.00
6. RF						----	.10**	.10**	-.01	.07*	.06*	-.01	.05*
7. SE							----	.13**	.07*	.16**	.24**	.10**	.12**
8. PTS								----	.03	-.01	.11**	.06*	.11**
9. Att.									----	.05	.06	.07*	.12**
10. Aca.										----	.42**	.32**	.33**
11. Soc.											----	.65**	.67**
12. IB												----	.58**
13. EB													----

Notes. Coefficients are significant at * $p < .05$, ** $p < .01$. Wh= White; Mix=Multi-racial Race; Oth=other race; L. PE= Lack of Parent Education; L. SS= Lack of Support System; Cop.=Coping Problems; SES=SES Problems; SE=Self Esteem Problems; PTS= Post Traumatic Stress; Att.= Attachment Problems; Aca.= Academic Problems Soc=Social Problems; IB=Internalized Behavior Problems and EB= Externalized Behavior Problems

Figure 4.2. Full Sample: Non-Normal Variables

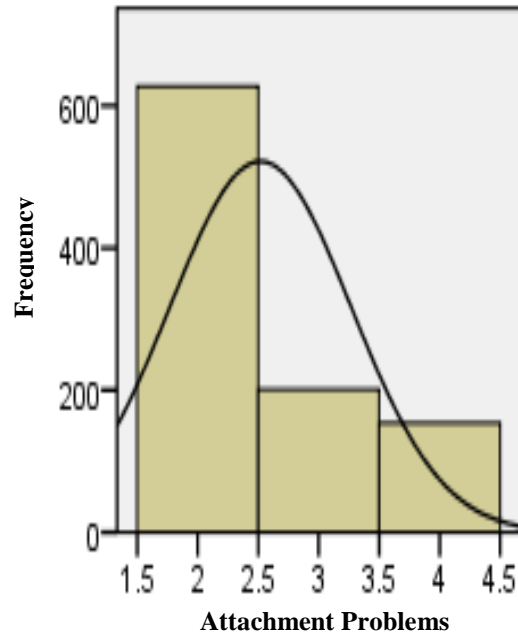
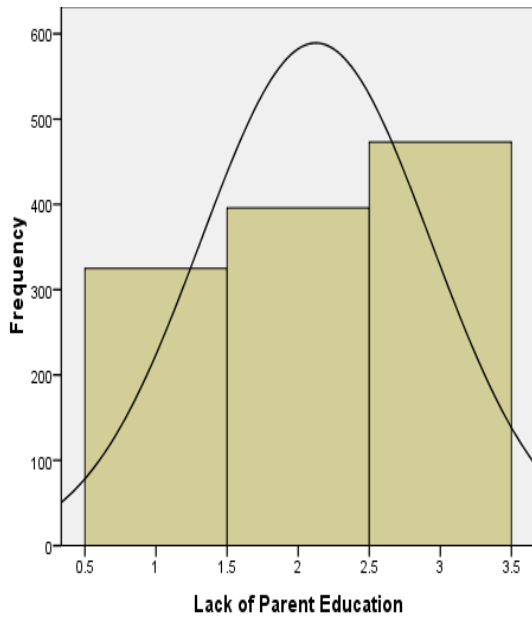
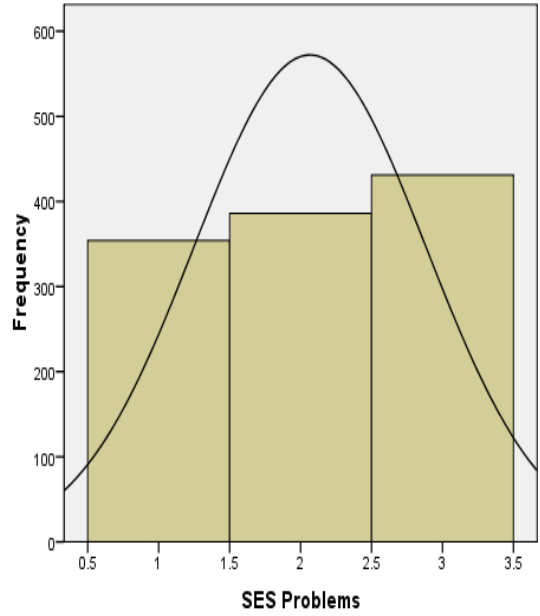
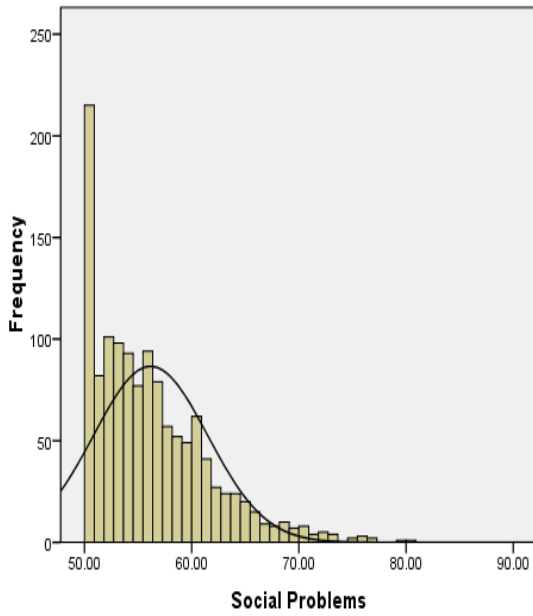


Table 4.11. Full Sample ANOVA with Frequency of Parental Incarceration as Grouping Variable

