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When is youths' debt to society paid off? Examining the long-term consequences of juvenile incarceration for adult functioning

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Abstract

Purpose—To examine the long-term consequences of juvenile incarceration on functioning in adulthood (ages 27–33).

Methods—Propensity score analysis was used to compare incarcerated youth with those who were never incarcerated in a subsample of individuals who had experienced at least one police contact in adolescence. Data were drawn from the Seattle Social Development Project (SSDP), a multiethnic, gender balanced community sample.

Results—Youth who were incarcerated in adolescence were more likely to experience incarceration at ages 27, 30, or 33, more likely to meet criteria for alcohol abuse or dependence, and more likely to be receiving public assistance than similar youth who were never incarcerated.

Conclusions—Results show that juvenile incarceration is not only ineffective at reducing criminal behavior later in life, but that there are also unintended consequences for incarceration beyond the criminal domain. Furthermore, it appears that once a youth becomes involved in the juvenile justice system, there is a higher likelihood that he/she will remain tethered to the criminal justice system through the transition to adulthood. Given these long-term deleterious outcomes, it is recommended that suitable alternatives to juvenile incarceration that do not jeopardize public safety be pursued.

1. Introduction

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 et al. 2001). 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 increased use of incarceration (Myers and 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

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Foundation 2013). For every 100,000 youth in the U.S. population, 196 were incarcerated in 2011.

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 (see literature review below), 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, p. 27) 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.” Our theoretical framework takes a developmental perspective, and draws on the life course paradigm (Elder 1985; Wheaton & Gotlib 1997; Sampson & Laub 1992) and labeling theory (Lemert 1951; Tannenbaum 1938) to examine how incarceration affects development through the life course.

The life course perspective, broadly speaking, addresses within-individual processes over time and across developmental stages. Life course criminologists have often focused on offending across the life span. While offending in adolescence is a very strong predictor of offending in adulthood, the majority of youthful offenders desist. Gilman et al. (2014) found that 68% of those who self-reported property offenses in adolescence and 67% of those who self-reported violent offenses in adolescence had desisted from these behaviors in adulthood. However, one task for life course criminologists has been to discover why some youth persist in offending. In their theory of cumulative disadvantage, which uses the life course perspective and labeling theory together to help understand stability in criminal behavior, 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). In addition, they write, “The theory specifically suggests a ‘snowball’ effect—that adolescent delinquency and its negative consequences (e.g., arrest, official labeling, incarceration) increasingly ‘mortgage’ one’s future, especially later life chances molded by schooling and employment” (p. 15). It could be that youth who might otherwise desist from criminal behavior as they transition to adulthood face a turning point when they are incarcerated, which may alter their opportunity structures during the critically important transition to adulthood, and produce negative consequences in both criminal and non-criminal domains.

Labeling theory (Lemert 1951; Tannenbaum 1938), which has been described as “the one theoretical perspective in criminology that is inherently developmental in nature” (Sampson and Laub 1997, p.3) is helpful in unpacking how incarceration may serve as a negative turning point in youths’ lives. In a normative transition from adolescence to adulthood, youth are expected to finish their education, engage in gainful employment, find a romantic

partner, and start a family (Lanctot et al. 2007). Labeling theory scholars have identified three mechanisms through which the criminal label operates to affect future consequences (Barrick 2014), all of which help to explain why incarceration during adolescence could severely disruptive the normative path and a successful transition to adulthood.

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 et al. 2006; Farrington 1977; Johnson et al. 2004; Wiley et al. 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., Lopes et al. 2012; Bernburg and Krohn 2003). 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). Thus, it is also quite reasonable to expect that the effects of incarceration would “cascade” into other non-criminal domains of adult functioning, including mental health and financial security (Rodriguez 2013).

2. Literature Review

Several studies have examined the consequences of *juvenile justice system involvement* more broadly, finding that involvement is positively associated with later offending (Bernburg and Krohn 2003; Gold and Williams 1969; Petitclerc et al. 2013) and unemployment (Bushway 1998; Wiesner et al. 2010). However, in this paper, we focused on studies that examined the effects of *incarceration* explicitly. Similarly, given our interest in understanding how incarceration in adolescence affects functioning in a later developmental period, we reviewed studies that examined the effects of incarceration when that incarceration occurred before or during the transition to adulthood. Thus, studies summarized here included a mixed sample of juveniles and young adults or explicitly studied incarceration that occurred before the age of 18.

