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Incarceration and the Life Course: Predictors, Correlates, and Consequences of Juvenile
Incarceration

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Abstract

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The United States has the highest juvenile incarceration rate of any industrialized nation in the world. Research has shown that incarceration can have many iatrogenic effects on youth as they transition to adulthood. The goal of this dissertation is to understand the role that incarceration plays in development from childhood through early adulthood.

This dissertation uses data from the Seattle Social Development Project (SSDP), a multiethnic gender-balanced community sample, to study incarceration in three separate but theoretically and methodologically linked analyses. Chapter 2 focuses on childhood predictors of police contact and incarceration using path analysis. Chapter 3 uses propensity score analysis and logistic regression to explore the long-term consequences of juvenile incarceration for adult functioning. Chapter 4 uses path analysis to test labeling theory, exploring the mechanisms mediating the relationship between juvenile incarceration and adult incarceration.

Results show that one's position in the social structure and other childhood risk and protective factors are significantly related to incarceration in adolescence. Juvenile incarceration

is significantly related to poor functioning in adulthood, including an increase in the likelihood of incarceration, alcohol abuse/dependence, and welfare receipt at ages 27-33. In support of one aspect of labeling theory, results show that the relationship between juvenile incarceration and adult incarceration is partially mediated by increased association with antisocial peers. One of the most significant findings is that the relationship between incarceration in adolescence and incarceration in adulthood remains highly significant even when controlling for multiple risk and protective factors, mediating mechanisms, and delinquent and criminal behavior.

Juvenile incarceration is a sanction that appears to have life-long consequences for some youth. Furthermore, youth from disadvantage backgrounds, namely young men of color living in poverty, are significantly more likely to experience this sanction, thus potentially exacerbating their experiences of social disadvantage, and hindering their ability to successfully transition to adulthood. Policy and practice implications are discussed, including the need to reduce disproportionality and to find suitable alternatives to incarceration.

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DEDICATION

This dissertation is dedicated to the young people who inspired this work. Your struggle is not overlooked or forgotten, and my hope is that my research will help in some small way to bring about meaningful social change.

CHAPTER 1: INTRODUCTION

Background and Significance

The juvenile delinquency court in the United States was originally founded in an attempt to distinguish between adult and youthful offenders, emphasizing that youth were in need of protection, guidance, and rehabilitation, rather than punishment (McCord, 2000). However, since the first juvenile delinquency court was established in Chicago in 1899, the juvenile justice system has grown increasingly punitive and has begun to resemble the adult criminal justice system in many ways, including the increasing use of incarceration (Myers & Farrell, 2008). While the most recently available data (Hockenberry, 2014) show that as of 2011, juvenile incarceration rates have declined by 42% from 1997, the United States still has the highest rate of juvenile incarceration among industrialized nations (Annie E. Casey Foundation, 2013). For every 100,000 youth in the U.S. population, 196 were incarcerated in 2011. Furthermore, researchers have found that incarceration is related to poor outcomes in adulthood in the occupational domain (Apel & Sweeten, 2010; Freeman, 1987; Huebner, 2005; Laub & Sampson, 2003; Tanner, Davies, & O'Grady, 1999), the social domain (Geller & Curtis, 2011), and the health domain (Massoglia, 2008a, 2008b; Schnittker & John, 2007).

As the society holding the distinction of having the highest juvenile incarceration rates, we have the responsibility to ask and answer several difficult questions to inform public policy. First, who is most likely to be incarcerated, and what are the contributing factors? Second, is the juvenile justice system achieving its joint goals of rehabilitation and public safety, releasing youth back into the community who are equipped to successfully transition to adulthood and become productive citizens? Third, are there long term unintended consequences of juvenile

incarceration on adult functioning? Finally, if these consequences exist, what are the mediating mechanisms at work during the transition to adulthood? The goal of this dissertation is to empirically answer these questions by examining incarceration from a developmental, life course perspective. That is, I seek to understand the predictors, correlates, and consequences of incarceration over several developmental periods from childhood (age 10) to adulthood (age 33).

Overview of Chapters

This dissertation includes three separate but theoretically and methodologically connected chapters, and each makes a unique contribution to the understanding of incarceration through the life course. Figure 1.1 shows the conceptual model that guides these three chapters and their respective analytic plans. Each chapter addresses a different set of paths in this model.

Chapter 2 is concerned with explaining the relationships among the first three constructs in the model, childhood risk and protective factors, delinquency and drug use, and adolescent incarceration. I test whether the relationship between incarceration and childhood risk and protective factors (including demographic factors that have widely been associated with incarceration such as ethnicity, poverty and gender) can be explained by delinquency and drug use. Chapter 3 is concerned with understanding whether there is a direct effect of adolescent incarceration on adult incarceration and other measures of adult functioning, controlling for childhood risk and protective factors. Finally, Chapter 4 seeks to determine if the observed relationship between adolescent incarceration and adult incarceration can be explained by labeling theory, through the mediating mechanisms of internalization of the criminal label, increases association with antisocial peers, reduction in structural opportunities, and subsequent increased criminal behavior. The Sample Description and Procedure are presented here and

apply across all three chapters. Relevant theory and review of the literature are addressed within each specific chapter.

Sample Description

These three chapters use longitudinal data from the Seattle Social Development Project (SSDP) to examine the role of incarceration over the life course. SSDP includes a multiethnic community sample of males and females followed prospectively from 1985, when participants were in the fifth grade, into adulthood. A total of 808 fifth-grade students attending 18 elementary schools serving high-crime neighborhoods of Seattle in the fall of 1985 constitute the longitudinal sample. Schools were selected based on neighborhood crime statistics. Feeder elementary schools for those high-crime neighborhoods were selected and approached for participation. Due to mandated bussing at the time, these schools and this sample also included students from other parts of the city. Thus, the study oversamples children from high-risk neighborhoods, but is not limited to these children. The 18 elementary schools represented approximately one quarter of the total number of elementary schools in Seattle at that time. Approximately 77% of the parents of fifth-grade students in these 18 schools consented to participation. Of the 808 students, 396 (49%) were female, 345 (49.9%) were European American, 177 (25.6%) were African American, 130 (18.8%) were Asian American and 40 (5.8%) were Native American. Of these, about 5% were Hispanic. A considerable portion of participants came from low-income households. The median annual family income of the sample in 1985 was approximately \$25,000, and 46% of parents reported a maximum family income of less than \$20,000 per year. More than half of the student sample (52%) had participated in the National School Lunch/School Breakfast Program in the 5th, 6th, or 7th grade.

Procedures

Data used in the present studies were obtained from youth and parent surveys and official court records. Survey data were collected in 1985 when participants were in 5th grade and an average age of 10 ($M = 10.3$, $SD = .52$), then in the spring of each year thereafter through 10th grade, and again in 12th grade. In adulthood participants have been interviewed approximately every three years. In Grades 5 and 6, surveys were group-administered questionnaires completed in the classroom. Youth who left the schools in the study were individually interviewed. Starting in Grade 7 (1988), all students were individually interviewed, predominantly in person. The interviews asked for the participant's confidential responses to a variety of questions regarding peer, family, community, and school. The interviews lasted about one hour. Early in the study, youth received a small incentive (e.g., an audiocassette tape) for their participation and later received monetary compensation. Juvenile court records were obtained from 1985 through adulthood. All data collection procedures have been approved by the University of Washington Institutional Review Board. Study sample retention has remained high, and the retention rate was around 92% in 2008 (age 33).

As a reference for the reader, Table 1.1 presents a description of all the variables used in these three chapters. In addition, Table 1.1 shows the sample distribution for both the full SSDP sample (used in Chapter 2) and the police contact subsample (used in all three chapters). Measures are organized by developmental domain, as variables were used in different ways in each chapter. For example, juvenile incarceration is the dependent variable in Chapter 2, but the independent variable in Chapters 3 and 4. Further description is provided in the Measures section of each chapter.

Sensitivity Analyses

A portion of the sample was exposed to a multicomponent preventive intervention in elementary grades, consisting of teacher training, parenting classes, and social competence training for children (see Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999 for description and analysis of the intervention effects). Although differences in prevalences and means have been observed between intervention and control groups, prior analyses have shown few differences in the covariance structures of the groups (Abbott et al., 1991; Catalano, Kosterman, Hawkins, Newcomb, & Abbott, 1996; Guttmanova et al., 2012; Huang, Kosterman, Catalano, Hawkins, & Abbott, 2001). To test possible differences in etiology between the groups, I examined a multiple-group covariance structure model constraining the covariance parameter estimates between predictors and outcomes in the study to be equal across intervention groups. This constrained model fit the data well (e.g., root mean square error of approximation [RMSEA] = .04 and comparative fit index [CFI] = .95), and the results suggested no substantial between-group differences in the relationships of interest in this report, supporting a single-group analysis involving participants from all intervention conditions.

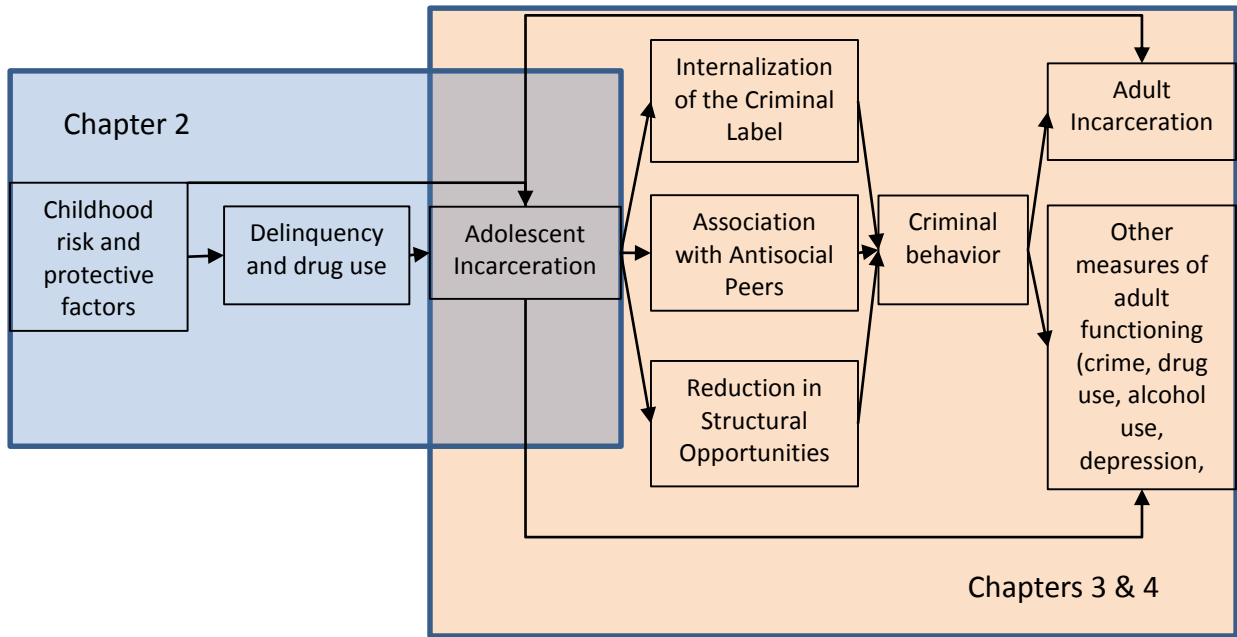


Figure 1.1. Full Dissertation Conceptual Model

Table 1.1. Variable Measurement and Descriptive Statistics

Variable	Measurement/Coding ^a	Timing	m(sd) or %	
			Full Sample (n=808)	Police Contact Subsample (n=325)
Childhood				
Ethnicity				
	European American		47.2%	37.5%
	African American		25.6%	35.1%
	Asian American		21.9%	20.3%
	Native American		5.3%	7.1%
Gender (Male)			51%	65.2%
Non-Two Parent Household	Caregiver report of whether household was two-parent (0) or non-two parent (1)	Grade 5	51.1%	63.2%
Poverty	Eligibility for free/reduced school lunch	Grades 5-7	52.4%	63.1%
Behavioral Disinhibition	Scale of five items measuring impulsive and risky behavior	Grade 8	.00(.73)	.25(.84)
Family History of Arrest	Caregiver and self-report of any immediate family members ever being arrested (0=no, 1=yes)	Grades 5-8	34.1%	46.7%
Peer History of Arrest	At least one of youth's three best friends had ever been arrested (0=no, 1=yes)	Grades 5-8	10.9%	21.0%
Early Gang Membership	Ever reported belonging to a gang (0=no, 1=yes)	Grades 5-8	9.2%	17.2%
Neighborhood Crime	Four point scale of neighborhood crime	Grade 8	.85(.86)	1.01(.97)
Prosocial Family Environment	Scale of 22 items that measured family management, involvement, bonding, and conflict (reverse coded)	Grades 5-6	.00(.46)	-.07(.51)
Prosocial Peer Environment	Four point scale measuring the extent to which youth's best friends try to do well in school	Grades 5-6	.01(.56)	-.10(.68)
Adolescence				
Delinquency	A count of delinquent acts weighted by severity	Grades 5-12	1.02(.83)	1.49(.84)
Drug Use	Past month drug use frequency	Grades 5-12	.43(1.56)	.89(2.30)
Police Contact	From both self-report and official data ever had an arrest or police contact in adolescence (0=no, 1=yes)	Grades 5-12	42.6%	-
Incarceration	From official data ever experienced incarceration as a result of court adjudication (0=no, 1=yes)	Grades 5-12	14.2%	34.4%

Table 1.1 Continued. Variable Measurement and Descriptive Statistics

Incarceration Patterns	From official data measured across adolescence	Grades 5-12	-	
Never Incarcerated				65.6%
Limited Incarceration	Incarcerated one time for less than three weeks			10.8%
Moderate Incarceration	Incarcerated one time for more than three weeks or two or more times for a total duration of less than six weeks			10.8%
Chronic Incarceration	Incarcerated two or more times for a total of more than six weeks			12.7%
Transition to Adulthood				
Antisocial Beliefs/Attitudes	A scale of 17 items measuring antisocial beliefs and attitudes favorable to antisocial behavior (range=1-4)	Age 21	-	1.64(.41)
Beliefs About the Future	A scale of six items measuring positive beliefs about the future (range=1-4)	Age 21	-	3.22(.58)
Antisocial Friends	A scale of 12 items measuring the respondent's closest friends' antisocial activities (range=1-4)	Age 21	-	1.21(1.43)
Unemployment	Number of months in the past year unemployed	Age 21	-	
None				54.6%
1-5 months				19.4%
6 months or more				26.0%
Housing Mobility	Number of times moved homes in the past year	Age 21	-	
None				47.7%
1 time				33.2%
2 or more times				19.1%
Educational Attainment	Number of years of education completed	Age 24	-	12.18(2.06)
Criminal Behavior	Number of self-reported crimes committed in the past year	Age 24		
None				51.2%
1 through 10 times				21.0%
11 through 20 times				6.1%
More than 20 times				21.7%
Adulthood				
Criminal Behavior	Commitment of at least one crime (0=no, 1=yes)	Ages 27-33	-	39.0%
Incarceration	At least one incarceration (0=no, 1=yes)	Ages 27-33	-	23.0%
Drug Abuse/Dependence	Met DSM-IV criteria for either drug abuse or dependence (0=no, 1=yes)	Ages 27-33	-	24.7%
Alcohol Abuse/Dependence	Met DSM-IV criteria for either alcohol abuse or dependence (0=no, 1=yes)	Ages 27-33	-	37.8%
Depression	Met DSM-IV criteria for major depression (0=no, 1=yes)	Ages 27-33	-	27.6%
Anxiety	Met DSM-IV criteria for generalized anxiety disorder (0=no, 1=yes)	Ages 27-33	-	14.9%
Welfare Receipt	Reported receipt of welfare at least once (0=no, 1=yes)	Ages 27-33	-	28.9%

^aMeasures are self-reported unless otherwise noted

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CHAPTER 2: CHILDHOOD PREDICTORS OF ADOLESCENT INCARCERATION

Introduction

While recent data show that as of 2011, juvenile incarceration rates have declined by 42% from 1997 (Hockenberry, 2014), the United States still has the highest rate of juvenile incarceration among industrialized nations (196 per 100,000 adolescence). By comparison, England, France, Germany, Italy, Japan, Sweden and Australia all have youth incarceration rates below 50 per 100,000 (Annie E. Casey Foundation, 2013). Furthermore, the decrease in youth in confinement was not distributed proportionally across racial and ethnic groups. There was a 52% reduction among European American youth since 2001, but only a 34% reduction among youth from racial/ethnic minority groups. Males also made up roughly 86% of incarcerated youth, while they only made up about 70% of juvenile arrests in 2011. This overrepresentation of minority males in residential confinement, in addition to the disproportionate number of incarcerated youth from impoverished backgrounds, has long been noted by researchers and policy makers. However, knowledge is limited about the complex relationships between one's position in the social structure and court sanctions, such as incarceration (N. Rodriguez, 2013). It is simply that youth from disadvantaged environments commit more crimes and, consequently, are more likely to be involved in the justice system? On the other hand, is the relationship fully accounted for by bias in the system? Or, is it a complex combination of both explanations?