Source and Variable	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Risk Group					
Between Groups	2	.92	.46	1.86	.16
Within Groups	1260	309.96	.25		
Lack of Parent Education					
Between Groups	2	2.32	1.16	1.78	.17
Within Groups	1191	777.34	.65		
SES Problems					
Between Groups	2	3.25	1.63	2.45	.09
Within Groups	1168	776.69	.67		
Problems with Attachment to Parents					
Between Groups	2	.13	.07	1.16	.89
Within Groups	979	553.04	.57		
Self Esteem Problems					
Between Groups	2	7.55	3.78	1.18	.31
Within Groups	1057	3395.56	3.21		
Post-traumatic Stress					
Between Groups	2	211.83	105.92	2.29	.10
Within Groups	1046	48392.38	46.26		
Social Problems					
Between Groups	2	4.78	2.39	.58	.56
Within Groups	1271	5221.08	4.11		
Internalized Behavior Problems					
Between Groups	2	100.80	50.40	1.05	.35
Within Groups	1271	60850.36	47.88		
Externalized Behavior Problems					
Between Groups	2	683.08	341.54	4.77	.01*
Within Groups	1271	90951.00	71.56		
Lack of Support					
Between Groups	2	302.68	151.34	1.27	.28
Within Groups	1137	135824.61	119.46		
Academic Problems					
Between Groups	2	.88	.44	.52	.59
Within Groups	964	807.70	.84		
Coping Problems					
Between Groups	2	5108.03	2554.02	4.16	.02*
Within Groups	1048	642822.60	613.38		

*p<.05

Children who lived in houses with SES problems also showed a positive correlation with parental incarceration ($r=.06^*$). Episodes of parental incarceration and coping problems had an inverse relationship, meaning that the increase in frequency of parental incarceration accounted for eight percent of the decrease in coping problems ($r=-.08^{**}$). Post-traumatic stress significantly correlated with frequency of parental incarceration, showing that as post-traumatic stress increases, so does the likelihood that the child has experienced a parental incarceration ($r=.06^*$). Externalized behavior problems were positively correlated with frequency of parental incarceration ($r=.08^{**}$).

Regression Results

The regression models were run in an identical manner as in the matched sample selection. Identically, block 1 contained the control variables, which included initial risk group, gender, race, lack of parent educational attainment, SES problems, lack of support system and coping problems. The second and third blocks differed based on the model. A description of the results follows.

Psycho-social Models

Model A and Model B used self esteem problems and post-traumatic stress respectfully, as the dependent variables. In block two, problems with attachment to parents was inserted. These models aimed to answer the first research question of the study:

How does the relationship between attachment to parents and psycho-social variables (self esteem problems and post-traumatic stress) differ based on episodes of parental incarceration?

And the first half of the second research question, rephrased as:

Do psycho-social variables differ based on episodes of parental incarceration?

Model A, using self esteem as the dependent variable, showed that when entering attachment to parents into the regression, the change was borderline significant ($p=.05$), and while entering frequency of parental incarceration into the equation did not alter the equation in any significant way, it did push problems with attachment of parents past the brink into statistical significance ($p=.05^*$). The full model explained 3 percent of the variance in self esteem problems ($r^2=.03$), with significant predictors including risk group ($\beta=.10^{**}$) and problems with attachment to parents ($\beta=.65^*$). Frequency of parental incarceration ($\beta=.04$) was not statistically significant. The full model can be seen in Table 4.13.

Model B, using post-traumatic stress as the dependent variable, found that there was no significant difference to the model when either attachment to parent ($\beta=.02$) or frequency of parental incarceration ($\beta=.05$) was added. The full model explained 3 percent of the variance in post-traumatic stress ($r^2=.03$). The most significant predictor was the initial risk group ($\beta=.09^{**}$), while the subjects who were African American had significantly lower post-traumatic stress in this equation ($\beta=-.11^{**}$). The full model can be seen in Table 4.14.

Educational Outcomes Models

Models C-E looked at the educational outcomes. In block two of these models, the psycho-social variables (post-traumatic stress and self esteem) were inserted. The goal of these models was to answer the other portion of research question two:

Do educational variables differ based on episodes of parental incarceration?

Table 4.13. Full Sample Regression Model A: Models with Self Esteem as Dependent Variable

	Models 1		Model 2		Model 3	
	β	t	β	t	B	t
Constant		8.70***		6.40***		6.29***
African American	-.05	1.16	-.05	1.09	-.04	1.00
Multi-racial	.01	.18	.01	.20	.01	.14
Other	.01	.14	.01	.15	.01	.20
Male	.04	.13	.05	1.34	.04	1.31
SES	.01	.35	.01	.34	.01	.27
Risk Factor	.10	2.94**	.10	2.99**	.10	2.92**
Lack of Parent Ed.	.02	.43	.02	.44	.01	.40
Lack of Support	.06	1.67	.05	1.42	.05	1.44
Coping Problems	.01	.14	.00	.10	.01	.18
Attachment Problems			.07	1.95	.07	2.18*
Freq. of PI					.04	.07

Model Summary										
Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics					
					ΔR^2	ΔF	df1	df2	P ΔF	
1	.14	.02	.01	1.78	.02	1.97	9	898	.04*	
2	.15	.02	.01	1.78	.00	3.78	1	897	.05	
3	.16	.03	.01	1.78	.00	1.21	1	896	.27	

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

Table 4.14. Full Sample Regression Model B: Models with Post Traumatic Stress as Dependent Variable

	Models 1		Model 2		Model 3	
	β	t	β	t	β	t
Constant		9.37***		7.61***		7.48***
African American	-.12	-2.73**	-.11	-2.70**	-.11	-2.59**
Multi-racial	.05	1.30	.05	1.30	-.03	1.22
Other	-.03	-.82	-.03	-.86	-.03	-.76
Male	-.01	-.29	-.01	-.25	-.01	-.29
SES	-.04	-1.23	-.04	-1.23	-.05	-1.32
Risk Factor	.09	2.84**	.10	2.85**	.09	2.77***
Lack of Parent Ed.	.04	1.08	.04	1.08	.04	1.02
Lack of Support	.01	.14	.00	.05	.00	.08
Coping Problems	.02	.60	.02	.58	.02	.68
Attachment to Parents Problems			.02	.69	.02	.71
Freq. of PI					.05	1.36

Model Summary									
Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					ΔR^2	ΔF	df1	df2	P ΔF
1	.18	.03	.02	6.74	.03	3.22	9	898	.00***
2	.18	.03	.02	6.74	.00	.48	1	897	.49
3	.18	.03	.02	6.74	.00	1.84	1	896	.18

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

Model C (shown in Table 4.15), using academic problems as the dependent variable, showed that several control factors were predictors, including lack of parental education attainment ($\beta=.14^{***}$), and lack of support ($\beta=.01^{**}$). Adding the psycho-social variables to the model significantly increased the predictive power as it improved the model from accounting for 5 percent of the variance ($r^2=.05$) to 7 percent ($r^2=.07$), with the change in model being significant ($\Delta R^2=.02^{***}$). However, adding frequency of parental incarceration to the model made no significant difference to the predictive power of the model ($\beta=.04$). In the full model, self esteem problems were found to be the biggest predictor of academic problems ($\beta=.08^{**}$).