Using a lifetime measurement of incarceration (including both adolescence and early adulthood), researchers have found that incarceration is related to fewer job opportunities (Apel and Sweeten 2010; Freeman 1987; Huebner 2005; Laub and Sampson 2003; Tanner et al. 1999), decreased wages (Apel and Sweeten 2010; Davis et al. 2008; Western 2002), housing insecurity (Geller and Curtis 2011), lower rates of marriage (Huebner 2005; Huebner 2007; Lopoo and Western 2005), family instability (Huebner 2007; Lanctot et al. 2007; Lopoo and Western 2005; Massoglia et al. 2010), poor health (Massoglia 2008a, 2008b; Schnittker and John 2007) and mental health problems (Sameroff et al. 1998). 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), 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 consequences of incarceration (e.g., Davies and Tanner 2003; Huebner 2005; Huebner 2007; Lopoo and Western 2005; Massoglia 2008b, 2008a; Massoglia et al. 2010; Schnittker and John 2007; Western 2002). Thus, some participants had likely already transitioned into adult roles prior to incarceration, which would have different consequences for adult functioning than incarceration during adolescence. In the current study we were particularly interested 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 and Steinberg 2006).

Those studies that have limited their sample to juveniles to examine the consequences of incarceration show mixed results on several outcomes of interest, and encourage more research, especially with regard to long-term outcomes. First, we discuss studies that examine proximal consequence of incarceration. In a descriptive study, Abram et al. (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 lower likelihood of high school graduation. On the other hand, Hjalmarsson (2008) found that incarceration was actually related to lower recidivism when incarcerated youth were compared to youth who had been adjudicated but received a disposition other than incarceration. White et al. (2010) did not find significant relationships between incarceration and anxiety and depression in a community youth sample.

While the results of studies examining the short-term consequences of juvenile incarceration are mixed, there is somewhat clearer evidence supporting the negative long-term consequences of juvenile incarceration, though more research is needed. Using a sample of institutionalized youth, as well as a comparison community sample of youth residing in a private residence, Lanctot et al. (2007) found that juvenile institutionalization was linked to socioeconomic disadvantage, job and interpersonal instability, drug-related problems, and depression in the late twenties, even when controlling for prior self-reported delinquency. Studying a sample of over 35,000 juvenile offenders, Aizer and Doyle (2013) utilized an instrumental variable technique (using the inclination for randomly-assigned juvenile judges to incarcerate or not), to study the relationship between juvenile incarceration and adult incarceration. They found that there was a strong positive relationship between incarceration in adolescence and in adulthood. Thus, there is some evidence that juvenile incarceration is related to negative outcomes in adulthood.

3. The current study

This study fills gaps in the literature in several ways. First, we focused 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, we examined the *long-term* consequences of juvenile incarceration, focusing on seven outcomes at ages 27–33: criminal behavior, incarceration, alcohol abuse/dependence, drug abuse/dependence, depression, anxiety, and welfare receipt. Third, we used 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 renders the incarcerated and non-incarcerated comparison juveniles 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.

4. Method

4.1 Sample

This study used longitudinal data from the Seattle Social Development Project (SSDP) to examine the long-term consequences of juvenile incarceration. SSDP consists of 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 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 fifth, sixth, or seventh grade.

4.2 Procedures

Data used in the present study were obtained from youth and parent surveys and official court records. Survey data were initially collected in 1985 when participants were in 5^{th} grade and an average age of 10 (M = 10.3, SD = .52), then in the spring of each year thereafter through 10^{th} grade, and again in 12^{th} 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.

For the current study only those individuals who ever had a police contact in adolescence were included in the analyses (n=325). The purpose of this strategy, as explained below, was to create a comparison group that was as similar as possible to the incarcerated group with regard to background risk characteristics, behavior, and risk of incarceration. It should be noted that by comparing youth who were incarcerated with youth who had a police contact but possibly received some other sanction, we are examining the relative effect of labeling, rather than the absolute effect.

Police contact was measured using both self-reported and official court data. An official referral to the juvenile court would result in a record. However, any contact with the police due to delinquent or illegal behavior that did not result in a court referral would not be recorded in the official data. Therefore, we also used a self-reported variable measured at each data collection point through 12^{th} 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 included in the current study.

4.3 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 et al. 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 (Catalano et al. 1996; Huang et al. 2001; Guttmannova et al. 2012). To test possible differences in etiology between the groups, we 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.

4.4 Measures

4.4.1 Incarceration—A strength of the SSDP dataset is the availability of official incarceration data provided by juvenile courts throughout the state of Washington. All

arrests and subsequent incarcerations resulting from adjudication throughout adolescence were reported. If a youth had an official court record that indicated that he/she had been incarcerated, the youth was coded as (1), otherwise (0). 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 in Washington State. Thus, the incarceration group (n=108) did not include youth who may have been detained for a short amount of time prior to adjudication or youth who were incarcerated in another state.