The first step in understanding the relationship between one's position in the social structure and incarceration is determining empirically how early social disadvantage and other demographic factors are related to entry into and sustained involvement in the justice system, particularly in terms of incarceration. Therefore, this chapter aims to understand why some youth

become more involved in the juvenile justice system. Specifically, I test the extent to which one's position in the social structure is related to police contact and incarceration in adolescence, how much of this relationship is mediated by actual offending behavior, and how much social structure positioning contributes directly to system involvement.

Consequences of Incarceration

There can be numerous social, economic and health consequences of incarceration for young people, as development through the transition to adulthood can be severely disrupted. Indeed, Pettit and Western (2004) write, "From the life course perspective, prison represents a significant re-ordering of the pathway through adulthood that can have lifelong effects" (p. 154). Researchers have found that incarceration does not significantly reduce re-offending when incarcerated youth are compared to youth adjudicated for similar crimes who received a disposition of community service (Killias, Gillieron, Villard, & Poggia, 2010). Furthermore, Loughran et al. (2009) found that longer incarceration stays did not result in reduced re-offending. In addition to the ineffectiveness of incarceration in reducing future offending, there are many unintended negative effects of incarceration that reach far into adulthood. These include higher rates of delinquency and association with deviant peer groups (Bernburg & Krohn, 2003), higher rates of adult offending (McCord, 2000), fewer job opportunities (Apel & Sweeten, 2010; Freeman, 1987; Huebner, 2005; Laub & Sampson, 2003; Tanner, Davies, & O'Grady, 1999), decreased wages (Apel & Sweeten, 2010; Davis, Tsukida, Marchionna, & Krisberg, 2008; Western, 2002), housing insecurity (Geller & Curtis, 2011), lower rates of marriage (Huebner, 2005; Huebner, 2007; Lopoo & Western, 2005), family instability (Huebner, 2007; Lanctot, Cernkovich, & Giordano, 2007; Lopoo & Western, 2005; Massoglia, Remster, & King, 2010), and lower socioeconomic status (Lanctot et al., 2007). In addition, incarceration is

related to poor health (Massoglia, 2008a, 2008b; Schnittker & John, 2007) and mental health outcomes (Lanctot et al., 2007).

Given the extensive evidence pointing to the life course negative consequences of incarceration in both criminal and noncriminal realms, it is imperative to understand why certain youth become more involved in the juvenile justice system in the first place. As noted above, one factor known to be associated with both adolescent offending and subsequent incarceration is one's position in the social structure. However, as explained below, this is likely not a linear relationship. Thus, the aim of this chapter is to untangle the complex relationships among social disadvantage in early childhood (and other demographic factors), offending behavior in adolescence, and the response of the juvenile justice system to explain varying degrees of involvement in the juvenile justice system. That is, why do some youth have very brief involvement with the juvenile justice system, evinced by a short, single incarceration, while others spend their adolescence in and out of courts and incarceration. Clearly, one explanation is differences in levels of offending. However, offending is also highly likely to be linked with one's position in the social structure. Furthermore, the juvenile justice system's response to offending behavior has also been shown to be connected to social disadvantage and other demographic factors, such as race/ethnicity and male gender (see literature review below). The relationships among these variables are complex. It is important to not only identify the causes of criminal behavior, but also to differentiate the contributions of this behavior to juvenile justice system involvement from the system's response in determining sanctions.

In the current study I use the life course perspective to understand juvenile incarceration. A core component of incorporating the developmental life course perspective into research is acknowledging that behaviors in one developmental period trigger dynamic processes that can

affect future outcomes (Sampson & Laub, 1997). Specifically, in this chapter I hypothesize that social structure positioning is related both directly and indirectly (through delinquency and drug use) to youths' degree of involvement in the justice system (measured by patterns of incarceration).

Literature Review

The research questions guiding Chapter 2 are informed by two empirical and theoretical bodies of literature. The first is comprised of studies examining the individual and environmental risk factors of incarceration. These studies are highly informative for identifying early childhood risk factors for justice system involvement, but often fail to take into account the role of the system's response to delinquency in determining who is incarcerated, for how long, and how often. In the United States, certain groups of youth are much more likely to come to the attention of the juvenile court and be incarcerated (Huizinga et al., 2007; N. Rodriguez, 2010; Tapia, 2011), namely poor young men of color. Therefore, crucial to predicting patterns of incarceration is examination of both the risk factors and behaviors of the individuals, as well as the response of the justice system (Lanctot et al., 2007; Laub & Sampson, 2003; Uggen & Kruttschnitt, 1998). Therefore, I also incorporate a second body of literature, which is drawn mostly from sentencing disparities research, and is concerned with social structural positioning and system-level correlates of incarceration.

Because I have found few studies specifically examining incarceration, this literature review begins with studies that have examined the social-cultural factors predicting *juvenile justice system involvement*, more broadly speaking. Results from the Cambridge Study in Delinquent Development (Farrington, 1986, 1996, 2003) show several childhood risk factors that

were found to be predictive of a juvenile court conviction, including individual factors, such as low IQ, daring personality, dishonesty, and troublesomeness; family factors, including antisocial parental behavior, convicted parents, siblings with problem behavior, and poor child-rearing; and neighborhood factors, including poor housing. School factors found to be related to a juvenile court conviction include poor academic performance and low school attachment (Savolainen et al., 2012).

Risk factors found to be predictive of an early juvenile court adjudication (prior to age 14) include child welfare system involvement and family criminality (Alltucker, Bullis, Close, & Yavanoff, 2006). Also in the family domain, Harper and McLanahan (2004) found that even when controlling for salient environmental risk factors, coming from a family without a father in the home significantly predicted juvenile incarceration. Similarly, Crutchfield, Skinner, Haggerty, McGlynn, and Catalano (2012) found that police contact was related to family criminality and associating with antisocial adults.

One study that specifically examined the risk and protective factors associated with juvenile incarceration (Reingle, Jennings, & Komro, 2013), finding that youth who, in the sixth grade, were older than their peers, spent more hours splaying sports, and were getting into trouble in school were more likely to be incarcerated in twelfth grade. With such a litany of risk factors related to juvenile court conviction and incarceration, one task becomes determining to what extent these risk factors predict offending and the resulting incarceration in adolescence, and to what extent incarceration can be attributed to the response of the legal system.

As researchers have begun to examine why certain groups are disproportionately represented in the incarcerated population, the literature on *sentencing practices* has grown significantly. Researchers have begun to examine which extra-legal factors, beyond the nature of

the crime committed or the criminal history of the offender, significantly affect the disposition received by the youth. Offender-level factors that have empirically been shown to be most associated with juvenile incarceration (compared to a less harsh sanction) include: African American race (Barrett, Katsiyannis, & Zhang, 2010; N. Rodriguez, Smith, & Zatz, 2009), non-White race (Holsinger & Latessa, 1999), male gender (Cauffman et al., 2007; Gliksman, 1997; S. F. Rodriguez, Curry, & Lee, 2006), older age (Barrett et al., 2010; Minor, Hartmann, & Terry, 1997), dysfunctional family relationships (Hoge, Andrews, & Leschied, 1995; N. Rodriguez et al., 2009), history of foster care (N. Rodriguez et al., 2009), history of family incarceration (N. Rodriguez et al., 2009), and drug/alcohol and behavioral problems (Holsinger & Latessa, 1999). Also of interest, Matarazzo, Carrington, and Hiscott (2001) found that even after controlling for age, gender, and the seriousness of the crime, the current court disposition was highly correlated with the previous disposition. That is, judges often established stable patterns of dispositions regardless of the nature of the current offense. These studies support the claim that the response of the law, in addition to the behavior of the individual, is important to understanding juvenile justice system involvement and patterns of incarceration.

The Current Study

Results from these two bodies of literature are highly informative, but independently, do not fully explain how some youth become more involved in the juvenile justice system by way of chronic or repeated incarceration patterns. The objective of this chapter is to combine these two perspectives to discover how individual and environmental risk factors, as well as demographic characteristics, are related to incarceration.

Figure 2.1 shows the hypothesized relationships between all the constructs in the model tested in this chapter. Based on what is known in the literature and in an attempt to fill the gaps, I hypothesize that one's position in the social structure will operate in two ways to affect levels of justice system involvement. First, risk and protective factors related to social disadvantage will be highly related to criminal behavior and the resulting involvement in the criminal justice system. This is modeled in Figure 2.1 by the paths from demographic variables, criminogenic environment, and prosocial protective environment to antisocial and illegal behaviors, followed by a path to increased justice system involvement. In addition, behavioral disinhibition is an individual characteristic that has been shown to be associated with delinquency and drug use (Sharma, Markon, & Clark, 2014; Veltri et al., 2014). Thus, the relationships between demographic factors, behavioral disinhibition, criminogenic environment, and prosocial protective environment and levels of justice system involvement are hypothesized to be mediated by delinquency and drug use.

A second mid-level life-course theory, the Social Development Model (Catalano & Hawkins, 1996; Hawkins & Weis, 1985), specifies hypotheses regarding these relationships among risk and protective factors in the etiology of both prosocial and antisocial behaviors, and provides specific mechanisms by which young people may enter into the criminal lifestyle and come to the attention of the juvenile justice system. The SDM articulates the mechanisms of socialization and identifies parallel but separate causal paths for *prosocial* and *antisocial processes*, including opportunities for involvement, actual involvement, skills for participation, rewards for involvement, bonding to others, and adoption of prosocial or antisocial beliefs and values. Participation in the prosocial path, operationalized in this model by prosocial protective (or promotive) factors in the family and peer domains, is seen to increase subsequent positive

outcomes and decrease antisocial behaviors. There is a literature discussing whether protective factors are necessarily moderators of risk, or are themselves simply positive social influences predicting reduced risk behavior (sometimes called promotive factors) (Loeber, Pardini, Stouthamer-Loeber, & Raine, 2007; Sameroff, Bartko, Baldwin, Baldwin, & Seifer, 1998). For the present study, we refer to these direct positive influences as protective factors.

Participation in the antisocial path, operationalized in this model by the youth's criminogenic environment in the family, peer, and neighborhood domains, is seen to decrease positive outcomes and increase risk behaviors. The SDM also posits that the behavioral outcomes from one developmental period affect the pathways likely to be followed in the subsequent developmental period.

In addition to the influence of risk and protective factors which may lead to criminal behavior and justice system involvement, also important to understanding how some youth become more involved in the system than others, is how the law responds to this behavior (Uggen & Kruttschnitt, 1998). This is the second way in which one's position in the social structure is theorized to affect justice system involvement. In the hypothesized model this idea is presented in the direct paths from demographic factors, including gender, ethnicity, poverty, and family structure, and criminogenic environment to levels of justice system involvement. I hypothesize that young men of color who come from impoverished environments will be more likely to experience a police contact and more chronic patterns of incarceration in adolescence. This is due to a number of factors, most notably bias against certain groups in sentencing practices, as well as law enforcement policies which disproportionately affect these same youth. In addition, I hypothesize that youth who come from families, neighborhoods, and peer groups characterized by a criminal environment may also experience deeper involvement in the justice

system, as factors such as family history of criminal justice system involvement have been shown to be sources of bias in the juvenile justice system, and therefore related to harsher sentences for youth (N. Rodriguez et al., 2009).

In sum, three hypotheses are tested in this chapter. 1.) Risk factors, including demographic characteristics marking position in the social structure, behavioral disinhibition, and criminogenic environment, will indirectly predict increased levels of involvement in the juvenile justice system through increased delinquency and drug use. 2.) Protective factors, including prosocial family and peer environments, will indirectly predict lower levels of involvement in the justice system through decreased delinquency and drug use. Finally, 3.) Indicators of one's position in the social structure will directly predict increased justice system involvement, over and above the effect of all other variables in the model.

Methods

Measures

The Seattle Social Development Project (SSDP) assessed multiple areas of social development from childhood through early adulthood. First, in order to understand how early life influences affect youths' risk of juvenile justice system involvement, I chose 13 variables, based on a literature review, to include as independent variables. This set of childhood variables includes measures that are hypothesized to be predictive of juvenile incarceration either directly or indirectly through delinquency and drug use. All predictors are measured somewhere between 5th and 8th grades so as to establish temporal order with other variables in the models (see Table 1.1). Many independent variables were assessed in 5th grade, while some others were not measured until youth were in 8th grade.

Demographic variables. Ethnicity and gender were both self-reported by the youth. Family structure, measured as non-two parent household (coded as 1) or two parent household (0), was reported by the youth's caregiver in 5th grade. Finally, poverty is a measure of whether the youth was eligible for free or reduced school lunch in 5th, 6th, or 7th grade.

Behavioral disinhibition. Behavioral disinhibition was assessed in 8th grade with five items measuring the frequency of impulsive and risky behavior. For example, youth were asked how many times they had done the following things: "do what feels good, regardless of the consequences," and "do something dangerous because someone dared you." The items were standardized and averaged to create a behavioral disinhibition scale (Cronbach's $\alpha = .77$).

Criminogenic environment. Four measures are used to capture youths' criminogenic environment. Family history of arrest is assessed with four variables. First, youth were asked if any of their siblings had ever been arrested. Youth's parents were also asked if they had ever been in trouble with the law, if their partners had ever been in trouble with the law, and finally, if any of their children, besides the SSDP respondent had ever been in trouble with the law. If any of these four items was endorsed from 5th through 8th grade, the youth was coded as (1) for family history of arrest. Youth who reported that one of their three best friends had ever been arrested in 5th through 8th grade were coded as (1) for the peer arrest variable, otherwise (0). If a youth reported having been in a gang at any point in 5th through 8th grades, he/she was coded (1), otherwise (0) for gang membership. Finally, neighborhood criminogenic environment was assessed in 8th grade with an item that asked "How much does the following describe your neighborhood: Crime?" The four possible responses ranged from "not at all" to "a lot."

Prosocial protective factors. The prosocial family environment construct consists of 22 items that measure family management, involvement, bonding, and conflict (reverse coded).

Examples of items include: “The rules in my family are clear,” “Our family members get along well with each other,” “On weekdays, how many meals does your family eat together each day?” and “Do you share your thoughts and feelings with your mother?” Each item was standardized and then averaged to create a composite measure. The average of 5th and 6th grades was used in the current analyses (Cronbach’s $\alpha = .84$).

The prosocial peer environment variable measures the extent to which the youths’ four best friends (in 5th grade) and three best friends (in 6th grade) attempted to excel in school. The questions asked, “Does this person [first best friend] try to do well in school?” Again, items were standardized and averaged within grade. The average of 5th and 6th grades were used for these analyses (Cronbach’s $\alpha = .45$).