In Model D, internalized behavior problems was used as the dependent variable. The contribution of psycho-social variables to the model was significant ($\Delta R^2=.01^*$). However, adding frequency of parental incarceration in the third block provided no significant change to the model. The final model accounted for 5 percent of the variance in internalized behavior problems ($r^2=.05$), with significant predictors being “other” race ($\beta=.10^{**}$), lack of support ($\beta=.14^{***}$), and self esteem problems ($\beta=.07^*$). The full model can be seen in Table 4.16.

Model E used externalized behavior problems as the dependent variable. This model showed that each block increased the predictive power of the model. Block one showed an adjusted R^2 of .01, while block 2’s adjusted R^2 was .03 ($\Delta R^2=.02^{***}$). Block 3, which represented the full model, showed an adjusted r^2 of .03 ($\Delta R^2=.01^*$). The full model accounted for 5 percent of the variance in externalized behavior problems ($r^2=.05$),

Table 4.15. Full Sample Regression Model C: Models with Academic Problems as Dependent Variable

	Models 1		Model 2		Model 3	
	β	t	β	t	β	t
Constant		10.43***		9.00***		8.93***
African American	.05	1.18	.10	1.24	.10	1.29
Multi-racial	-.01	-.24	-.02	-.20	-.03	-.25
Other	.01	.32	.03	.26	.04	.29
Male	-.03	-.73	-.06	-.95	-.06	-.97
SES	-.00	-.10	-.01	-.22	-.01	-.27
Risk Factor	.07	2.14*	.12	1.83	.11	1.79
Lack of Parent Ed.	.13	3.42***	.14	3.44***	.14	3.40***
Lack of Support	.11	3.26***	.01	3.04**	.01	3.06**
Coping Problems	.08	2.10	.00	2.13*	.00	2.18*
Post Tram. Stress			-.01	-1.39	-.01	-1.42
Self Esteem Prob.			.08	4.53***	.08	4.51***
Freq. of PI					.04	.74

Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					ΔR^2	ΔF	df	df2	P ΔF
1	.21	.05	.04	.90	.05	4.28	9	818	.00***
2	.26	.07	.06	.89	.02	10.32	2	816	.00***
3	.26	.07	.06	.89	.00	.55	1	815	.46

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

Table 4.16. Full Sample Regression Model D: Models with Internalized Behavior Problems as Dependent Variable

	Models 1		Model 2		Model 3	
	β	t	β	t	β	t
Constant		43.27***		39.56***		39.42***
African American	-.08	-1.92	-.07	-1.73	-.07	-1.64
Multi-racial	-.07	-1.89	-.10	-1.96	-.07	-2.02*
Other	-.10	-2.83**	-.07	-2.81**	-.10	-2.77**
Male	.04	1.35	.04	1.26	.04	1.23
SES	-.02	-.56	-.02	-.55	-.02	-.63
Risk Factor	-.02	-.57	-.03	-.90	-.03	-.95
Lack of Parent Ed.	.06	1.83	.06	1.76	.06	1.71
Lack of Support	.15	4.50***	.14	4.37***	.14	4.40***
Coping Problems	.03	.96	.03	.93	.03	1.01
Post Tram. Stress			.04	1.08	.03	1.04
Self Esteem Prob.			.07	2.26*	.07	2.23*
Freq. of PI					.04	1.16

Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					ΔR^2	ΔF	df	df2	P ΔF
1	.20	.04	.03	6.82	.04	4.21	9	956	.00***
2	.21	.05	.04	6.80	.01	3.92	2	954	.02*
3	.22	.05	.04	6.80	.00	1.35	1	953	.25

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

with significant predictors including lack of support ($\beta=.08^*$), coping problems ($\beta=.09^{**}$), post-traumatic stress ($\beta=.08^*$), self esteem problems ($\beta=.09^{**}$), and frequency of parental incarceration ($\beta=.08^*$). Also noteworthy is that the significance of lack of support and coping problems increased from block 2 to block 3, after adding frequency of parental incarceration to the equation ($\Delta\beta=.00, .01$). The full model can be seen in Table 4.17.

The final model, Model F, used social problems as the dependent variable. This model found a significant increase in R^2 when adding the psycho-social variables ($\Delta R^2=.02^{***}$), but no change when adding frequency of parental incarceration. The final model accounted for five percent of the variance in social problems ($r^2=.05$), with significant predictors including other race ($\beta=-.08^*$), lack of support ($\beta=.10^{**}$), post-traumatic stress ($\beta=.08^*$), and self esteem problems ($\beta=.10^{**}$). The full model can be seen in Table 4.18.

Section Summary

The major research question of this study was, “Do psycho-social variables or educational outcomes differ based on episodes of parental incarceration?” According to the analysis, the only educational outcome that differs based on episodes of parental incarceration is externalized behavior problems. This difference is present in the full sample, but not in the matched sample, implying that this relationship is only significant when compared to low risk subjects, and is not significant when compared to equally at-risk subjects.