4.4.2 Adult outcomes—We investigated outcomes in several domains, measured at ages 27, 30, and 33 (in the years 2002in the years 2005, and 2008). If a respondent endorsed an outcome at either of the three time points, he/she was coded (1), otherwise (0). Crime was 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 was 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 were 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 was used for alcohol abuse or dependence. Similarly, mental health was 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 was a self-reported measure of receipt of public assistance in the past year at age 27, 30, or 33.

4.4.3 Confounding variables—In an examination of the consequences of incarceration it is essential to adequately control for potential confounds due to factors that might affect selection into the “treatment” (incarceration) group. For the present study we selected a broad range of factors shown to be associated with juvenile incarceration. These measures were then used to estimate the propensity score, as described in the following section (4.5).

4.4.4 Confounding variables: 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 which use a weighted measure that accounts for both frequency and severity of criminal behavior. Thus, to assess prior delinquency in this study we used a count of the past-year 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 included acts such as picking a fight, drawing graffiti, and stealing something worth less than $5. Moderate delinquency included acts such as hitting parents, damaging or destroying property, and stealing something worth less than $50. Serious delinquency included acts such as using a weapon or force to get something, breaking into a building, drug selling, and stealing something worth more than $50. A value was calculated for each youth for each survey year from 5^{th} through 10^{th} grade and again in 12^{th} grade. For those youth who were never incarcerated, these scores were averaged across adolescence through 12^{th} grade. For those youth who were

incarcerated, delinquency was calculated to establish temporal ordering with incarceration. That is, prior delinquency was calculated by averaging delinquency across years through the year in which the first incarceration occurred. For example, if a youth was first incarcerated in 8th grade, his/her delinquency score was an average of 5th, 6th, 7th, and 8th grade scores. For those who experienced their first incarceration in 11th grade, when survey data were not collected, delinquency was averaged across years through 10th grade. This temporal ordering was necessary so as not to conflate the precursors and consequences of justice system involvement, as research has shown delinquent behavior to be a consequence of justice system involvement (Bernburg and Krohn 2003).

Past month drug use, including marijuana, powder or crack cocaine, amphetamines, tranquilizers, sedatives, psychedelics, and narcotics, was measured in the SSDP sample every year from 6th through 10th grades. A frequency value was calculated for each youth for each survey year through 10th grade. Prior drug use frequency was also measured so as to establish temporal ordering with incarceration, in the same manner as described above for delinquency. Prior drug use was only available through 10th grade, so average prior delinquency for those youth who had their first incarceration in grade 11 or 12 was calculated through 10th grade.

4.4.5 Confounding variables: demographic variables—Ethnicity and gender were both self-reported by the youth. Family structured was a measure of whether the youth lived in a household with two biological parents (0) or a non-two parent household (1), was reported by the youth's caregiver in 5th grade. Finally, poverty was a measure of whether the youth was eligible for free or reduced school lunch in 5th, 6th, or 7th grade.

4.4.6 Confounding variables: behavioral disinhibition—Behavioral disinhibition was measured in 8th grade with five items assessing 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 the behavioral disinhibition scale used in these analyses (Cronbach's $\alpha = .77$).

4.4.7 Confounding variables: criminogenic environment—Four measures were used to capture youths' criminogenic environment. Family history of arrest was 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 partner 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 police contact. Youth who reported that at least 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. 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."

4.4.8 Confounding variables: prosocial protective factors—The prosocial family environment variable consisted of 22 items that measured family management, involvement, bonding, and conflict (reverse coded). Examples of items included: “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 (Cronbach’s $\alpha = .84$).

The prosocial peer environment variable measured 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 question 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 $\alpha = .45$).

4.5 Analytic strategy

The current study examined the consequences of juvenile incarceration for adult functioning. One of the greatest challenges when examining the life course consequences of incarceration is properly controlling for confounding variables: things that might have affected both the incarceration as well as subsequent later functioning. It can be argued that environmental and individual risks are causing both incarceration and subsequent negative outcomes in later life. We used two strategies to address this concern. First, the current study used 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 had ever had a police contact provided a similar comparison group of youth for assessing the effects of juvenile incarceration. Effectively, the sample studied here was limited to those who were at risk for incarceration.

Second, we used propensity score analysis (Rosenbaum and Rubin 1983) to address selection bias, as the assumption of ignorable treatment assignment is central to any research on treatment effects (Guo and Fraser 2014). As noted by Yanovitzky et al. (2008), when random assignment in not feasible (as is the case for examining incarceration consequences), propensity score analysis can be a very effective means of balancing the data. An advantage of propensity score analysis over multiple regression analysis is that it reduces covariates to a single score, which can increase statistical power and decrease the likelihood of encountering problems with multicollinearity.