Delinquency and drug use. In a review of the research on criminal labeling, Barrick (2014) concluded that the most robust and sophisticated measures of prior delinquency are those that use a weighted measure that accounts for both frequency and severity of criminal behavior. Thus, to assess delinquency I used the past month frequency of self-reported delinquent acts, and then weighted each act by severity (one for minor, two for moderate, and three for serious delinquency). Minor acts of delinquency include acts such as picking a fight, drawing graffiti, and stealing something worth less than \$5. Moderate delinquency include acts such as hitting parents, damaging or destroying property, and stealing something worth less than \$50. Serious delinquency include acts such as using a weapon or force to get something, breaking into a building, drug selling, and stealing something worth more than \$50. Past month drug use, including the use of marijuana, powder or crack cocaine, amphetamines, tranquilizers, sedatives, psychedelics, and narcotics, was measured in the SSDP sample every year from 6th through 10th grades.

Police contact and incarceration. Police contact in adolescence was measured using both self-reported and official court data (obtained for all juvenile courts in the State of Washington). An official referral to the juvenile court would result in a record. However, any contact with the police due to delinquent or criminal behavior that did not result in a court referral was not recorded in the official data. Therefore, I also used a variable measured at each data collection point through 12th grade that asked whether the respondent had ever been “picked up or arrested by the police.” Thus, if an individual ever reported having been arrested or picked up by the police or had an official record of a court referral, he/she was coded as (1), otherwise (0).

A strength of the SSDP dataset is the availability of official incarceration data provided by juvenile courts throughout the state of Washington. Each arrest and subsequent incarceration resulting from adjudication throughout adolescence were reported. These official data allow identification of different patterns of incarceration based on frequency and duration in the subset of the SSDP sample that had an official incarceration record at some point between 5th and 12th grade. Patterns of incarceration were created based on two indicators, duration and frequency of incarceration events measured across adolescence. Official data on incarceration were only available for those youth who were adjudicated by the court and received a disposition that included serving time in a juvenile detention center or a state juvenile corrections institution. Thus, the incarceration group (n=108) did not include youth who may have been detained for a short amount of time prior to adjudication.

Those who were only incarcerated one time for three weeks or less were considered to be in the first group, “limited incarceration across adolescence.” Those youth who were incarcerated for one time for more than three weeks, or two or more times for a total duration of six weeks or

less were considered to be in the second group, “moderate incarceration across adolescence.” Finally, the youth who were incarcerated for two or more times and spent a total of more than six weeks incarcerated from 5th to 12th grade were considered to be in the third group, “chronic incarceration across adolescence.” Groups were classified based on the sample distribution, so that approximately 1/3 of those who had been incarcerated fell into each category, and all youth fit into one of these three categories. Figure 2.2 shows the distribution of these three variables, police contact, incarceration and incarceration patterns, in the SSDP sample.

Analysis

I estimated two separate path models to address these research questions. First, to examine the predictors of police contact, I estimated the first path model with the full SSDP sample (n=808), where risk and protective factors predict delinquency and drug use (path 1) and delinquency and drug use predict police contact (path 2). As described above, delinquency was calculated for each youth for each survey year from 5th through 10th grade and again in 12th grade. For those youth who never had a police contact or a subsequent incarceration, these scores were averaged across adolescence through 12th grade. For those youth who had a police contact, prior delinquency was calculated to establish temporal ordering with police contact. That is, prior delinquency was calculated by averaging the delinquency across years through the year in which the first police contact occurred. Prior drug use frequency was also measured so as to establish temporal ordering with police contact in the same manner. Because past month drug use was not available in 5th grade, those youth who experienced their first police contact in 5th grade were coded as missing for prior drug use. Also, prior drug use was available annually through 10th grade but no survey was conducted in the 11th grade, so average prior drug use for those youth

who had their first police contact and/or incarceration in grade 12 was calculated through 10th grade.

Second, to examine the patterns of incarceration among the subset of the SSDP sample who ever experienced a police contact in adolescence (n=325) I estimated the second path model, where risk and protective factors predict delinquency and drug use, and delinquency and drug use predict patterns of incarceration. Delinquency and drug use were measured, as described above, to establish temporal ordering with incarceration. That is, both delinquency and drug use were averaged across years through the year in which the first incarceration occurred. Incarceration patterns were regressed on delinquency and drug use and childhood risk and protective factors. Chronic incarceration was used as the referent category; I compared this outcome to the no incarceration, limited incarceration, and moderate incarceration groups. For both models I tested both indirect (mediated by delinquency and drug use) and direct effects of the predictors on the outcome to test my three research hypotheses. All analyses were conducted in MPlus version 7 (Muthén & Muthén, 2008). MPlus uses Full Information Maximum Likelihood (FIML) with incomplete data to obtain less biased estimates than traditional methods of handling missing data, such as pairwise or listwise deletion (Schafer & Graham, 2002). FIML uses all available information in model estimation. Across all variables used in the model, average missingness was 4.43%.

Results

Table 2.1 shows the bivariate correlations among all independent variables and mediators. Table 2.2 shows the zero-order relationships between each of the predictors and mediators and the dependent variables (expressed as odds ratios). At the level of zero order,

police contact and incarceration patterns are related to prior delinquency and drug use, and these outcomes are significantly related to most of the risk and protective factors examined in this study. Table 2.3 shows the logistic regression results from the first model (Column 1) and the multinomial logistic regression results from the second model (Columns 2 through 4). Simplified graphical models showing only the significant paths between independent variables, mediators and dependent variables are shown in Figures 2.3 and 2.4.

In the first model, both delinquency and drug use significantly predict police contact. The three research hypotheses are confirmed in this model. First, the risk factors predicted to positively affect police contact indirectly through increased delinquency and drug use are statistically significant. As predicted, the relationship between behavioral disinhibition and police contact is fully mediated by delinquency and drug use. The effects of peer arrest and gang membership are partially mediated through delinquency and drug use. The effects of family history of arrest and male gender are also partially mediated by delinquency. With regard to the second research hypothesis, the protective factors, prosocial family environment and prosocial peer environment, are both significantly negatively related to police contact through decreased delinquency. Finally, social disadvantage and other indicators of one's position in the social structure have significant direct effects on police contact, net of the effect of delinquency, drug use and all other variables in the model. Specifically, those youth with a family history of arrest, peer arrest, or gang membership are about twice as likely to experience a police contact in adolescence (OR = 1.68, 2.01, 1.93, respectively). Those youth living in poverty or coming from a non-two parent household are more than 1.5 times more likely to experience a police contact, and males are nearly 2.5 times more likely than females to have a police contact. Finally, African American youth and Asian American youth are significantly more likely than European

American youth to have a police contact. This finding is especially important because, while African American youth in this sample report significantly higher rates of self-reported delinquency than European American youth, Asian Americans actually report lower rates of self-reported delinquency.

In the second model, in which incarceration patterns are predicted among only those who had experienced at least one police contact in adolescence, delinquency, but not drug use, is significantly related to incarceration patterns (Table 2.3). Specifically, for a one unit increase in delinquency the odds of being in the chronic incarceration group versus the never incarcerated or the moderate group are more than three times greater (for chronic versus limited incarceration, the odds ratio was 2.55, though not statistically significant).

For the most part, the research hypotheses are confirmed, with the exception of the mediating effects of drug use. None of the indirect effects through drug use are statistically significant, and thus, are not shown in Table 2.3. A youth's criminogenic environment indirectly (through delinquency) increases the chances of experiencing a chronic incarceration pattern during adolescence. Those youth with a peer history of arrest are nearly 1.5 times more likely to be in the chronic incarceration group versus no incarceration, and those youth who report gang membership are nearly 1.6 times more likely. Behavioral disinhibition also significantly increases the odds of experiencing chronic incarceration compared to no incarceration (OR=1.58) or limited incarceration (OR=1.48) through its relationship with delinquency. Males are 1.35 times more likely to be in the chronic group than the no incarceration group, when taking into account this relationship as mediated by delinquency. With regard to protective factors, prosocial family environment, but not peer prosocial environment, is significantly related

to a lower likelihood of chronic incarceration (versus no incarceration), through decreased delinquency.

Also confirmed was the research hypothesis that indicators of one's position in the social structure would directly influence patterns of incarceration. Youth who joined a gang are nearly five times more likely to be in the chronic incarceration group versus limited incarceration, net of the effects of delinquency, drug use, and all other risk and protective factors in the model. Youth in poverty are nearly six times more likely to be in the chronic incarceration group versus no incarceration, and males are more than six times more likely to be in this group net of all other variables in the model. Finally, African Americans are significantly more likely than European Americans to be in the chronic incarceration group versus no or limited incarceration (seven and nine times more likely, respectively), even after controlling for delinquency, drug use, and all other risk and protective factors. Asian Americans are significantly more likely than European Americans to be in the chronic group versus the limited group, and Native American youth are significantly more likely than European Americans to be in the chronic group versus any other group. It is important to note here that the odds ratios for Asian American and Native Americans versus European Americans are very high, likely due to small numbers of youth in these groups (see Table 1.1). Because youth of all other racial/ethnic groups were consistently more likely than European American youth to be in the chronic incarceration group, I also tested a model in which non-European American youth are compared to European American youth in order to increase power and obtain more interpretable odds ratios. Non-European American youth are significantly more likely to be in the chronic incarceration group versus no incarceration (OR=5.94), limited incarceration (OR=12.99), or moderate incarceration (OR=4.13), controlling for all other variables in the model. This result supports what other researchers have found with

regard to disproportionality in the juvenile justice system based on non-European American race (Holsinger & Latessa, 1999).

Discussion

Based on the well-documented relationship between incarceration and negative outcomes during the transition to adulthood, the findings of this study are particularly pertinent, as I found that young men of color from impoverished backgrounds were more likely to experience a police contact and more likely to experience subsequent chronic incarceration across adolescence. This was partially, but not wholly, due to increased levels of delinquency and drug use. However, demographic variables still directly contributed to justice system involvement, even when controlling for said delinquency and drug use. Even though rates of delinquency and drug use were significantly lower for Asian Americans than for European Americans in this sample, Asian Americans faced an increased risk of police contact and chronic incarceration compared to European American youth.

The results of this study point to two ways in which one's position in the social structure contributes to increased juvenile justice system involvement. First, demographic characteristics and risk and protective factors known to be associated with social disadvantage in the context of justice system involvement, such as racial/ethnic minority status, poverty, family composition, and male gender, criminogenic environment, and prosocial peer and family environments were all related indirectly to increased justice system involvement through delinquency and/or drug use. Second, demographic characteristics and a youth's criminogenic environment further contributed directly to increased justice system involvement, even when controlling for actual offending behavior and all other variables in the model.

Thus, the implications for policy, practice, and prevention are also two-fold. First, the results of this study elucidate points of entry for the prevention of delinquency and drug use and subsequent justice system involvement. Both the family and peer environments were shown to be important. Prevention scientists can focus specifically on decreasing the criminogenic influence of families while increasing positive family functioning. Similarly, prevention programs can focus on encouraging youth to choose peers wisely, and seek out interaction with prosocial peers. Behavioral disinhibition also proved to be a significant factor in justice system involvement across adolescence. Youth who exhibit high levels of behavioral disinhibition could be targeted for selective preventive interventions to reduce delinquency and drug use.

The second implication of the results of this study are pertinent for policy and practice. The results clearly indicate a significant degree of disproportionality in levels of justice system involvement with regards to male gender, ethnicity, and poverty. While system bias was not measured directly in this study, it is certainly a plausible explanation, and one that has been documented in other studies (see above). It is possible that other variables not included in this study might account for this disproportionality, though I attempted to include all confounding variables based on theory and prior research. Davis et al. (2008) write that implementation of juvenile justice must happen within the framework of social justice. I echo the statements of others who have concluded that change in the juvenile justice system is needed to reduce disproportionality based on ethnicity, gender, and poverty.

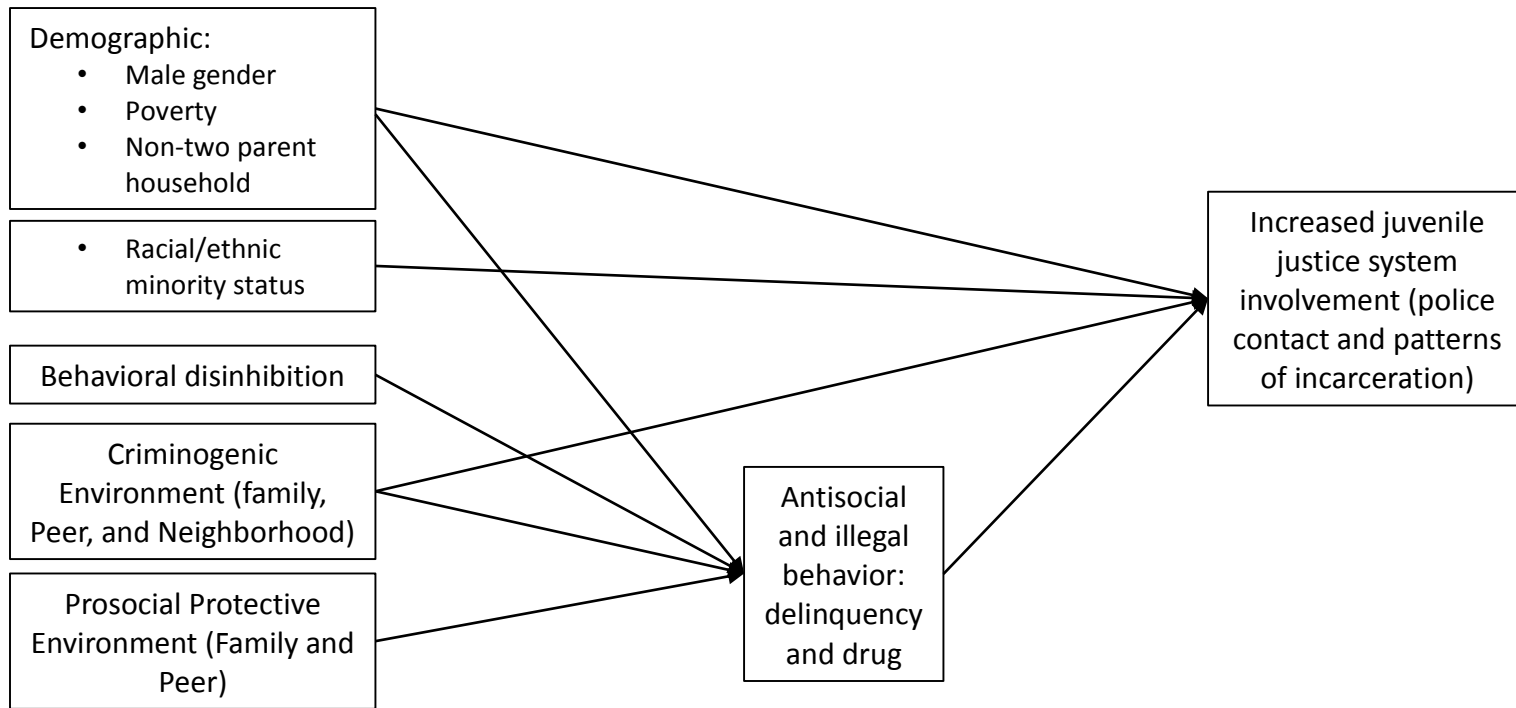


Figure 2.1. Conceptual Model of Childhood Predictors of Juvenile Justice System Involvement