Table 4.17. Full Sample Regression Model E: Models with Externalized Behavior Problems as Dependent Variable

	Models 1		Model 2		Model 3	
	β	t	β	t	β	t
Constant		37.85***		34.12***		33.99***
African American	-.01	-.18	.01	.15	.01	.32
Multi-racial	.03	.85	.03	.73	.02	.59
Other	-.06	-1.54	-.05	-1.50	-.05	-1.41
Male	.00	.05	-.00	-.05	.00	-.11
SES	-.01	-.39	-.01	-.32	-.02	-.49
Risk Factor	.04	1.35	.03	.84	.02	.72
Lack of Parent Ed.	.02	.67	.02	.55	.02	.45
Lack of Support	.08	2.49*	.08	2.34*	.08	2.40*
Coping Problems	.09	2.60**	.09	2.56*	.09	2.74**
Post Tram. Stress			.08	2.44*	.08	2.35*
Self Esteem Prob.			.09	2.74**	.09	2.68**
Freq. of PI					.08	2.36*

Model Summary									
Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					ΔR^2	ΔF	df	df2	P ΔF
1	.15	.02	.01	8.43	.02	2.39	9	956	.01*
2	.20	.04	.03	8.36	.02	8.73	2	954	.00***
3	.21	.05	.03	8.34	.01	5.57	1	953	.02*

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

Table 4.18. Full Sample Regression Model F: Models with Social Problems as Dependent Variable

	Models 1		Model 2		Model 3	
	β	t	β	t	β	t
Constant		5.27***		3.39***		3.35***
African American	-.18	-1.10	-.12	-.76	-.03	-.72
Multi-racial	-.27	-1.16	-.30	-1.29	-.05	-2.27
Other	-.60	-2.32*	-.58	-2.29*	-.08	-1.32*
Male	.19	1.45	.18	1.35	.04	1.33
SES	-.06	-.67	-.05	-.62	-.02	.55
Risk Factor	.22	1.65	.15	1.11	.04	3.02
Lack of Parent Ed.	.06	.70	.05	.58**	.02	2.45
Lack of Support	.02	3.18**	.02	3.01**	.10	-.65**
Coping Problems	.01	2.46*	.01	2.42*	.08	1.08*
Post Tram. Stress			.02	2.32*	.08	3.14*
Self Esteem Prob.			.12	3.16**	.10	2.30**
Freq. of PI					.02	.54

Model Summary									
Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					ΔR^2	ΔF	df	df2	P ΔF
1	.18	.03	.02	2.00	.03	3.46	9	956	.00***
2	.23	.05	.04	1.99	.02	9.88	2	954	.00***
3	.23	.05	.04	1.99	.00	.29	1	953	.59

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

The secondary question in this research study was, “How does the relationship between attachment to parents and psycho-social variables (post-traumatic stress or self esteem) differ based on episodes of parental incarceration?” The results of this analysis showed that problems with attachment to parents did become more significant predictors of post-traumatic stress and self esteem when frequency of parental incarceration was added to the regression model.

CHAPTER 5

DISCUSSION and CONCLUSION

While the findings in this study did not completely support the conceptual framework in the literature review section, the findings did bring some new information and many points for discussion.

Although the grand models in this study were several different regression models, many other preliminary analyses were conducted. The findings from these results provide different angles for discussion.

Preliminary Finding #1: Less Coping Problems among Subjects that Experienced More than One Parental Incarceration

The concept of resilience and coping introduced itself into the study when parental incarceration was looked at ordinarily. When the means of each variable were examined this way, it was clear that subjects that had experienced very large numbers of parental incarcerations seemed to maintain normal-range dependent variables. These outliers brought up the issue of resilience. To calculate resilience, two different variables were created—coping problems and lack of support. Coping problems measured the level of difficulty subjects had selecting positive strategies (compromise, help-seeking, and verbal assertion) to solve hyper-theoretical problems. When ANOVAS and Tukey's Post Hoc tests were conducted, there was a significant difference in coping problems between the same two specific groups in both samples—subjects that had never experienced a parental incarceration had significantly more coping problems than subjects who had experienced more than one parental incarceration. This implies that more than one episode of parental incarceration is related to better coping skills.

Possibly, this type of adversity at a young age builds a resilience in students, enabling them to better deal with problems. Nesmith and Ruhland (2008), who conducted a qualitative study addressing young children's (ages 8-13) experiences with parental incarceration, found similar results. They found that while most of the students did not have the expected academic or behavioral problems, they seemed to have a set plan of how to deal with problems, and could verbalize what they did to help them cope with the experiences related to their parent's incarceration. The difference in coping skills between groups could show that students that have experienced more than one episode of parental incarceration have been forced to strategize a plan of how to deal with problems. It would be interesting to see if this difference expands over age, or if as children get older they begin to resort to less desirable problem solving techniques.

Preliminary Finding #2: Population Not Racially Representative of General Population

The correlation matrix also provides points for discussion. First of all, the correlation between race and parental incarceration is atypical of the general population. In this sample, African American subjects were less likely to experience a parental incarceration, while in the general population, African Americans represent 43 percent of the population of affected children (Seymour & Wright, 2000). The 43 percent of African American children with incarcerated parents far outweighs the 12.8 percent of African Americans represented in the general population (US Census, 2006). Therefore, this sample used is not representative of the at large population in the area of race.

Implications of Data Design on Regression Findings

The remainder of this section will discuss different data design choices and the possible implications each one may have had on the results of the regression models.

Data Selection Choices

One major decision that had to be made in this study was how to define a parental incarceration. Three options were explored. The first option that was considered was to treat it as a dichotomous variable—either subjects had experienced a parental incarceration, or they have not. The second option was to treat it as an ordinal variable—recording how many times the parents combined had been incarcerated. The third option, and the option chosen, was to collapse the subjects into more even sized groups, and define groups as containing subjects who had never experienced a parental incarceration, subjects who had experienced one parental incarceration, and subjects who had experienced more than one parental incarceration. The third option was chosen to avoid the outliers effects, but yet provide as much information as possible.