In the current study, we used propensity score weighting, which involves estimating a propensity score, or the conditional probability of receiving the “treatment” of incarceration, and then using this score as a sampling weight in a weighted outcome analyses. One advantage to this method, compared to others methods such as matching, is that all of the study participants are retained, as each participant contributes a different amount of valuable information based on his/her propensity. In this way we could estimate the average treatment effect of incarceration on measures of adult functioning. In many ways this method is similar to using sampling weights, though the goal is to achieve internal validity rather than external validity (Guo and Fraser 2014).

It is important to note that, while propensity score analysis is a useful tool, there are certainly limitations to this technique. As with other statistical models, propensity score models cannot account for any hidden selection bias (i.e., variables that affect selection into treatment, but were not measured). Second, a propensity score is only as good as the variables used to estimate it. While we attempted to include as many relevant confounders as possible when estimating the propensity score, there are possibly other variables that could have also added information.

In the current study, eleven childhood risk and protective factors were used to estimate a propensity score (see Table 1). We chose variables that were related to juvenile incarceration at the $p < 0.10$ level to include in the propensity score estimation model. As described by Guo and Fraser (2014) the goal of this estimation step 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 and Rubin 1984). This is the process we used for the current analysis, and we were able to achieve balance between the "treatment" and "control" groups (see Table 1). 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. 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 40 imputed datasets as recommended by Graham (2009) to estimate unbiased parameters and standard errors.

5. Results

5.1 Covariate balance

Table 1 shows the post-weighting means and percentages for all confounding variables for the two groups: never incarcerated (n=217) versus incarcerated (n=108). After propensity score weighting was used to balance the sample, there were 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.

5.2 Model Results

Table 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). The odds ratios in Column 1 represent the zero-order relationships between juvenile incarceration and adult outcomes. 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 still 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 have met criteria for alcohol abuse or dependence, and more than two times more likely to be receiving public assistance in adulthood than their counterparts with similar criminal propensity who had not be incarcerated in adolescence.

6. Discussion and Future Directions

Several interesting results and subsequent points of discussion emerged from this study. We 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 in adolescence 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” (p. 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 of labeling 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. However, since we did not find evidence that those who were incarcerated as adolescence were more likely to be committing crime in adulthood, more research needs to be done to test how the criminal label is operating during the transition to adulthood, as labeling theory would assert that the criminal label would increase the propensity for crime (through internalization of the label, increased association with antisocial peers, and decreases in opportunity structures).

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 the earlier discussion about cumulative disadvantage and the “snowballing” effects of a criminal label. However, the empirical evidence was lacking, given the limited availability of longitudinal studies capable of answering this question. Again, future research should test the mediators of these relationships.

Finally, there is reason to suspect that the consequences of incarceration might vary for different racial/ethnic groups or by gender. While that was not the focus of the current study, and our statistical power to detect group differences was limited, this is a very interesting research question that should be pursued in future studies.

6.1 Limitations

One limitation of this study was the sample size. While limiting the sample to only those who had ever had a police contact decreased our sample size and statistical power, it greatly strengthened our ability to make empirically supported conclusions about the direct consequences of juvenile incarceration. In addition, while a strength of this study was using a community sample (thus allowing for comparisons of those who had been incarcerated with those who had not), the sample came from a specific region in the United States. This could possibly limit the generalizability of its findings to other parts of the country. Future research should attempt to replicate study findings with a larger, nationally-representative sample.

7. Conclusions

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 that 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, is illuminating the numerous and far-reaching consequences of incarceration. Davis et al. (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 et al. 1999). However, it appears that the juvenile justice system is, in fact, creating worse outcomes for many youth as they transition into adulthood, hindering their chances of becoming productive members of society. One of the strongest relationships found in these current study is that between adolescent incarceration and adult incarceration. Even when controlling for prior risk factors, this relationship remained. 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). Hopefully the results of the current study, that juvenile incarceration indeed has unique negative effects on adult functioning, will motivate researchers and practitioners to continue pursuing juvenile justice system reform and seeking appropriate alternatives to incarceration that do not jeopardize public safety.

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Table 1

Covariate Balance Post-Propensity Score Weighting

	Never Incarcerated (n=217)		Incarcerated (n=108)			
	mean (se)	**percentage**	**mean (se)**	**percentage**	**p-value**	**Standardized mean difference**
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 2

Consequences of Incarceration for 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