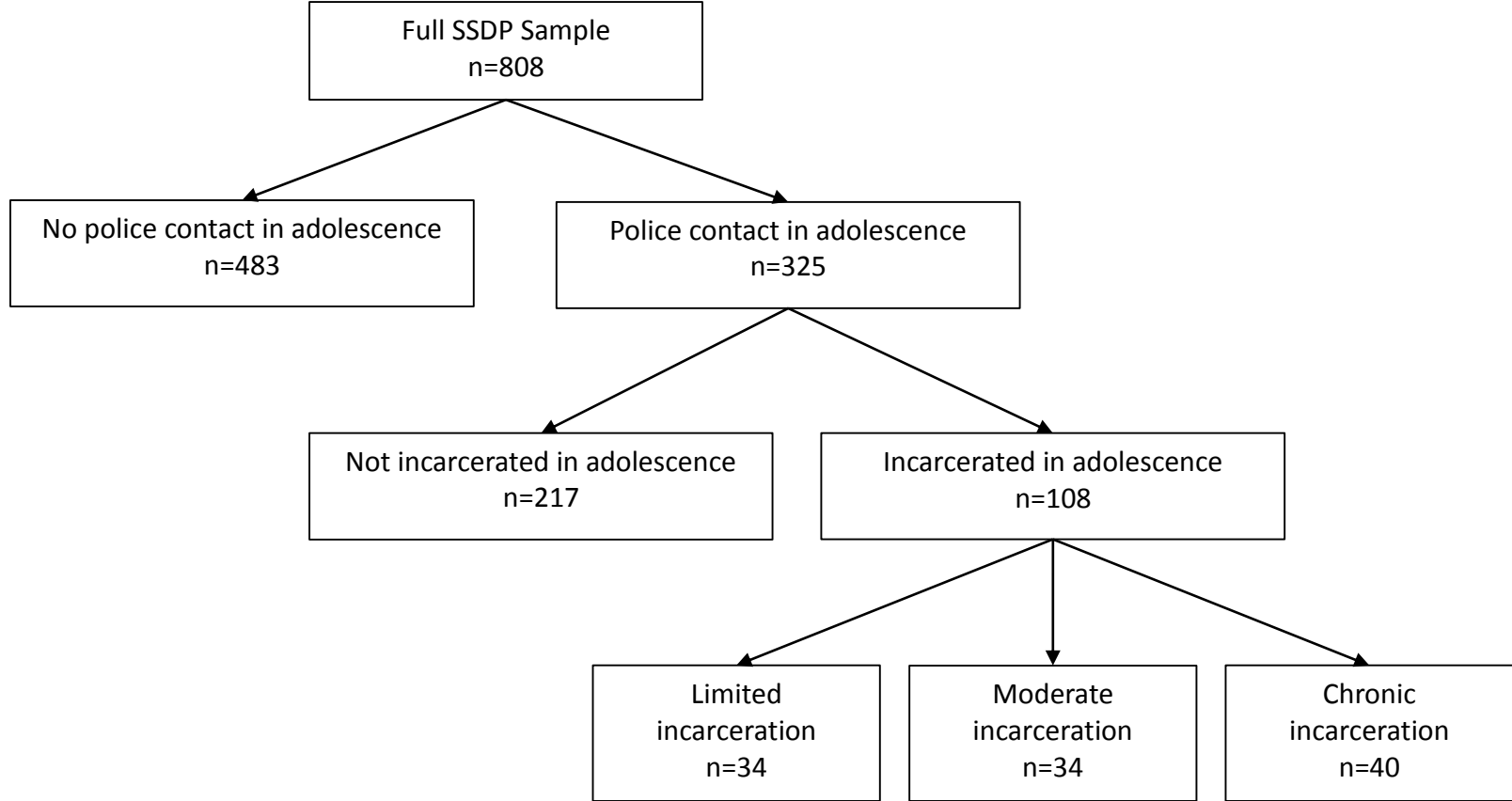
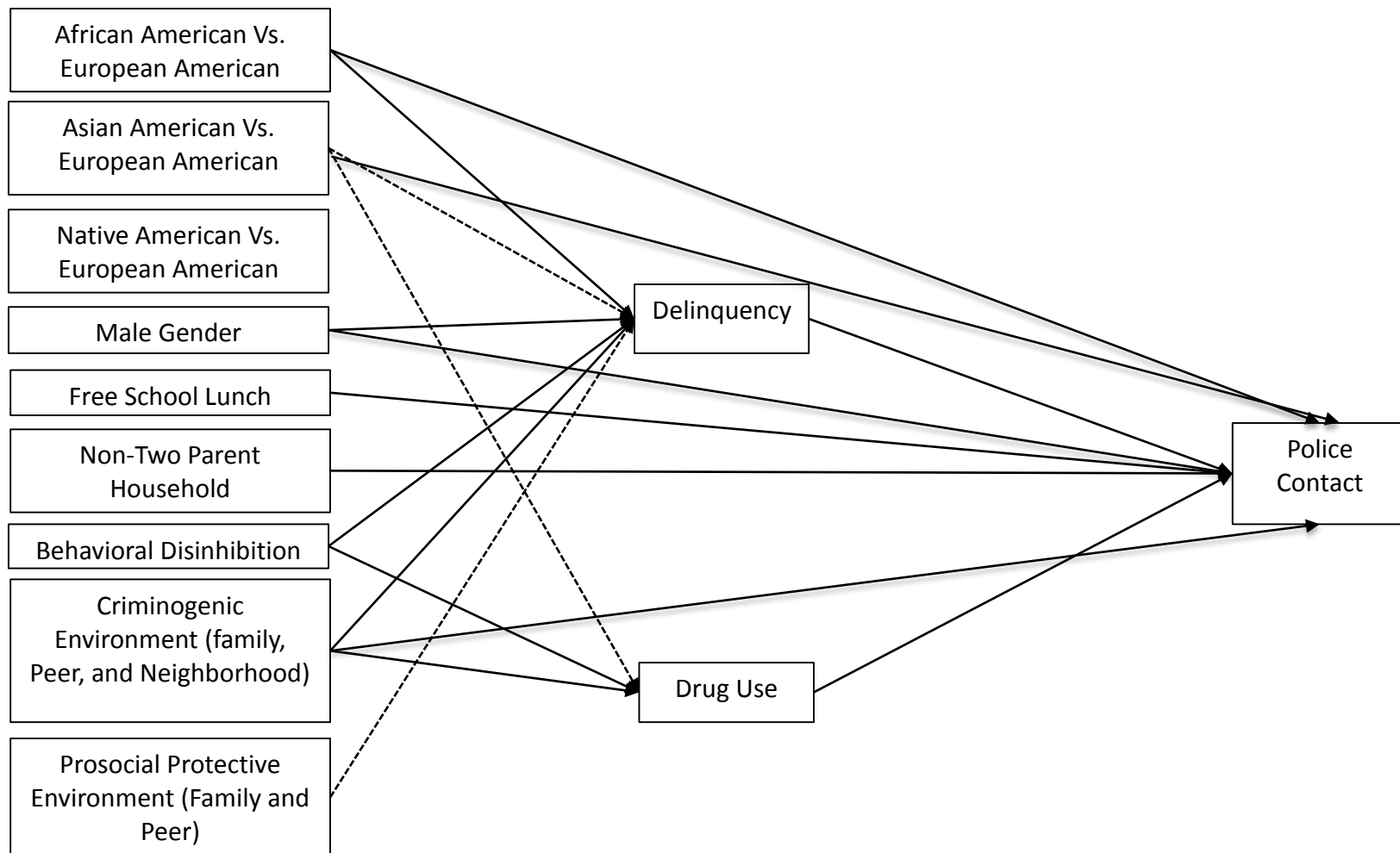
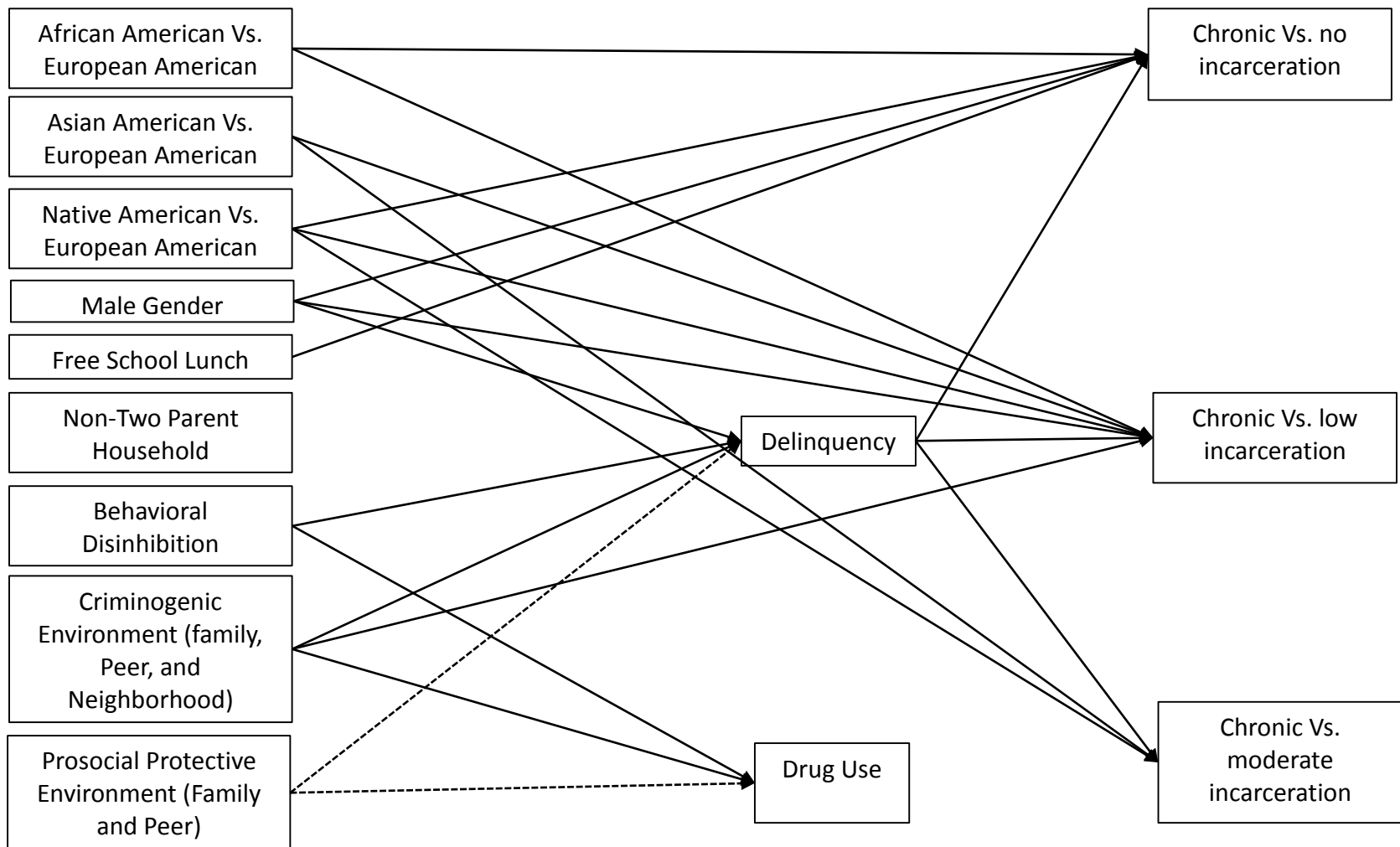


Figure 2.2. Police Contact and Incarceration in the SSDP Sample



Note: only statistically significant paths ($p < .05$) are shown. Dotted lines signify negative relationship, while solid lines signify positive relationships.

Figure 2.3. Path Model of Childhood Predictors of Adolescent Police Contact



Note: only statistically significant paths ($p < .05$) are shown. Dotted lines signify negative relationship, while solid lines signify positive relationships.

Figure 2.4. Path Model of Childhood Predictors of Adolescent Incarceration Patterns

Table 2.1. Bivariate Correlations of Study Variables in the Full Sample and Police Contact Subsample

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Police Contact													
2. Incarceration	.92 (N/A)												
3. Delinquency	.55 (N/A)	.48 (.35)											
4. Drug use	.27 (N/A)	.23 (.27)	.34 (.37)										
5. Family history of arrest	.35 (N/A)	.38 (.25)	.31 (.31)	.14 (.11)									
6. Peer history of arrest	.51 (N/A)	.44 (.22)	.50 (.44)	.36 (.41)	.35 (.25)								
7. Neighborhood crime	.18 (N/A)	.26 (.22)	.14 (.21)	.13 (.18)	.15 (.19)	.22 (.23)							
8. Gang membership	.50 (N/A)	.50 (.32)	.44 (.38)	.17 (.21)	.23 (.15)	.40 (.32)	.27 (.24)						
9. Prosocial family env.	-.16 (N/A)	-.10 (-.01)	-.19 (-.18)	-.06 (-.11)	-0.12 (-.18)	-.10 (-.09)	-0.02 (.00)	.03 (.09)					
10. Prosocial peer env.	-.16 (N/A)	-.20 (-.19)	-.21 (-.28)	-.23 (-.31)	-0.10 (-.10)	-.17 (-.14)	-.11 (-.16)	-.12 (-.10)	.13 (.10)				
11. Poverty	.29 (N/A)	.44 (.40)	.06 (-.01)	.14 (.07)	.16 (-.08)	.18 (.08)	.23 (.19)	.38 (.40)	-.06 (-.03)	-.10 (-.12)			
12. Non-two parent household	.33 (N/A)	.28 (.15)	.20 (.12)	.17 (.16)	.25 (.08)	.32 (.27)	.22 (.29)	.36 (.27)	-.08 (-.09)	-.13 (-.13)	.50 (.47)		
13. Behavioral disinhibition	.35 (N/A)	.32 (.21)	.55 (.53)	.28 (.34)	.24 (.26)	.35 (.33)	.17 (.19)	.24 (.13)	-.12 (-.12)	-.16 (-.17)	-.03 (-.05)	.15 (.19)	
14. Male gender	.37 (N/A)	.40 (.28)	.29 (.15)	.02 (-.09)	.01 (.10)	-.01 (-.23)	.04 (-.12)	.20 (-.08)	-.09 (.00)	-.11 (-.10)	-.08 (-.19)	.02 (.06)	.21 (.08)
15. African American	.35 (N/A)	.46 (.39)	.16 (.13)	.09 (.13)	.13 (-.01)	.30 (.21)	.26 (.27)	.34 (.25)	.06 (.17)	-.09 (-.07)	.62 (.62)	.41 (.34)	.04 (.01)
16. Asian American	.08 (N/A)	-.14 (-.22)	-.31 (-.38)	-.44 (-.53)	-.47 (-.56)	-.23 (-.21)	.03 (.05)	-.12 (-.16)	-.09 (-.01)	.10 (.17)	.51 (.32)	-.23 (-.39)	-.44 (-.58)
17. Native American	.26 (N/A)	.27 (.15)	.02 (.19)	.10 (.22)	.11 (-.07)	.28 (.19)	.17 (.22)	.17 (.08)	.03 (.20)	-.12 (-.04)	.30* (.39)	-.05 (-.14)	.09 (.06)

Note: Significant correlations ($p < .05$) are in bold. Police subsample correlations are in parentheses.