What was the implication of choosing to define the variable of interest this way? The suggestion was that more than one episode of parental incarceration would increase the relationship between the psycho-social and school outcomes. It suggests that this event happening repetitively should weigh more on the outcomes. This was based on the ideas of frequency in Sutherland's Differential Association theory. A repeat incarceration is common- Mumula reported that 56 percent of parents in state prison had been incarcerated before their current term (2000). After reviewing much literature, no studies were found that defined parental incarceration based on frequency. This makes this study unique from the previously conducted studies.

The Implications of the Two Samples

The analysis was conducted in two different ways, with two different samples. Originally, when this study was planned, the intention was to match subjects that were initially chosen to be a part of LONGSCAN because they were in an “at-risk group” with subjects that were initially chosen to act as a control. These selection groups were cross tabbed with parental incarceration (measured at this point dichotomously), to provide a sample that had an equal number of subjects that were at-risk with a parental incarceration as subjects that were at-risk without a parental incarceration, and equal number of subjects that were not at risk with parental incarceration as subjects that were not at risk without a parental incarceration. When this was done, all eight models showed that parental incarcerations had no significant relationship with any of the dependent variables. These results were included and presented in the results section. However, it seemed logical to re-conduct the analysis using the entire sample, and use the “at-risk” factor as a control. Afterwards, there were some small significant findings, but still the results were not overwhelmingly significant. Had the results of the second run proved to be of great significance, it would have spoken loudly about the socio-contextual impact of what LONGSCAN labeled as “at-risk” subjects. A huge difference between the two studies would have implied that parental incarceration has a relationship with psycho-social and educational outcomes, but not a relationship that is significantly different than other risk factors. Conclusions from such a result may include that one particular type of risk cannot be separated from the socio-context that places students at risk. While the change in samples did demonstrate slightly more significant results, suggesting that the controlling of at-risk initial groups does play a minor part in predicting the impact of

parental incarceration, it does not explain the lack of findings for the majority of models. The next step is to explore the entire selection criteria for LONGSCAN.

Limitations of the Study

This next section will discuss the different limitations that this study presented, including sample selection and data design.

Sample Selection

There are limitations to every data source. It is at this point that the criteria for LONGSCAN's initial selection of the "control" subjects becomes relevant. Was the control sample a normal representation of the general population? In the LONGSCAN selection there were 589 subjects in the comparison group. Only 207 out of the 589 subjects chosen had no risk factors, or were from neighborhood controls. The other 382 subjects (65 percent of the control group) were chosen because there was a child protective service report that was found to be unsubstantiated, there was a high or low risk birth that was not reported to child protective services, or had foster history, but were returned to the home by the age of four (for full selection criteria see Table 3.1). This 65 percent of the comparison group is considered a control group for the purpose of LONGSCAN—since their studies are centered around the presence of sustained child abuse or neglect. However, for studies outside of the field of child abuse and neglect, this is not a typical control selection criterion. There are risk factors prevalent even within the control group. The control group was not randomly selected and therefore, cannot be considered representative of the general population.

Therefore, the population with incarcerated parents is being compared to two different groups—the at-risk subjects without incarcerated parents and the comparison

sample used by LONGSCAN, which at best, can be considered a group with low-risks. And while finding significance within this study would have been powerful, and would have proved that parental incarceration solely has impact on psycho-social and school outcomes; not being able to see the significance so clearly speaks to the socio-context that at-risk, in which low-risk students are living. Perhaps it is nearly impossible to separate a result (incarceration) from a possible life style. The complex realities of much of the sample living in poverty, and being in a household with risk factors ranging from disorganization to abuse complicate the results of this study.

It is also worthwhile to consider that the impact of a parental incarceration may not as negative if the alternative to a parental incarceration was a child living with a parent who may be abusive or negligent. When 112 of the subjects in the study have been in foster homes already, maybe the numbness of a parent becoming incarcerated is not felt as strong. Surely a follow up study that has access to a true control sample would determine if this would make the difference.

Another issue in sample selection is age. The data for this sample are collected up to age 10. Therefore, it is possible that some of the psycho-social problems that lead to the school problems are not yet understood by the young subjects. LONGSCAN is archiving their data up to age 18. Re-conducting this study with complete data would be integral to this study. The young age of the subjects also limits the time elapsed between a parental incarceration and the dependent variables. Data collection on parental incarceration was added from three possible collection periods that took place between the ages of 6-9. These data asked if a parent had been incarcerated in the past year. Dependent variables were measured when the subjects were six, eight and ten, and then

averaged together. It is therefore likely that the dependent variable was measured very recently after, or even before a parental incarceration took place. Because of data limitations, it was impossible to just use data collected after a parental incarceration. By using means, the most data were available. This was rationalized by saying the lifestyle leading toward incarceration would relate to the dependent variables just as strongly as the incarceration itself. However, perhaps this was a faulty assumption. Perhaps collecting the data in this way, although the only way to conduct an accurate analysis in this sample, did not allow for the temporal relationship that would be necessary to see significant relationships. Possibly, a future study could collect the data based on parental incarceration at a young age, and then measure the dependent variables throughout the child's future years.

Other Limitations

One other issue that presented itself was the normality of data. Several of the variables picked were kurt or skewed in both samples. To combat this, variables were collapsed into groups based . Three variables remained non-normalized for both samples—parent education, SES and social scores. This is a recognized limitation of this study.

Implications of the Findings on the Conceptual Framework

The conceptual model was originally formed to show intervening steps for intergenerational incarceration. It was guided by concepts from Differential Association, Social Learning, Attachment and Hierarchy of Needs theories, as well as current literature. It was created to show a possible path that would stagger risk factors present

in school that would explain how children of incarcerated parents were more likely to become incarcerated themselves.