Table 2.2. Zero-Order Relationship between Independent Variables and Police Contact and Incarceration Patterns

	Full Sample (n=808)		Subsample (n=325)	
	Police Contact Vs. No Contact	Chronic Vs. No Incarceration	Chronic Vs. Limited Incarceration	Chronic Vs. Moderate Incarceration
	OR	OR	OR	OR
Mediators				
Delinquency	3.36***	4.74***	3.15**	3.01**
Drug use	2.07***	1.32**	1.31*	1.05
Criminogenic Environment				
Family history of arrest	2.57***	1.77	0.80	0.94
Peer history of arrest	5.85***	2.40*	1.15	1.88
Neighborhood crime	1.39***	1.85***	1.77*	1.21
Gang membership	5.87***	3.73***	5.56*	0.99
Prosocial Environment				
Prosocial family env.	0.58**	1.14	1.23	1.33
Prosocial peer env.	0.64**	0.47***	0.48**	0.71
Demographics				
Poverty	2.13***	5.65**	3.82*	1.21
Non-two parent household	2.41***	2.70	3.82	1.17
Male gender	2.69***	3.25***	2.26	1.45
Race/Ethnicity				
African American vs. White	2.60***	2.34***	9.75***	3.25
Asian American vs. White	1.25	0.50	6.00	3.33
Native American vs. White	2.32*	2.22**	27.00**	15.00*
Behavioral disinhibition	2.30***	2.35***	2.17**	1.82

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

Table 2.3. Estimated Effects of Independent Variables on Police Contact and Incarceration Patterns

	Full Sample (n=808)		Subsample (n=325)	
	Police Contact Vs. No Contact	Chronic Vs. No Incarceration	Chronic Vs. Limited Incarceration	Chronic Vs. Moderate Incarceration
Hypothesized Direct Effects	OR	OR	OR	OR
Delinquency → JJ Involvement	2.36***	3.39**	2.43	2.86*
Drug use → JJ Involvement	1.30*	1.12	1.18	0.97
Family history of arrest → JJ Involvement	1.68**	0.97	0.66	0.88
Peer history of arrest → JJ Involvement	2.01*	0.91	0.38	1.33
Neighborhoodhood crime → JJ Involvement	1.04	1.29	1.11	0.95
Gang membership → JJ Involvement	1.93	2.04	4.67*	0.85
Poverty → JJ Involvement	1.52*	5.93**	2.27	1.33
Non-two parent household → JJ Involvement	1.64*	0.68	2.02	0.74
Male gender → JJ Involvement	2.47***	6.16**	3.82*	1.55
Race/Ethnicity → JJ Involvement				
African American vs. White	1.84**	7.00**	9.01**	3.05
Asian American vs. White	2.29**	3.37	17.02**	7.20*
Native American vs. White	2.09	7.94*	38.27**	17.18*
Hypothesized Mediated Effects				
Family history of arrest → delinquency → JJ Involvement	1.16**	1.16	1.12	1.14
Peer history of arrest → delinquency → JJ Involvement	1.48***	1.46*	1.32	1.38
Neighborhoodhood crime → delinquency → JJ Involvement	1.00	1.08	1.06	1.07
Gang membership → delinquency → JJ Involvement	1.42***	1.58*	1.39	1.48
Prosocial family env. → delinquency → JJ Involvement	0.84**	0.78*	0.84	0.81
Prosocial peer env. → delinquency → JJ Involvement	0.92*	0.82	0.87	0.84

Table 2.3 Continued. Estimated Effects of Independent Variables on Police Contact and Incarceration Patterns

Poverty → delinquency → JJ Involvement	0.99	0.87	0.90	0.89
Non-two parent household → delinquency → JJ Involvement	1.01	0.87	0.90	0.88
Male gender → delinquency → JJ Involvement	1.23***	1.35*	1.24	1.29
Behavioral disinhibition → delinquency → JJ Involvement	1.47***	1.58**	1.40	1.48*
Family history of arrest → drug use → JJ Involvement	1.02			
Peer history of arrest → drug use → JJ Involvement	1.39*			
Neighborhoodhood crime → drug use → JJ Involvement	1.02			
Gang membership → drug use → JJ Involvement	1.14			
Prosocial family env. → drug use → JJ Involvement	0.97			
Prosocial peer env. → drug use → JJ Involvement	0.86			
Poverty → drug use → JJ Involvement	1.04			
Non-two parent household → drug use → JJ Involvement	1.00			
Male gender → drug use → JJ Involvement	0.96			
Behavioral disinhibition → drug use → JJ Involvement	1.13			

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

References to Chapter 2

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CHAPTER 3: ADULTHOOD CONSEQUENCES ADOLESCENT INCARCERATION

Introduction

The United States has the highest rate of juvenile incarceration among industrialized nations (Annie E. Casey Foundation, 2013). With so many youth experiencing incarceration in the United States, it is important for juvenile justice and social welfare policies and practices to understand how this sanction ultimately affects the life course trajectories of these youth. Is juvenile incarceration truly rehabilitative, as it was originally intended to be? Or, as many have claimed, are the effects of incarceration actually iatrogenic, increasing the likelihood of future offending? Finally, are there unintended consequences of incarceration beyond criminal outcomes, (e.g., for mental health and financial security)?

There are several theoretical explanations for why incarceration might be ineffective or even deleterious with regard to criminal outcomes, and also why it might be related to negative outcomes in other areas of adult functioning. Greve (2001) writes, “Youth incarceration is almost by definition a (harsh kind of) developmental intervention. Thus, its impact and consequences have to be evaluated from a developmental point of view” (p. 27). My theoretical framework takes a developmental point of view, and draws on life course theory (Elder, 1985; Gotlib & Wheaton, 1997; Sampson & Laub, 1992) and labeling theory (Lemert, 1951; Tannenbaum, 1938) to examine how incarceration affects development through the life course.

Life course theory, broadly speaking, deals with processes over time and across developmental stages. More specifically, life course theory outlines the concepts of trajectories and turning points. Turning points are events or processes that happen in one’s life that alter

one's trajectory. These may be positive events, such as completing a degree or having a child, or negative events that alter one's life course trajectory for the worse, producing poor outcomes in future developmental periods. In this study I theorize that juvenile incarceration may serve as a turning point, altering youths' opportunity structures during the critically important transition to adulthood, and producing negative consequences for adult functioning. Labeling theory (Lemert, 1951; Tannenbaum, 1938) is helpful in explaining why incarceration may serve as a negative turning point in youths' lives.

Labeling theory has been described as "the one theoretical perspective in criminology that is inherently developmental in nature" (Sampson & Laub, 1997, p. 3). Sampson and Laub (1997) contend that the relationship between childhood predictors of criminal behavior and adult crime are mediated by "institutions of informal and formal social control, especially in the transition to adulthood" (p. 10). One of the most visible and influential forms of social control is incarceration. Incarceration not only provides an opportunity to bond to other young people who have been involved in similar antisocial behavior, perhaps cultivating a criminogenic process, but also involves a disruption that presents a tangible and social detachment from conventional norms and institutions. This loss of attachment to conventional opportunity structures is thought to encourage the labeled individual to return to the criminal lifestyle. It is quite feasible that the negative effects of incarceration would also "cascade" into other non-criminal domains of adult functioning, including mental health and financial security (Rodriguez, 2013).

As is tested in this study, it is likely that that more chronic patterns will predict more negative outcomes. The more time spent in confinement corresponds to less time youth are connecting to conventional society and benefiting from conventional opportunity structures. For example, Ramaswamy and Freudenberg (2012) found that incarceration was related to unstable

housing, and that young men who were incarcerated for more than 10 days were 27 times more likely to have unstable housing one year later, compared to those who were incarcerated for less than 10 days.

Drawing on life-course theory and labeling theory to examine the consequences of incarceration, two research questions are addressed in this study. First, what are the long-term criminal, social, and mental health consequences of juvenile incarceration for adult functioning? Second, do these consequences vary by incarceration patterns measured across adolescence?

Literature Review

Several studies have examined the negative consequences of *juvenile justice system involvement* more broadly, finding that involvement is positively associated with later offending (Bernburg & Krohn, 2003; Gold & Williams, 1969; Petitcherc, Gatti, Vitaro, & Tremblay, 2013) and unemployment (Bushway, 1998; Wiesner, Kim, & Capaldi, 2010). For the purposes of this literature review, I focus on studies that examine the effects of *incarceration* explicitly, and on those studies that examined the effects of incarceration when that incarceration occurred before the age of 18. Thus, studies summarized here either used a lifetime measure of incarceration that included juvenile and adult incarceration, had a mixed sample of juveniles and adults, or explicitly studied incarceration that occurred before the age of 18.

Lifetime Incarceration

Using a lifetime measurement of incarceration that included adolescent and adult incarceration, researchers have found that incarceration is related to fewer job opportunities (Apel & Sweeten, 2010; Freeman, 1987; Huebner, 2005; Laub & Sampson, 2003; Tanner,

Davies, & O'Grady, 1999), decreased wages (Apel & Sweeten, 2010; Davis, Tsukida, Marchionna, & Krisberg, 2008; Western, 2002), housing insecurity (Geller & Curtis, 2011), lower rates of marriage (Huebner, 2005; Huebner, 2007; Lopoo & Western, 2005), and family instability (Huebner, 2007; Lanctot, Cernkovich, & Giordano, 2007; Lopoo & Western, 2005; Massoglia, Remster, & King, 2010). In addition, incarceration has been linked to poor health (Massoglia, 2008a, 2008b; Schnittker & John, 2007) and mental health problems (Schnittker, Massoglia, & Uggen, 2012). While informative and valuable, these studies do not distinguish between juvenile and adult incarceration. For example, many of the studies cited above used the National Longitudinal Study of Youth (NLSY79) (e.g., Davies & Tanner, 2003; Huebner, 2005; Huebner, 2007; Lopoo & Western, 2005; Massoglia, 2008a, 2008b; Massoglia et al., 2010; Schnittker & John, 2007; Western, 2002), which follows a cohort through adolescence and early adulthood (participants were between the ages of 14 and 22 at the beginning of the study), to examine the long-term consequences of incarceration. Measuring incarceration as an event occurring at some point during the study period does not allow for the differentiation between juvenile and adult incarceration. In the current study I am particularly interesting in understanding the unique effects of juvenile incarceration on adult functioning, as adolescence is a critical time of preparation for the transition to adulthood (Collins & Steinberg, 2006).

Juvenile Incarceration

Those studies that have limited their sample to juveniles to examine the consequences of incarceration show mixed results on several outcomes of interest. First, I focus on studies that examine proximal consequence of incarceration. In a descriptive study, Abram, Choe, Washburn, Romero, and Teplin (2009) found that more than one-fifth of former juvenile detainees had

significant impairment in functioning three years post incarceration. In separate studies, both Hjalmarsson (2009) and Aizer and Doyle (2013) found that juvenile incarceration was related to a decreased likelihood of high school graduation. On the other hand, Hjalmarsson (2008) found that incarceration was actually related to reduced recidivism when incarcerated youth were compared to youth who had been adjudicated but received a disposition other than incarceration. White, Shi, Hirschfield, Mun, and Loeber (2010) did not find significant relationships between incarceration and anxiety and depression in a community youth sample.

A handful of studies have examined the consequences of juvenile incarceration on adult functioning. Lanctot et al. (2007) found that juvenile incarceration was linked to socioeconomic disadvantage, job instability, substance use problems, mental health-related problems, and criminal behavior in the late twenties. Similarly, McCord (2000) and Aizer and Doyle (2013) both found that juvenile incarceration was related to adult offending. Thus, there is some evidence that juvenile incarceration is related to negative outcomes in adulthood.

Types of Juvenile Justice System Involvement

Horwitz and Wasserman (1979) examined whether increased societal control, measured by the severity of the juvenile court disposition (dismissal, less than probation, probation, and institutionalization), had an increased effect on delinquency. They found that increased societal control significantly increased delinquency following juvenile justice system involvement. While this study does not focus specifically on incarceration, it suggests examination of the consequences of different degrees or patterns of institutionalization.

A few studies have examined whether the consequences of juvenile incarceration vary by the amount of time spent in confinement, though there is very limited research in this area

(Cullen & Jonson, 2014). Dmitrieva, Monahan, Cauffman, and Steinberg (2012) found that, while confinement in a secure facility was related to decreased psychosocial maturity, among those who were incarcerated, length of time in secure confinement was not related to psychosocial maturity. Similarly, Hjalmarsson (2009) found that sentence length was not significantly related to high school graduation. Winokur, Smith, Bontrager, and Blankenship (2008) also found no significant and consistent relationship between length of stay and recidivism within one year. Finally, Loughran et al. (2009) also failed to find a significant relationship between length of confinement and recidivism. In a review of studies that examined labeling theory as an explanatory mechanism of the relationship between criminal sanctions and recidivism, Barrick (2014) found that 23% of the studies examining length of incarceration reported support for labeling theory (i.e., a positive relationship between length of incarceration and negative outcomes), while 30% did not find support. I aim to expand this body of research by examining the effects of varying patterns of incarceration across the span of adolescence.

The Current Study

This study fills gaps in the literature in several ways. First, I focus specifically on the effects of *juvenile* incarceration. For youth who are incarcerated developmental and social transitions and milestones can be disrupted in a time of preparation for the important transition to adulthood. Indeed, Pettit and Western (2004) write, “From the life course perspective, prison represents a significant re-ordering of the pathway through adulthood that can have lifelong effects” (p. 154). Barrick (2014) concluded from her review that juveniles were more susceptible

than adults to the negative effects of labeling after involvement in the criminal justice system, as evidenced by increased recidivism.

Second, I examine the *long term* consequences of juvenile incarceration, focusing on seven outcomes at age 27-33: criminal behavior, incarceration, alcohol abuse/dependence, drug abuse/dependence, depression, anxiety, and welfare receipt. Third, I conduct analyses to determine if different patterns of incarceration across adolescence have differing life course consequences. Finally, I use a sophisticated and rigorous analytic strategy, propensity score weighting, to adjust for confounding variables that might actually be driving incarceration and the observed outcomes. The present study uses a propensity weighting approach that rendered the incarcerated and non-incarcerated juvenile equivalent on a broad range of potential confounding background characteristics (both demographics as well as risk and protective factors), thus increasing confidence that the observed differences between these groups are due to juvenile incarceration specifically.

Methods

The current study examines the consequences of incarceration for adult functioning, using a subsample the Seattle Social Development Project (SSDP) who had at least one police contact in adolescence (n=325). The study first examines the consequences in a two-group model (never incarcerated/incarcerated) and then in a four group model (never, low, moderate & chronic incarceration). One of the greatest challenges when examining the life-course consequences of juvenile justice system involvement is properly controlling for confounding variables: things that might have affected both the incarceration as well as subsequent later

functioning. It is well documented that youth who become involved in the juvenile justice system come from disproportionately disadvantaged backgrounds (see Wacquant, 2009). Thus, it can be argued that it is these environmental and individual risks that are causing both incarceration and subsequent negative outcomes in later life. I use two strategies to address this concern. First, the current study uses a subsample of the original SSDP community sample; the 325 youth who ever experienced a police contact (either in self-report or in official records). Reducing the sample to only those who have ever had a police contact provides a similar comparison of youth for assessing the effects of juvenile incarceration. Effectively, the sample studied here is limited only those who were at risk for incarceration. Second, I used propensity score analysis (Rosenbaum & Rubin, 1983) to create groups that were adequately balanced on a wide range of potential confounding variables.

Measures

Confounding variables. As noted by Yanovitzky, Hornik, and Zanutto (2008), when a randomized controlled trial is not feasible (as is the case for examining incarceration consequences), propensity score analysis (Rosenbaum & Rubin, 1983) can be a very effective approach for addressing selection bias. Of the 13 variables used in Chapter 2 to predict police contact and juvenile incarceration, 11 were found to be related to incarceration at the $p < 0.10$ level in the subsample of youth who had a police contact. Thus, these 11 variables (delinquency, drug use, family history of arrest, peer history of arrest, neighborhood crime, gang membership, prosocial peer environment, poverty, gender, ethnicity, and behavioral disinhibition) were used to estimate the propensity score, or the conditional probability of receiving the “treatment” of incarceration (see Table 3.1).

Incarceration and incarceration patterns. As described in Chapter 2, incarceration is a dichotomous measure of whether a youth was ever incarcerated as a result of court adjudication, based on official court data (coded as 1), or not (codes as 0). Patterns of incarceration are based on two indicators, duration and frequency of incarceration events measured across adolescence. Official data on incarceration were only available for those youth who were officially adjudicated by the court and received a disposition that included serving time in a juvenile detention center or a state juvenile corrections institution. Thus, the incarceration group (n=108) does not include youth who may have been detained for a short amount of time prior to adjudication.

Those who were only incarcerated one time for three weeks or less are considered to be in the first group, “limited incarceration across adolescence.” Those youth who were incarcerated for one time for more than three weeks, or two or more times for a total duration of six weeks or less are considered to be in the second group, “moderate incarceration across adolescence.” Finally, the youth who were incarcerated for two or more times and spent a total of more than six weeks incarcerated from 5th to 12th grade are considered to be in the third group, “chronic incarceration across adolescence.” Groups are classified based on the sample distribution, so that approximately 1/3 of those who had been incarcerated fall into each category, and all youth fit into one of these three categories (see Figure 2.2).