The initial discussion should be on the implications of the model that supported the conceptual framework. Present among all the other risk factors in the full sample, episodes of parental incarceration were a significant predictor of externalized behavior problems. Therefore, externalized behavior problems, acting out at school and at home, is a very telling symptom. This relationship supports the ideas taken from Social Learning Theories and Differential Association theory, that children imitate behavior from primary relationships. It could be that the parental deviance preceded the incarceration, and it is this behavior that is imitated in the closest manner possible—externalized behavior problems. Externalized behavior problems were found to be related to post-traumatic stress and low self-esteem in this study, as well as in prior research (William & Daniels, 2000; Wolfe, 1987), supporting that these students who were acting out truly were experiencing emotional stress and turmoil. Previous literature lingered on the school problems that children were experiencing, but yet, externalized behavior problems are the only variable that showed significance in this study at this early age. Plausibly, the absence of internalized behavior problems and social problems is due to the nature of the problems not being as visible as externalized behavior problems. Students that are acting out in ways that are seen by their peers and teachers are the students that grab attention.

What is the implication of externalized behavior problems being significantly related to parental incarceration while the other psycho-social and educational outcomes are not significantly related? This brings the discussion back to the two shortcomings of

this study—sample selection and longevity. Farrington (1991) specified that early behavior problems in school are particularly linked with future incarceration. Consider that the externalized behavior problems may be the first link in the chain of events. It could be that significant results will be seen in the other outcomes with the allowance time elapsed and the onset of age and adolescence. Correlational relationships between the remaining outcomes suggest that this could be possible. Consider the conceptual model originally presented, but this time allow for time elapsed. Possibly, a parental incarceration could trigger externalized behavior problems immediately (relationship supported within this study), and then time elapses before other consequences are present. This study did show a significant correlation between externalized behavior problems and academic problems. If the students who have experienced episodes of parental incarceration have recently started to have externalized behavior problems, the impact on their academics may not be present immediately. Since the study has proven the relationship between parental incarceration and externalized behavior problems and shows a correlation between externalized behavior problems and academic problems, there is reason to believe that years of acting out may lead to this population having eventual academic problems. Likewise, the same relationship may be implied for social problems—years of acting out in class may lead to a relationship with poor social interactions. Perhaps the self-esteem and internalized behavior problems spoken of in the literature (Ardeetti, 2005, 2003; Franks, 1982; Lee, 2004; Shaw ,1992) lead to social problems that take years to develop. The correlation among variables implies that with time allowed, students who experienced failure in one school outcome may eventually experience others.

Consider that parental incarceration may be most obviously and readily linked to externalized behavior problems because the externalized behavior problems are the first educational outcomes noticeable. It is feasible to postulate that the relationship between parental incarceration and externalized behavior problems is seen quickly because it is a result of the imitation concept (Akers, 1999) of the parents' deviance—an act may have been taking place for a greater duration than the incarceration. It could be, in actuality, representative of a relationship between parental deviance and child deviance, as opposed to a relationship between parental incarceration and child deviance. Then, as students advance in their years of education, the rest of the educational outcomes are blamed on externalized behavior problems—with the negligence to remember the original significant relationship. Of course, this study alone does not have the data to prove this theory; but it does lead into the next study with urgency and a conceptual model to test.

Future Research

There are many ways to improve and build upon this study. This study was limited by the data available. Two important follow up studies need to be conducted. First, this same study should be conducted when the LONGSCAN data are completely archived (predicted date 2012). This will allow for parental incarceration data to stop being collected before the dependent variables are measured. The time elapsed will allow for relationships to be formed. With the completeness of data, the conceptual model in this study can then be tested more accurately. Ultimate outcomes such as school dropout and juvenile arrests can be included. By conducting the study again with the completeness of the same data set, one important research question can be answered “Does time elapsed and age mediate the relationship between parental incarceration and

psycho-social and educational outcomes?” The extensions of this study go on. The models could be run once, using the same exact subjects that had parental incarceration before the age of 10, and track the change in dependent variables, and test to see if there is a change in the results. With the introduction of adolescence into the study, issues such as peer pressure and gang associations would become variables of interest. Or, the timing of parental incarceration can be used as a grouping variable, to test if the age of the parental incarceration mediates the relationships. The analysis conducted in this model does not prove that there are no relationships between parental incarceration and the psycho-social and educational outcomes—it proves that most of the relationships are not present in the sample, which happens to be ages ten and under.

The second study that should be conducted should target the same research questions that were used in this study, but with a different sample. This is extremely challenging to obtain, since so much different data are necessary. If one was to collect his/her own data, several different school districts should be targeted—ones that cross boundaries of race, socio-economic status and urban and rural contexts. This study will allow subjects that experience parental incarceration to be compared to peers that have no known risk presented to themselves.

Another possibility for sample selection would be to compare three groups—an effected group which would include subjects that had experienced a parental incarceration, an effected control group which would include subjects that had experienced parental deviance and the same obstacles of poverty and an unstable home life, but have not experienced a parental incarceration, and a group of non-effected controls, which would include subjects that showed no indication of parental deviance.

This study would isolate the parental incarceration from the parental deviance and provide for a more sophisticated analysis of the root of the problems.

Implications for Interventions

Originally, this study was conducted with the hopes of finding the specific psycho-social variable that is related to parental incarceration, and therefore related to the educational outcomes. The benefit of doing so would have been to allow intervention groups to have a target behavior. While the data did not accomplish this perfectly, it did give some information useful for intervention. In fact, the idea that time may need to pass for students with incarcerated parents to show negative relationships with most school outcomes is positive for interventionists, as that time can be used to intervene and change the predicted result. In young students, the strongest relationship between psycho-social and educational outcomes and parental incarcerations is in externalized behavior problems. Also noteworthy is that students that experience more than one episode of parental incarceration are able to solve problems in more socially acceptable ways than their non-affected peers. Therefore, this leads to the conclusion that these children have the knowledge to solve problems, but the tendency to act out in external ways. The applications of these problem-solving skills must be the deficiency. Externalized behavior problems among young children can be seen as a cry for attention, a call for help. That these students are still succeeding in other ways—academically and socially—indicates that these cries for help need to be taken very seriously. The children are yelling, screaming, kicking and hitting to get some attention. Even at this early age, their self-esteem and post-traumatic stress are indicators of externalized behavior problems. These are areas that should be targeted to see if controlling externalized

behavior problems at an early age can help avoid the possible future negative educational outcomes.