Adult functioning. In the current study, I investigate seven measures of adult functioning, measured at ages 27, 30, and 33 (in the years 2002, 2005, and 2008): criminal behavior, incarceration, alcohol abuse/dependences, drug abuse/dependence, depression, anxiety, and welfare receipt. If a respondent endorsed an outcome at either of the three time points, he/she is coded (1), otherwise (0). Crime is a measure of whether the respondent reported committing at

least one violent or property offense in the past year at age 27, 30, or 33. Incarceration is a self-reported measure of having spent time in jail or prison in the past year. Respondents were asked a series of questions about their drug and alcohol use. Individuals are coded with a (1) for drug abuse or dependence if they met DSM-IV criteria (American Psychiatric Association, 1994) for either dependence or abuse during the past year at ages 27, 30, or 33, and (0) if they never met criteria for either during this time frame. The same coding scheme is used for alcohol abuse or dependence. Similarly, mental health is measured with variables indicating whether respondents met diagnostic criteria, based on the DSM-IV (American Psychiatric Association, 1994) for major depression or generalized anxiety disorder at age 27, 30, or 33. Finally, welfare receipt is a self-reported measure of receipt of public assistance in the past year at age 27, 30, or 33.

Analysis

As described by Guo and Fraser (2014) the goal of the propensity score estimation is to construct a model that will produce a propensity score that will adequately balance the two groups. Often this model-building step is an iterative process whereby the researcher includes quadratic and interaction terms into the model and then tests the balance until an adequate balancing score is achieved (Rosenbaum & Rubin, 1984). This is the process I used for the current analysis, and I was able to achieve balance between the “treatment” and “control” groups (see results section below). The inverse of the propensity score was then used to weight the sample ($1/p$ for the treatment group and $1/(1-p)$ for the control group) when the outcomes of interest were regressed on incarceration, analogous to the way sampling weights are used (Guo & Fraser, 2014). As also described by Guo and Fraser (2014) and Imbens (2000), for the analyses involving patterns of incarceration (or modeling of “treatment” doses), I estimated the

generalized propensity scores with multinomial logistic regression and then assigned the inversed propensity score as the sampling weight. Multiple imputation was used to account for missing data. Across all variables used in the analysis the average rate of missing data was 5.1%. Results were combined from the 40 imputed dataset as recommended by Graham (2009) to estimate unbiased parameters and standard errors.

Results

Table 3.1 shows the post-weighting means and percentages for all confounding variables for the two group model: never incarcerated (n=217) versus incarcerated (n=108). After the use of propensity score weighting to balance the sample, there are no statistically significant differences between the two groups on any of the confounding variables. In addition, many propensity score experts recommend using the standardized mean difference to assess balance. There has been no universally agreed upon cut point (Austin, 2008), but Guo and Fraser (2014) assert that a difference above .20 signifies significant imbalance. For the current study, all of the standardized mean differences are below .20, and most are below .10.

Table 3.2 shows the relationship between juvenile incarceration and adult outcomes at ages 27-33 both before propensity score weighting (Column 1) and after (Column 2). At the zero-order level juvenile incarceration significantly predicts crime, incarceration, alcohol use problems, drug use problems, and welfare receipt in adulthood. After propensity score weighting, wherein the two groups are balanced on confounding variables, juvenile incarceration significantly predicts incarceration, alcohol use problems, and welfare receipt. Specifically, those who were incarcerated in adolescence are almost four times more likely to experience

incarceration in adulthood, more than two times more likely to meet criteria for alcohol abuse or dependence, and two times more likely to receive public assistance in adulthood than their counterparts with similar criminal propensity who had a police contact, but were not incarcerated in adolescence.

I next examined whether the significant long-term consequences observed in the first analysis (adult incarceration, alcohol abuse/dependence, and welfare receipt) further varied by incarceration patterns. That is, I was interested in whether increasingly chronic patterns of incarceration in adolescence produced increasingly poor outcomes in adulthood. Table 3.3 shows the relationship between these incarceration patterns and adult incarceration, alcohol abuse/dependence, and welfare receipt both before propensity score weighting and post-weighting, comparing each incarceration pattern (limited, moderate, and chronic) to no incarceration. Likely due to the small sample size, estimating a propensity score that resulted in adequate balance among the four groups (never incarcerated, limited incarceration, moderate incarceration, and chronic incarceration) proved difficult. While I was able to weight the sample on a propensity score that resulted in no statistically significant differences on any of the covariates among the four groups (not shown here), I was unable to achieve the more stringent standard of standardized mean differences that all fell below .20. Thus, these results should be interpreted with that caveat in mind.

At the zero-order level moderate incarceration (versus no incarceration) is significantly related to incarceration in adulthood, and chronic incarceration (versus no incarceration) is significantly related to incarceration, alcohol, and welfare receipt in adulthood. After propensity score weighting both moderate and chronic juvenile incarceration are significantly related to adult incarceration, but there are no statistically significant differences for any of the three

incarceration patterns (compared to no incarceration) for alcohol abuse/dependence or welfare receipt. Specifically, those in the moderate incarceration group during adolescence are more than 3 times more likely, and those in the chronic incarceration group are 10 times more likely, to experience incarceration in adulthood compared to those who had a police contact but were never incarcerated.

While small sample sizes make finding statistical significance difficult, interesting patterns are seen in these results. It does appear that more chronic incarceration leads to poorer outcomes in adulthood, and for adult incarceration in particular, this relationship appears somewhat linear. Interestingly, even at the zero-order level, there are no statistically significant differences in adulthood outcomes between limited incarceration and no incarceration. It seems likely that the results shown in Table 3.2 with regard to differences in outcomes for those who were incarcerated versus those who were never incarcerated are largely driven by those youth with moderate or chronic incarceration patterns in adolescence.

Discussion

With regard to the first research question, I found that the statistically significant negative consequences of juvenile incarceration include adult incarceration, alcohol use problems, and welfare receipt. Interestingly, there was no evidence that those who were incarcerated as youth were significantly more likely to be committing crime in adulthood than their counterparts who had a police contact as juvenile but were not incarcerated, though they were more likely to be incarcerated as adults. McAra and McVie (2007) examined the cyclical relationships among offending, patterns of juvenile justice system involvement, and recidivism. They reported on

how “labelling processes within agency working cultures serve to recycle certain categories of children into the youth justice system” (pp. 315). For these “certain categories of youth,” system involvement often begets more system involvement and exposure to the most serious sanctions (including incarceration), regardless of actual offending behavior. The results of the current study provide evidence that this pattern observed in adolescence may also be occurring across developmental domains into adulthood. That is, once youth are incarcerated, they might become increasingly enmeshed in and attached to the justice system as they transition into adulthood. As described above, they may lose connections to conventional society; and both during and after incarceration they are under increased scrutiny and supervision (thus, increasing the likelihood that they will be caught for their crimes and recycled back into the system).

Also interesting is the finding that the consequences of juvenile incarceration reach beyond the criminal domain to predict substance use and welfare receipt. This is not surprising, given what is known about the proximal consequences of juvenile incarceration described above. However, the empirical evidence was lacking, given the limited availability of longitudinal studies capable of answering this question. The use of propensity score analysis boosts confidence that these results are true consequences of incarceration, and not due to a range of demographic and psychosocial factors that could have predicted both.

With regard to the possible effects of different patterns of adolescence incarceration, the one statistically significant difference I observed was on the likelihood of adult incarceration. Specifically, as the chronicity of juvenile incarceration increased, so too did the likelihood of incarceration in adulthood. This result supports the assertions that system involvement in the form of incarceration begets more incarceration, even across developmental periods among adolescents with similar propensities for crime.

Table 3.1 Post-Propensity Score Weighting Covariate Balance for Confounding Variables

	Never Incarcerated (n=217)		Incarcerated (n=108)		p-value	Standardized mean difference
	mean (se)	percentage	mean (se)	percentage		
Delinquency	1.53 (.07)		1.55 (.11)		.85	0.08
Drug use	.82 (.17)		.88 (.19)		.81	0.14
Family history of arrest		47.2%		55.7%	.29	0.17
Peer history of arrest		22.6%		24.3%	.80	0.04
Neighborhood crime	1.0 (.08)		.95 (.13)		.74	-0.15
Gang membership		18.5%		16.7%	.73	-0.05
Prosocial peer env.	-.09 (.06)		-.07 (.06)		.85	0.07
Poverty		63.5%		58.5%	.55	-0.10
Male gender		64.4%		62.3%	.80	-0.04
Race/Ethnicity						
European American		37.9%		39.9%	.81	0.04
African American		35.2%		35.8%	.93	0.01
Asian American		20.1%		17.6%	.71	-0.06
Native American		6.7%		6.6%	.95	-0.01
Behavioral disinhibition	.21 (.06)		.25 (.10)		.73	0.15

Table 3.2 Estimated Effects of Adolescent Incarceration on Measures of Adult Functioning (Odds Ratios)

	Incarcerated Vs. Never Incarcerated	
	Pre-weighting	Post-weighting
Crime	2.92***	1.88
Incarceration	8.94***	3.70**
Alcohol	1.98**	2.28*
Drugs	2.15**	1.25
Anxiety	0.54	0.45
Depression	0.70	0.54
Welfare	2.10**	2.21*

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

Table 3.3 Estimated Effects of Adolescent Incarceration Patterns on Measures of Adult Functioning (Odds Ratio)

	Low Incarceration Vs. No Incarceration		Moderate Incarceration Vs. No Incarceration		Chronic Incarceration Vs. No Incarceration	
	Pre-weighting	Post-weighting	Pre-weighting	Post-weighting	Pre-weighting	Post-weighting
	Incarceration	2.68	2.22	8.08***	3.76*	29.41***
Alcohol	2.03	2.02	1.58	1.07	2.30*	1.45
Welfare	1.73	1.99	1.73	2.27	2.60*	3.35

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

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CHAPTER 4: EXPLAINING THE RELATIONSHIP BETWEEN ADOLESCENT INCARCERATION AND ADULT INCARCERATION: A TEST OF LABELING THEORY

Introduction

In Chapter 3 I showed that youth who were incarcerated in adolescence were significantly more likely to be incarcerated as adults, compared to their peers who had experienced a police contact but were never incarcerated. In the current study I seek to uncover the mechanisms of this relationship (shown on the right side of Figure 1.1). To help explain this relationship, I draw from labeling theory (Lemert, 1951; Tannenbaum, 1938), which asserts that when individuals engage in delinquent behavior they are sanctioned by society (e.g., with incarceration), resulting in a criminal label. Future criminal behavior becomes more likely, as the label serves as a self-fulfilling prophesy. As a consequence of this criminal behavior, individuals are then likely to be re-incarcerated.

Labeling theory scholars have identified three mechanisms through which the criminal label operates to affect future consequences (Barrick, 2014). First, some theorists have argued that following a labeling event such as incarceration, the individual internalizes the criminal label, eventually taking on the identity assigned to him/her (e.g., Bernburg, Krohn, & Rivera, 2006; Farrington, 1977; Johnson, Simons, & Conger, 2004; Wiley, Slocum, & Esbensen, 2013). This internalization process might take on the form of shifts in identity and changes in beliefs and attitudes. Second, as a result of the criminal label, individuals may find that their social networks have changed, either by choice or by force, in such a way that they have new or increased associations with antisocial peers (e.g., Farrington, 1977; Wiley et al., 2013). Finally, some theorists assert that criminal labels are associated with decreased social and structural

opportunities (e.g., Bernburg & Krohn, 2003; Lopes et al., 2012). This reduction in conventional opportunities, such as education and employment, pushes the individual further into the criminal lifestyle. Becker (1963) wrote, “Labeling places the actor in circumstances which make it harder for him to continue the normal routines of everyday life and thus provoke him to ‘abnormal’ actions” (p. 179). These circumstances can be formal (e.g., laws prohibiting convicted felons from voting or receiving financial aid) or informal (e.g., employers refusing to hire, or landlords refusing to rent to individuals with a criminal record).

Literature Review

Several recent studies have tested whether a criminal label leads to increased criminal behavior at a later time, or if justice system involvement actually serves as a deterrence for crime. Chiricos, Barrick, Bales, and Bontrager (2007) used a criminal justice sample in Florida, where those convicted of a felony can sometimes have their adjudication withheld and be sentenced to probation. This process does not lead to a felony record. Chiricos and colleagues compared this group to a group of individuals who were also convicted, but received a felony record. They found that the group with the felony record (the labeled group) were significantly more likely to recidivate than those who were not labeled, as evidenced by another felony conviction within two years.

Morris and Piquero (2013) found that arrest increased later offending, but only for the most high-risk group in their sample. In contrast, Ward, Krohn, and Gibson (2014) tested whether offending trajectories were altered by a criminal label (police contact) in adolescence, and found that a criminal label was related to increased delinquency for all trajectory groups.

Jackson and Hay (2013) reported that arrest was significantly positively related to later offending, but that this relationship was mitigated by strong family attachment. Finally, Gatti, Tremblay, and Vitaro (2009) found that the effect of a criminal label was seen even across developmental periods. A juvenile justice intervention in adolescence was related to offending in adulthood, and the stricter the intervention (e.g., incarceration versus probation), the stronger this relationship was.

Labeling Theory and Intervening Mechanisms

Several studies have tested the mediators of internalization of the criminal label and association with antisocial peers. In an early test of these mechanisms, Farrington (1977) found that the positive relationship between a court conviction and later deviance was mediated by hostile attitudes towards law enforcement and association with deviant friends. Wiley et al. (2013) also found that antisocial friends, deviant identity, and compromised social bonds partially explained the relationship between arrest and higher rates of delinquency. Other studies have also found that the relationship between a criminal label and later offending is mediated by increased association with deviant peers (Bernburg et al., 2006; Johnson et al., 2004).

Researchers have also examined how a criminal label negatively affects structural opportunities in the transition to adulthood. Lopes et al. (2012) found that police intervention in adolescence predicted crime, unemployment, welfare and drug use in adulthood. Bernburg and Krohn (2003) found in their study that both police intervention and juvenile justice intervention were positively related to unemployment and negatively related to educational attainment, which then predicted higher rates of criminal behavior in adulthood. While most of the studies that have tested the mediating mechanisms of labeling theory have focused on only one mediating path

(Krohn, Lopes, & Ward, 2014), I test all three of the hypothesized labeling mechanisms in this chapter.

The Current Study

The current study uses a subset of the SSDP sample to test labeling theory. Bernburg (2002) suggested three conditions for empirically testing labeling theory. First, a sample of individuals who had been labeled and individuals who have not been labeled should be used. In the current study I use a subsample of 325 individuals who had at least one police contact in adolescence, 108 of whom were also incarcerated, to test whether incarceration serves as a negative label that then affects criminality in adulthood. Second, Bernburg (2002) asserts that the study should be longitudinal. The current study uses data collected from the SSDP sample from age 10 to age 33. Finally, to adequately test labeling theory, the research design must control for confounding variables, including prior criminal behavior. The current study controls for confounding variables in two ways. First, a subsample of youth who have all experienced a police contact is used in an attempt to ensure that the control group is comparable to the group of youth who experienced incarceration in adolescence. Second, multiple salient pre-incarceration variables are controlled in the analyses, including a measure of delinquency that takes into account both frequency and severity, and is measured prior to incarceration. In addition, researchers (e.g., Bernburg & Krohn, 2003; Paternoster & Iovanni, 1989) have criticized research testing labeling theory for not including intervening mechanisms, or mediators. The current study tests three paths that have been theorized to mediate the relationship between the

labeling event and reoffending: the internalization of the criminal label, association with antisocial peers, and the reduction of structural opportunities resulting from labeling.

Since the primary focus of this study is to understand how incarceration operates through the life course I test a path that begins with incarceration in adolescence (ages 10-18), and ends with incarceration in adulthood (ages 27-33). Figure 4.1 shows the three hypothesized paths, with each link in the path measured at a different age, so as to establish temporal ordering. In both paths, the mediating variables are measured at age 21 (with the exception of educational attainment, which was measured at age 24), so as to capture the important developmental period when youths are transitioning to adulthood and beginning to take on independent roles. Criminal behavior is measured at age 24, and incarceration (or re-incarceration for those who have been incarcerated in adolescence) is measured at ages 27-33.

In the first path, the internalizing of the criminal label is measured with two variables: antisocial beliefs and attitudes and beliefs about the future. The second path is mediated through association with antisocial friends. It is hypothesized that adolescent incarceration will be positively associated with antisocial beliefs and attitudes and antisocial friends, and negatively associated with positive beliefs about the future. Antisocial beliefs and attitudes and antisocial friends will then be positively correlated with crime at age 24, while positive beliefs about the future is likely to negatively affect crime.

In the third path, the reduction of structural opportunities is measured with three variables: housing mobility, unemployment, and educational attainment. It is hypothesized that adolescent incarceration will be positively associated with housing mobility and unemployment, and negatively associated with educational attainment. Housing mobility and unemployment will then be positively correlated with crime at age 24, while educational attainment is likely to

negatively affect crime. Finally, in both paths it is hypothesized that crime at age 24 will positively affect incarceration at ages 27-33.

Methods

Measures

All of the control variables used in Chapter 3 are also used in these analyses as controls, with one small change. Due to issues with multicollinearity, the four control variables representing criminogenic environment (family arrest, peer arrest, neighborhood crime, and gang membership) are collapsed into a single index. First, neighborhood crime was dichotomized and then each individual was assigned a score of 1 to 4 based on how many of the four items were endorsed. The outcome of interest, adult incarceration, is also the same measure used in Chapter 3: self-reported incarceration at age 27, 30, or 33.

Mediating variables: internalization of the criminal label. Antisocial beliefs and attitudes at age 21 are assessed with 17 items capturing antisocial beliefs (example item: “Do you think it’s ok for adults to sell marijuana?”) and attitudes favorable to antisocial behavior (example item: “Would you say, sometimes it’s ok to cheat?”). Items are averaged to create a scale (Cronbach’s alpha=.87). Beliefs about the future at age 21 is measured with six items, which are averaged to create a scale (Cronbach’s alpha=.83). Examples of items include, “People like me have a chance to be successful,” and “There are a lot of chances for people like me to get a good education.”

Mediating variables: antisocial peer association. Antisocial friends at age 21 is measured with 12 items assessing the respondent’s two closest friends’ engagement in antisocial

behavior, including alcohol, marijuana and hard drug use, fighting, and committing serious crimes. These items are averaged to create a scale (Cronbach's $\alpha=.69$)

Mediating variables: blocked social opportunities. Unemployment at age 21 is measured with an item that asked respondents how many months in the past year had they been unemployed. To address skewness this variable is treated as an ordered categorical variable and coded as follows: (0) none, (1) one to five months, and (2) six or more months. Housing mobility at age 21 is measured with an item that asked respondents how many times in the past year they had changed homes. Again, to address skewness this variable is treated as an ordered categorical variable and coded as follows: (0) none, (1) one time, and (2) two or more times. Educational attainment at age 24 is measured with an item that asked respondents how many years of school they had completed.

Mediating variables: adult crime. Crime at age 24 is a measure of the respondent's past year self-reported frequency of property, violent, and drug-related crimes. This variable is treated as an ordered categorical variable and coded as follows: (0) no crime, (1) 1 to 10 crimes, (2) 11 to 20 crimes, and (3) 20 or more crimes.

Analysis

As described above, a path model was estimated to test the hypothesized mechanisms. All analyses were conducted in MPlus version 7 (Muthén & Muthén, 2008). MPlus uses Full Information Maximum Likelihood (FIML) with incomplete data to obtain less biased estimates than traditional methods of handling missing data, such as pairwise or listwise deletion (Schafer & Graham, 2002). FIML uses all available information in model estimation. Across all variables used in the model, average missingness was 4.8%.

Results

Table 4.1 shows the bivariate correlations between the independent variable, all of the mediators, and the dependent variable. At the bivariate level, adult incarceration is significantly related to juvenile incarceration, adult criminal behavior, and all of the mediators with the exception of housing mobility, in the expected directions. Figure 4.2 shows a graphical depiction of all of the statistically significant paths in the model. Table 4.2 shows the unstandardized coefficients and the standard errors for each regression (and the odds ratio for the final logistic regression predicting adult incarceration) for the path model. With regard to the internalization of the criminal label path, adolescent incarceration is significantly negatively related to beliefs about the future. However, there is no statistically significant relationship between beliefs about the future and criminal behavior at age 24. Thus, I did not find support for the hypothesis that incarceration affects future offending through the labeled individual's internalization of the criminal label.

Antisocial friends at age 21 is significantly positively related to crime at age 24. Criminal Behavior at age 24, in turn, is significantly and positively predictive of incarceration at ages 27-33. Thus, I did find support for the association with antisocial peers mechanism of labeling theory. With regard to the reduction in structural opportunities path, adolescent incarceration is significantly related to unemployment and educational attainment at age 21. However, none of the mediating variables are significantly related to crime at age 24. Therefore, I did not find evidence to support the structural opportunities mechanisms of labeling theory. Interestingly, there is still a very strong, significant direct effect of adolescent incarceration on adult incarceration, controlling for all other variables in the model. Those who were incarcerated in

adolescence are more than six times more likely to be incarcerated in adulthood compared to those who had a police contact in adolescence but were never incarcerated. Also, the direct effect of antisocial friends at age 21 on adult incarceration also remains statistically significant.

Discussion

Three interesting conclusions can be made from the results of the analyses presented in this chapter. First, the results support labeling theory with regard to one mediating path. Youth in this sample who were incarcerated in adolescence were significantly more likely to report having antisocial friends at age 21 than their peers who had a police contact but were never incarcerated. These same young adults then had significantly higher rates of criminal behavior at age 24 and were then more likely to be incarcerated at ages 27-33. These results confirm the hypothesis that youth who are labeled by the criminal justices system through incarceration are more likely to commit crimes in adulthood and be re-incarcerated, and that this relationship is mediated by increased interaction with antisocial peers during the transition to adulthood.

Second, I did not find evidence to support the hypothesis that criminal labeling operates through internalization of the criminal label or through reduced structural opportunities to affect adult crime and subsequent incarceration. One possible explanation for this null finding is that utilizing a sample of individuals who all had a police contact in adolescence may mask the labeling effect. That is, the current study is examining “the relative, rather than the absolute, effect of labeling” (Bernburg & Krohn, 2003, p. 1292). The initial criminal label that came from police contact may be more influential than the subsequent label stemming from incarceration.

This is a different research question from the one addressed in the current study, and should be examined in the future.

Another explanation that should be discussed comes from differential association theory (Sutherland, 1947), which asserts that criminal behavior is learned through close association with others who engage in crime. Specifically, “The ratio between definitions favorable to law violation and definitions unfavorable to law violation determines whether or not a person becomes criminal” (Cressey, 1952, p. 43). It can be argued that incarceration provides this type of environment, where youth are removed from conventional society and norms, and are interacting continuously with other youth who hold norms and beliefs favorable to criminal behavior. Differential association theory posits that individuals not only learn these rationalization techniques from their antisocial associations, but also learn the technical skills for committing crimes. Given the results of the current study, which find support for increased association with antisocial peers following incarceration, but not any of the other mechanisms hypothesized by labeling theory, future research should examine whether differential association theory further explains the relationships between incarceration, association with antisocial peers, criminal behavior, and subsequent re-incarceration.

Finally, and perhaps most importantly, these results show that a unique and strong relationship remains between juvenile and adult incarceration, even after controlling for multiple pre-incarceration risk factors, relevant mediators, and criminal behavior measured in the survey wave before adult incarceration was measured. While there is evidence that youth who are incarcerated go on to commit more crime in early adulthood than their non-incarcerated peers, even when controlling for this crime they are still significantly more likely to be re-incarcerated at ages 27-33. The implications for this finding are important. It appears that one of the

weightiest consequences of adolescent incarceration is the reduced ability to escape interaction with and sanctions from the justice system as youth transition through developmental periods into adulthood, regardless of the crimes actually being committed.

Given this last point, one further observation should be made. Some studies have tested labeling theory with re-arrest, reconviction, or re-incarceration as the outcome of interest (e.g., Chiricos et al., 2007; Gatti et al., 2009). That is, the justice system's response to the individual's behavior, rather than the actual behavior, is used to measure criminality. The results presented in this chapter make a very strong argument for divorcing the two measures and ensuring they remain as separate outcome variables in analyses.

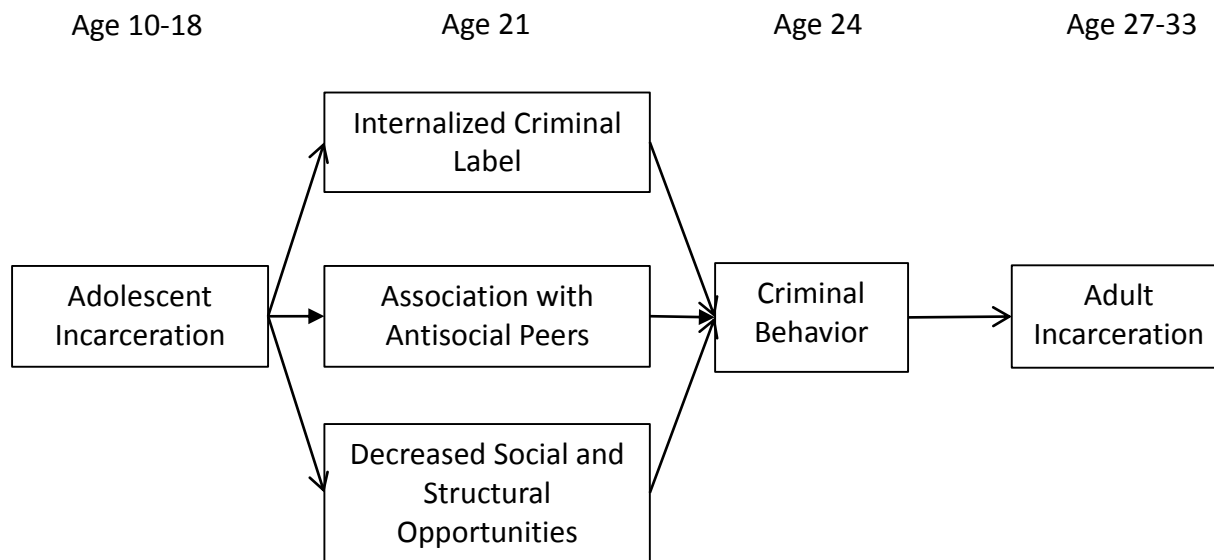
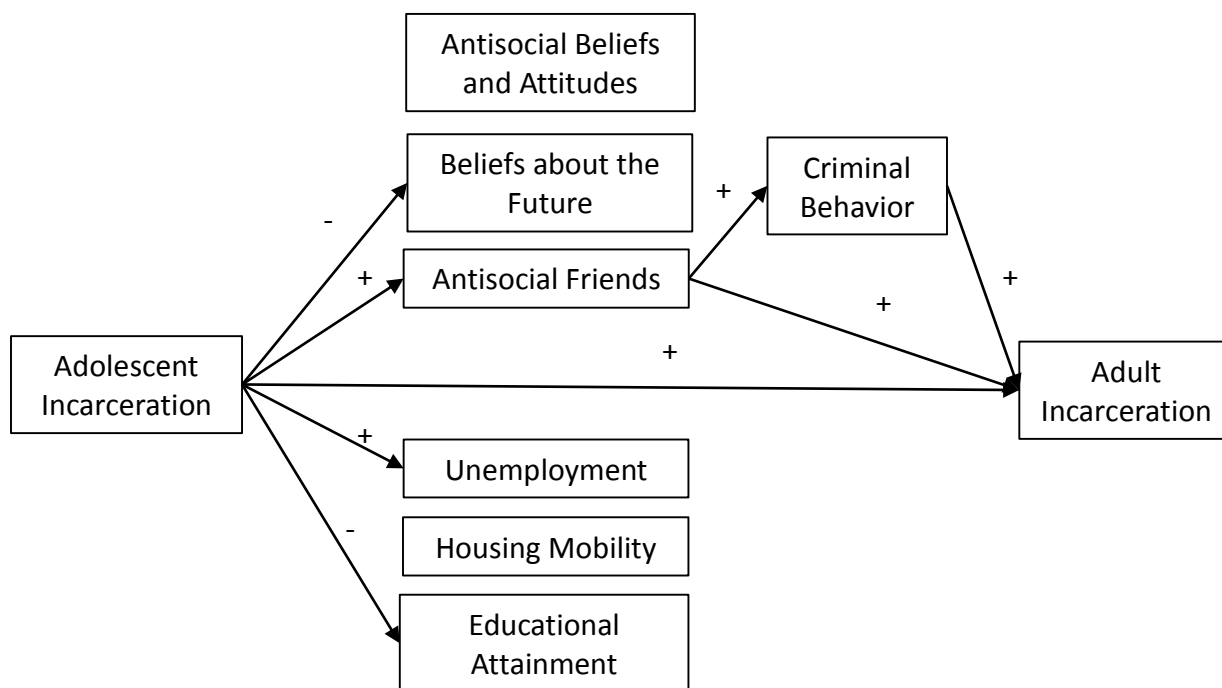


Figure 4.1. Conceptual Model of a Test of Labeling Theory



Note: only statistically significant paths ($p < .05$) are shown.

Figure 4.2. Path Model of Mediators of Adolescent and Adult Incarceration

Table 4.1 Bivariate Correlations of Adolescent Incarceration, Labeling Mechanisms, and Adult Outcomes

	1	2	3	4	5	6	7	8
1. Adolescent Incarceration								
2. Criminal Behavior	0.20							
3. Adult Incarceration	0.68	0.36						
4. Unemployment	0.26	0.03	0.27					
5. Housing Mobility	0.13	0.09	0.16	0.09				
6. Educational Attainment	-0.49	-0.18	-0.42	-0.29	-0.02			
7. Antisocial Beliefs and Attitudes	0.25	0.28	0.30	0.06	0.05	-0.18		
8. Belief in the Future	-0.19	-0.14	-0.22	-0.25	0.03	0.20	-0.40	.
9. Antisocial Friends	0.29	0.30	0.43	0.06	0.08	-0.26	0.44	-0.24

Note: Significant correlations ($p < .05$) are in bold.