An interventionist also would want to consider the trend of adolescences rebelling against their parents. Would it be possible to use that period of rebellion in a positive way? The presence of mentors and positive grown-ups in an adolescence life could allow them to “rebel” and want to deter from their parents path, following a more positive role model instead (Jucovy, 2003; Kleiner, 2002).

It is also important to remember the initial relationship-- the first relationship was between parental incarceration and externalized behavior problems. This initially relationship can not be forgotten over time by interventionists. While academic problems may be blamed on externalized behavior problems, the true antecedent may be the parental incarceration.

Often it is not what we find but what we do not find that leads us to rethink, re-theorize and remap. This study is a prime example of that. Why was it that an obvious connection, based on quantitative literature from different fields, was absent when looked at empirically? Many different explanations for the results were explored, but the definite answer is unknown. Is it that the social-context of at risk students is so complex that one symptom, such as a parental incarceration, cannot be withdrawn and studied apart from the others? Or is it that school outcomes are a result of a long term domino effect and all relationships are not present immediately? While the first possibility implies a discouraging output—one where it seems impossible to intervene, the second possibility is optimistic in nature. We, as educators, as researchers and as interventionists, can hope that young children do not fail all at once—that there is that

small duration of time when we can step in, intervene and save a child from possible future incarceration.

I conclude by returning to the initial discussion of the purpose of education – the goals of educators and the direction of society. If social reproduction is considered an acceptable goal of education, then these children, children whose parents experience episodes of incarceration, play the role perfectly. They go through the school systems, gradually fail, and become incarcerated themselves, keeping the checks and balances of our hierarchal society in place. If this is the goal, it justifies the snide remarks that when these young children are acting out that they will “wind up just like their father.” But if the goal of education is to give each child the unique opportunity to succeed, or to produce democratic, well-balanced citizens, then this population and other at-risk populations need to be taken seriously. I initially felt this study fell short of making the point I was passionate about, as I wanted to empirically prove that this population needed extra help and extra attention. This study was meant to be their voice—their cry for help. After months of contemplation, I finally realized that this study did not fail – it proved something better than I hypothesized and better than I could initially conceptualized: that there is a chance, a window of opportunity. This study did not prove the original contention – that parental incarceration was leading to all these school outcomes – and that educators can recognize these relationships and intervene early. Instead, it implied something different. These children are not failing early. The cycle is breakable. These victims are allowing time for help and intervention. It is now in the hands of researchers and educators to explore the issues that this study has brought forth and to find a way to change the future.

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Appendix A. Codebook

Name	Coded	Outliers ¹⁰	Notes	N (Full Sample)
Race	0=No, 1=Yes	NO	This variable was recoded to combine any race that had under 10% of the total n (1278) into an “other” category. Therefore, other races includes the original other category, as well as Hispanic, Asian, and Native American.	1278
Gender	0=Female 1=Male	NO		1278
Income Problems	1=\$15,000 or above 2=\$5,000-\$15,000 3= <\$5,000	NO	Reversed collapsed original variable DEMA10 so that 3 groups were created with close to equal ns.	1175
Lack of Parent Educational Attainment	1= More than high school 2=High School 3= Less than high school	NO	Collapsed groups so that there were three close sized groups. Reversed Groups so that higher number =higher presence of a problem	1197
Episodes of PI	0=Never – 6=6 Episodes of PI	YES		1278
Frequency of PI	0=Never Incarcerated 1=Incarcerated one time 2=More than 1	NO	Collapsed groups so that there were three groups with relatively similar ns.	1278
Incarcerated Parent Ever?	0=No, 1=Yes	NO		1278
Problems with Attachment to Parents	1-3, 1=Few attachment problems, 3=Most attachment problems	NO	The original data was negatively skewed, positively kurtosis and missing much data. The mean of both parents was taken, and then collapsed +/- 1 SD.	982

¹⁰ Outliers are based on viewing data in a box plot, where the box is the interquartile range. Variables were considered to have outliers if they had cases with values between 1.5 and 3 box length from the upper or lower edge of the box.

Appendix A. (continued)

Self Esteem Problems	0-7 High Scores= Higher Problems	NO		1063
Post Traumatic Stress	0-30- higher Score= Higher Stress	NO		1052
Academic Problems	1-4 Higher Number= Higher Presence of Problems	NO	This variable presented major missing data issues. To alleviate this, I divided TRAFACAR by 100 and then took the mean of the SCISCRRF score to create this composite. The scales were each collapsed at +1/-1 SD and reversed coded.	969
Internalized Behavior Problem	33-100 High Scores= Higher Presence of a Problem	YES	*t-scores To alleviate missing data problems, the TRF and CBCL scales were averaged. This is valid because they were significantly correlated ($r=.105^{**}$)	1277
Externalized Behavior Problems	34.5-100 Higher Presence of a Problem	YES	*T SCORES To alleviate missing data problems, the TRF and CBCL scales were averaged. This is valid because they were significantly correlated ($r=.338^{***}$)	1277
Social Performance	50-100 Higher Presence of a Problem	YES	*T-SCORES To alleviate both non-normality and missing data problems, the TRF and CBCL scales were averaged. This is valid because they were significantly correlated ($r=.28^{***}$)	1277

Appendix A. (continued)

Coping Problems-	0-100 Percentage not used, higher number=higher presence of problem solving skills	NO	% of time student claims to not use compromise, help seeking or verbal assertion to solve a problem Computed by taking 100-(BIACOMP1+BIAHSB1-BIAVASS1 ¹¹)	1051
Lack of Support	Higher score=less support	YES	Scores from ISFA gave ratings to how well each child identified supportive figure supports them in different domains. These scores were then added together and reversed.	1140

¹¹ * BIACOMP1= Percentage used compromised when in a problem situation, BIAHSB1= Percentage used help seeking when in a problem situation, BIAVASS1= Percentage used verbal assertion when in a problem situation

Appendix B. Matched Sample: Means of Control, Psycho-Social, and Educational Variables for Subjects with Different Frequency of Parental Incarceration

Variable	Total	0 Episode	1 Episode	More than 1 Episode
Lack of Parental. Education Attainment				
<u>M</u>	2.12	2.04	2.16	2.25
<u>SD</u>	.81	.79	.84	.8
<u>n</u>	578			
SES Problems				
<u>M</u>	2.10	2.03	2.17	2.14
<u>SD</u>	.81	.82	.77	.83
<u>n</u>	568			
Coping Problems				
<u>M</u>	45.37	47.53	46	39.25
<u>SD</u>	24.60	25.23	24.88	21.72
<u>n</u>	496			
Lack of Support				
<u>M</u>	33.24	33.25	32.47	34.49
<u>SD</u>	10.82	11.06	10.04	11.50
<u>n</u>	542			
Problems with Attachment to Parents				
<u>M</u>	2.50	2.50	2.49	2.49
<u>SD</u>	.74	.75	.74	.73
<u>n</u>	459			
Post Traumatic Stress				
<u>M</u>	11.25	11.22	10.81	12.02
<u>SD</u>	7.01	6.97	6.77	7.43
<u>n</u>	497			
Self Esteem Problems				
<u>M</u>	3.28	3.19	3.33	3.44
<u>SD</u>	1.78	1.82	1.75	1.73
<u>n</u>	499			
Social Problems				
<u>M</u>	56.46	56.71	56.00	56.54
<u>SD</u>	5.46	5.73	4.91	5.59
<u>n</u>	610			
Externalized Behavior Problems				
<u>M</u>	56.22	55.59	56.90	56.76
<u>SD</u>	8.53	8.80	8.34	8.04
<u>n</u>	610			
Internalized Behavior Problems				
<u>M</u>	51.60	51.61	51.54	51.66
<u>SD</u>	7.02	7.01	7.29	6.65
<u>n</u>	610			
Academic Problems				
<u>M</u>	2.53	2.53	2.54	2.51
<u>SD</u>	.89	.92	.88	.86
<u>n</u>	610			

Appendix C. Matched Sample: Normality of Variables

Variable	Skewness		Kurtosis	
	Statistic	SD	Statistic	SD
SES Problems	-.18	.10	-1.45*	.20
Lack of Parent Ed Attainment	.22	.10	-1.45	.20
Lack of Support	-.02	.11	-.13	.21
Coping Problems	.28	.11	-.46	.22
Problems with Attachment to Parents	1.12*	.11	-.29	.23
Self Esteem Problems	.05	.11	-.76	.22
Post Traumatic Stress	.38	.11	-.54	.22
Internalized Behavior Problems	.12	.10	.22	.20
Externalized Behavior Problems	.12	.10	-.30	.20
Social Problems	1.16	.10	1.60*	.20
Academic Problems	.08	.11	-.87	.23

*Statistic >1 or <1

Appendix D. Full Sample: Mean Control Variables in Subjects with Different Number of Parental Incarceration

Variable	Total	0 Episode	1 Episode	More than 1 Episode
Lack of Parental. Education Attainment				
<u>M</u>	2.12	2.10	2.16	2.25
<u>SD</u>	.81	.80	.84	.80
<u>n</u>	1149			
SES Problems				
<u>M</u>	2.10	2.04	2.17	2.14
<u>SD</u>	.81	.82	.77	.83
<u>n</u>	1171			
Coping Problems				
<u>M</u>	45.45	46.21	46	38.76
<u>SD</u>	24.84	25.09	24.88	21.82
<u>n</u>	1051			
Lack of Support				
<u>M</u>	33.56	33.67	32.41	34.30
<u>SD</u>	10.93	11.04	10.00	11.49
<u>n</u>	1140			
Problems with Attachment to Parents				
<u>M</u>	2.48	2.50	2.49	2.49
<u>SD</u>	.75	.75	.74	.73
<u>n</u>	965			
Post Traumatic Stress				
<u>M</u>	10.67	10.47	10.81	11.99
<u>SD</u>	6.82	6.73	6.77	7.39
<u>n</u>	1049			
Self Esteem Problems				
<u>M</u>	3.23	3.18	3.33	3.42
<u>SD</u>	1.79	1.81	1.75	1.72
<u>n</u>	1060			
Social Problems				
<u>M</u>	56.16	56.15	55.95	56.62
<u>SD</u>	5.37	5.37	4.93	5.68
<u>n</u>	1274			
Externalized Behavior Problems				
<u>M</u>	55.22	55.10	56.79	56.85
<u>SD</u>	8.48	8.52	8.38	8.09
<u>n</u>	1274			
Internalized Behavior Problems				
<u>M</u>	51.11	50.69	51.39	51.85
<u>SD</u>	6.92	6.81	7.41	6.97
<u>n</u>	1274			
Academic Problems				
<u>M</u>	2.47	2.45	2.54	2.50
<u>SD</u>	.91	.93	.88	.87
<u>n</u>	967			

Appendix E. Full Sample: Normality of Variables

Variable	Skewness		Kurtosis	
	Statistic	SD	Statistic	SD
SES Problems	-.12	.07	-1.49*	1.43
Lack of Parent Ed Attainment	-.28	.07	-1.44 *	.14
Lack of Support	-.13	.72	-.17	.15
Coping Problems	.24	.08	-.52	.15
Problems with Attachment to Parents	1.05	.08	-.43	.16
Self Esteem Problems	.13	.08	-.77	.15
Post Traumatic Stress	.43	.08	-.53	.15
Internalized Behavior Problems	.20	.07	.26	.14
Externalized Behavior Problems	.18	.07	-.32	.14
Social Problems	1.13 *	.07*	1.36*	.14
Academic Problems	.15	.08	-.89	.16

*Statistic >1 or <1