Table 4.2 Estimated Direct and Mediated Effects of Adolescent Incarceration on Adult Incarceration

	Antisocial Beliefs and Attitudes	Belief in the Future	Antisocial Friends	Unemployment	Housing Mobility	Educational Attainment	Criminal Behavior	Incarceration
	Unstandardized Regression Coefficients							Odds Ratios
Juvenile Incarceration	.10 (.05)	-.16 (.08)*	.41 (.19)*	.56 (.28)*	.23 (.26)	-.75 (.25)**	-.25 (.31)	6.30***
Delinquency	.07 (.03)*	.02 (.05)	.26 (.12)*	-.12 (.18)	.49 (.18)**	-.36 (.16)*	.22 (.20)	0.73
Drug Use	.01 (.01)	.02 (.02)	-.02 (.04)	-.07 (.06)	-.05 (.06)	-.04 (.05)	.01 (.06)	1.16
Criminogenic Environment	.05 (.03)	-.02 (.04)	.24 (.09)**	.02 (.13)	-.24 (.13)	-.18 (.12)	.20 (.14)	1.55*
Prosocial Peers	.00 (.04)	.05 (.05)	.01 (.13)	-.25 (.19)	.04 (.18)	.22 (.17)	.08 (.19)	1.04
Behavioral Disinhibition	.04 (.03)	-.05 (.05)	.00 (.12)	.29 (.17)	.06 (.17)	.07 (.15)	-.15 (.17)	0.79
Poverty	-.12 (.05)*	.10 (.08)	-.03 (.18)	.18 (.27)	.21 (.26)	-.97 (.24)***	.07 (.29)	1.11
Gender (male)	.15 (.05)**	-.06 (.07)	.37 (.17)*	-.71 (.25)**	-.15 (.24)	-.42 (.23)	1.20 (.28)***	11.81***
African American vs. European American	.04 (.06)	-.12 (.08)	-.21 (.20)	.71 (.30)*	-.51 (.28)	.03 (.27)	-.69 (.32)*	3.24*
Asian American vs. European American	.05 (.06)	-.02 (.10)	-.33 (.22)	.02 (.35)	-.80 (.32)*	.59 (.30)*	-.38 (.36)	.53
Native American vs. European American	-.03 (.09)	-.13 (.14)	-.03 (.32)	1.61 (.481)**	.21 (.42)	-.74 (.42)	.10 (.49)	21.55***
Antisocial Beliefs and Attitudes							.63 (.36)	1.03
Belief in the Future							-.09 (.23)	1.01
Antisocial Friends							.28 (.10)**	1.63**
Unemployment							.01 (.16)	1.33
Housing Mobility							.06 (.16)	0.12
Educational Attainment							-.06 (.07)	0.98
Criminal Behavior								1.46*

*p<.05; **p<.01; ***p<.00

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CHAPTER 5: CONCLUSION

I began this manuscript by outlining questions that need empirical answers. First, who is most likely to be incarcerated, and what are the contributing factors? I found in Chapter 2 that young men of color from impoverished backgrounds are more likely to be incarcerated and to experience more chronic patterns of incarceration, net of the effect of self-reported offending and other salient controls. There are several other factors related to incarceration in adolescence through their impact on delinquency, including peer history of arrest, gang membership, prosocial family environment, and behavioral disinhibition. These risk and protective factors can be addressed through prevention programs to reduce delinquency and lower the likelihood of incarceration. However, systematic change needs to take place so that the most disadvantaged youth in our society are not at substantially higher risk for incarceration regardless of their actual behavior.

Second, is the juvenile justice system achieving its joint goals of rehabilitation and public safety? In addition, are there unintended consequences of incarceration for adult functioning? Krisberg and Marchionna (2007) examined the attitudes of U.S. voters toward the juvenile justice system and found that 91% of participants believe that rehabilitation and treatment will reduce crime. Furthermore, more than 80% believe that rehabilitation services will save taxpayers money in the future. While the majority of the public support rehabilitation and treatment in the juvenile justice system, research, including the current study in which I found that juvenile incarceration is significantly related to adult incarceration, alcohol abuse/dependence, and welfare receipt, indicates that the juvenile justice system is not meeting its rehabilitation obligation to youth or society.

Finally, with regard to these unintended negative consequences, what are the mediating mechanisms at work during the transition to adulthood? I found that the only statistically significant mediator between adolescent incarceration and adult crime and incarceration is increased association with antisocial peers. Even when controlling for antisocial peers prior to incarceration, this relationship remained.

Limitations and Strengths

As with any research study, there are limitations which should be taken into consideration when interpreting the results. First, SSDP is a sample composed of youth from Seattle, Washington, and thus, may not be representative of youths' experiences in other places in the country. Second, these youth experienced incarceration in the late 1980s and early 1990s. It is possible that shifts in policies and practices would result in somewhat different results if similar studies were conducted currently. Thus, generalization to differing samples should be done with caution. Nonetheless, the potential contributions of these findings to policy and practice are important. Strengths of the study include its use of multiple waves of prospectively assessed longitudinal data from age 10 through age 33, the use of both self-reported offending and drug use as well as official incarceration records, and the use of propensity weighting to address the potential confounding effects of selection factors into incarcerated and non-incarcerated groups.

Implications for Practice and Policy

Davis, Tsukida, Marchionna, and Krisberg (2008) write that successful implementation of juvenile justice must occur within the scope of social justice. In other words, the juvenile

justice system must strike a balance between public safety and rehabilitation for youth (Kurlychek, Torbet, & Bozynski, 1999). However, it appears that the juvenile justice system is, in fact, creating worse outcomes for some youth as they transition into adulthood, hindering their chances of becoming productive members of society. Furthermore, results of these three chapters indicate that one's position in the social structure is directly related to incarceration and the resulting long-term consequences. One of the strongest relationships found in these current studies is that between adolescent incarceration and adult incarceration. Even when controlling for prior risk factors and intervening mechanisms during the transition to adulthood, this relationship remained. This was especially true for youth who experienced chronic incarceration in adolescence. It appears that, for some youth, juvenile incarceration is not a sanction that is limited to adolescence, but an event that could likely change the course of their lives for the worse.

Perhaps Cullen and Jonson (2014) said it most eloquently when writing, "The chief issue is not non-intervention but how to intervene in a way that does not have iatrogenic effects" (p. 69). First, very concerted efforts need to be made to reduce disproportionality based on ethnicity, gender, and poverty, in the juvenile justice system. Second, researchers and practitioners should continue pursuing juvenile justice system reform and seeking appropriate alternatives to incarceration that do not jeopardize public safety. Finally, in the cases when incarceration is appropriate, reliable reentry programs should be used to help reduce reoffending. Based on the results of this study, these efforts should target social skills so that youth can resist antisocial peer relationships and pursue more conventional social groups.

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Curriculum Vitae

Amanda B. Gilman
Senior Research Associate
National Gang Center
Institute for Intergovernmental Research

EDUCATION

PhD	University of Washington	December 2014
	Dissertation: Incarceration and the life course: Predictors and consequences of varied patterns of juvenile incarceration	
	Committee members: Karl G. Hill (chair); J. David Hawkins; Jerald Herting; & Robert Crutchfield	
MSW	Loma Linda University	June 2009
BA	California State University, Long Beach	June 2006

AWARDS, HONORS, & FELLOWSHIPS

National Institute of Mental Health Prevention Research Traineeship	09/2010- 09/2013
<ul style="list-style-type: none"> • Supports research that is focused on the prevention of mental health problems among vulnerable populations. 	
Pre-doctoral candidacy exam passed with distinction	06/2012
University of Washington Graduate School Fund for Innovation and Excellence Top Scholar Award	09/2009- 06/2010
Dean's Award, Loma Linda University	06/2009
Professional Achievement Award, Loma Linda University	06/2009
Academic Achievement Award, Loma Linda University	06/2009
Research Excellence Award, Loma Linda University	06/2009
Member of the Dean's List, Loma Linda University	09/2007- 06/2009
Exceptional Student Award, California State University, Long Beach	06/2006
Honors in Sociology Award, California State University, Long Beach	06/2006
Member of the Dean's List, California State University, Long Beach	01/2005- 06/2006

RESEARCH INTERESTS & EXPERIENCE

Interests

Juvenile and criminal justice, mental health and justice system-involvement, long-term consequences of incarceration, and youth gangs

Experience

- | | |
|---|--------------|
| National Gang Center | 2014-present |
| Senior Research Associate | |
| Seattle Social Development Project | 2009-2014 |
| Pre-doctoral trainee, Social Development Research Group, University of Washington | |
| <ul style="list-style-type: none"> Involved in data cleaning, analysis (including advanced statistical methods, such as latent class analysis, event history analysis, and propensity score analysis) and writing manuscripts. | |
| Incarceration and Transition to Adulthood Study | 2011-2011 |
| Research assistant, University of Washington Department of Sociology | |
| <ul style="list-style-type: none"> Involved in qualitative data collection, data cleaning, analysis, and writing manuscripts. | |
| Predicting and Preventing Psychiatric Rehospitalization among Children and Adolescents | 2008-2009 |
| Research assistant, Loma Linda University. | |
| <ul style="list-style-type: none"> Involved in data collection (telephone interviews, abstraction of archival data), data entry, data analysis and writing manuscripts. | |
| Juvenile Delinquency Court Assessment | 2008-2009 |
| Project manager, San Bernardino County Superior Court | |
| <ul style="list-style-type: none"> Supervised two research assistants while collecting, entering, and analyzing data, and writing reports. | |

TEACHING INTERESTS & EXPERIENCE

Interests

Quantitative research methods and statistics, social policy, positive youth development, and criminal justice

Experience

- | | |
|---|-------------|
| SocW 506: Research and Evaluation, Sole Instructor | Spring 2014 |
| SocW 596: Statistics for Social Workers, Sole Instructor | Fall 2014 |
| Mplus workshop, Co-Leader | 03/2013 |

- Introduction to Mplus statistical software taught to social work doctoral students

SocW 538: Critical Youth Empowerment, Co-Instructor 03/2011-06/2011

Curriculum Module Development, Co-Author 06/2008-06/2009

- Assisted in developing a mental health teaching curriculum module for California Social Work Education Center (CalSWEC)

PUBLICATIONS & PRESENTATIONS

Peer-Reviewed Publications

Gilman, A.B., Hill, K.G., Kim, B.K. Elizabeth, Nevell, A., Hawkins, J.D., & Farrington, D.P. (2014). Understanding the relationship between self-reported offending and official criminal charges across early adulthood. *Criminal Behaviour and Mental Health*, 24(4), 229-240.

Gilman, A.B., Hill, K.G., & Hawkins, J.D. (2014). The long-term consequences of adolescent gang membership for adult functioning. *American Journal of Public Health*, 104(5), 938-945.

Gilman, A.B., Hill, K.G., Hawkins, J.D., Howell, J.C., & Kosterman, R. (2014). The developmental dynamics of joining a gang in adolescence: Patterns and predictors of gang membership. *Journal of Research on Adolescence*, 24(2), 204-219.

James, S., Charlemagne, S.J., **Gilman, A.**, Qais, A., Smith, R.L., Tharayil, P.R. & Freeman, K. (2010). Post-discharge services and psychiatric rehospitalization among children and youth. *Administration and Policy in Mental Health and Mental Health Services Research*, 37(5), 433-445.

Manuscripts Under Review

Gilman, A.B., Hill, K.G., & Hawkins, J.D (under review). When is youths' debt to society paid off? Examining the long-term consequences of juvenile incarceration on adult functioning. *Journal of Developmental and Life-Course Criminology*.

Other Manuscripts

Kim, B. E., **Gilman, A.B.**, & Hawkins, J. D. (2014). School- and community-based interventions during adolescence. In J. Morizot & L. Kazemian (Eds.), *The Development of Criminal and Antisocial Behavior: Theoretical Foundations and Practical Applications*. Sage.

Gilman, A.B., Paxton, K. (2009). San Bernardino County Juvenile Delinquency Court Assessment. Unpublished Manuscript. San Bernardino County Juvenile Court.

James, S., Charlemagne, S., **Gilman, A.B.**, & Smith, R. (2008). *Specialized interventions for children and transition age youth with severe emotional disabilities*. CalSWEC Curriculum Module.

Presentations

Gilman, A.B., Hill, K.G., & Hawkins, J.D. (2014, June). *Understanding ethnic disparities and social disadvantage in the juvenile justice system*. Paper presented at the annual meeting of the Society for Prevention Research, Washington, DC.

Gilman, A.B., Hill, K.G., & Hawkins, J.D. (2013, March). *Patterns of juvenile incarceration and mental health-related consequences in adulthood*. Poster presented at the Conference on Research in Forensic Mental Health Services, London, UK.

Gilman, A.B., Hill, K.G., & Hawkins, J.D. (2012, November). *The developmental dynamics of joining a gang in adolescence: Patterns and predictors of gang membership onset*. Paper presented at the annual meeting of the American Society of Criminology, Chicago, IL.

Gilman, A.B., Hill, K.G., & Hawkins, J.D. (2011, November). *The long-term consequences of adolescent gang membership on functioning within and across generations*. Paper presented at the annual meeting of the American Society of Criminology, Washington, D.C.

Hill, K.G., & **Gilman, A.B.** (2011, May). *Engaging Underserved Youth*. Presentation given to a group of delegates from Latin America at the World Affairs Council, Seattle, WA.

Gilman, A.B., Hill, K.G., & Hawkins, J.D. (2011, January). *The long term consequences of adolescent gang membership on adult functioning*. Paper presented at the annual conference for the Society of Social Work and Research, Tampa, FL.

Hill, K.G., **Gilman, A.B.**, & Hawkins, J.D. (2011, January). *The long term consequences of adolescent gang membership on functioning in the next generation*. Paper presented at the annual conference for the Society of Social Work and Research, Tampa, FL.

James, S., Charlemagne, S. & **Gilman, A.** (2010, January). *Predictors and outcomes of post-discharge service use among youth psychiatrically hospitalized for the first time*. Paper presented at the annual conference for the Society of Social Work and Research, San Francisco, CA.

Gilman, A., & Slough, M. (June, 2009). *Results from the San Bernardino County Juvenile Delinquency Court Assessment*. Paper presented at the San Bernardino County Gangs and Drugs Task Force, San Bernardino, CA.

James, S., Charlemagne, S., Smith, R. & **Gilman, A.** (2009, January). *Predicting and preventing the risk of psychiatric rehospitalization among children and adolescents*. Paper presented at the annual conference of the Society for Social Work and Research, New Orleans, LA.

ADDITIONAL PROFESSIONAL EXPERIENCE

- | | |
|--|-----------|
| Project Assistant, San Bernardino Mayor's Office; San Bernardino, CA | 2008-2009 |
| <ul style="list-style-type: none"> • Served as a liaison between the mayor's office and various community organizations. • Assisted in writing both local and federal (OJJDP) grant applications. • Served as project manager and lead researcher on Juvenile Delinquency Court Assessment Project. • Hired as a paid project assistant upon completion of MSW internship. | |
| MSW Counseling Intern, Family Solutions Collaborative; Ontario, CA | 2007-2008 |
| <ul style="list-style-type: none"> • Provided strength-based individual and family counseling for clients and their families, while keeping accurate, thorough, and up-to-date documentation. • Provided crisis intervention and counseling to numerous schools in the Ontario-Montclair school district. | |
| Intern, MATFA (Mentoring: A Touch From Above); Long Beach, CA | 2005-2006 |
| <ul style="list-style-type: none"> • Independently organized and led weekly mentoring program for at-risk youth. • Managed office, performing basic office tasks as well as arranging meetings, outings, and programs for both clients and staff. | |

PROFESSIONAL AFFILIATIONS & SERVICE

Membership in Professional Associations

Member of the Society for Social Work and Research.

Member of the American Society of Criminology.

Member of the Society for Prevention Research

Member of the Golden Key International Honour Society.

Academic and Community Service

- | | |
|---|--------------|
| Serve as reviewer for <i>Criminal Behaviour and Mental Health</i> | 2014-present |
| Serve as reviewer for <i>Criminology</i> | 2013-present |
| Served on the Developmental and Life Course Criminology Newsletter Committee | 2012 |
| Served on the University of Washington School of Social Work Awards Committee | 2013 |
| Served on MSW student's thesis committee | 2011-2012 |

Monthly supporter of a family in the Philippines through the Children's Fund.

2004-present

MEDIA AND PUBLICITY

Articles and interviews featuring my research and practice:

Green, S.J. (March, 2014). 29-year study: Early gang participation makes lasting marks. *Seattle Times*. Available from:
http://seattletimes.com/html/localnews/2023211354_gangstudyxml.html

Sillman, M. & Hurst, A. (March, 2014). The long term consequences of teen gang membership. *KUOW's The Record*. Available from: <http://kuow.org/post/long-term-consequences-teen-gang-memberships>

Haeck, T. (March, 2014). Seattle research explores adult lives of gang membership. *Kiro Radio*. Available from: <http://mynorthwest.com/11/2475504/Seattle-research-explores-adult-lives-of-gang-members>

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