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Examining the Pathway from Maternal Criminal Involvement to Adolescent Delinquency

A Thesis

Presented in

Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

By

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Biography

The author was born in El Paso, Texas, October 9, 1981. She graduated from Montwood High School in El Paso, Texas and received her Bachelor of Science degree in Biology and Bachelor of Arts degree in Psychology from The University of Texas at San Antonio in 2006.

Abstract

As incarceration rates across the United States have continued to rise, there has been growing concern with the unintended consequences that have resulted. This has prompted researchers across multiple disciplines to study the effects of incarceration at the individual, family, community, and societal levels. An important but overlooked factor pertains to extensive multiple social service agency involvement and missed opportunities for intervention. Families involved with the criminal justice system (CJS) are often at risk of involvement with other human service agencies, one agency being the child welfare system (CWS). Little is known about families who fall within these two systems, and neither system is charged with assessing whether families in this group are unique from those involved in either system. The current study aimed to address limitations in previous studies and supplement the literature in relation to families with dual-system involvement. A nationally representative, longitudinal data set was analyzed to examine whether maternal CJS involvement predicted later youth delinquency within the CWS population. The moderating effects of parental monitoring, nonviolent discipline, and timing of maternal arrest were also examined to gain a better understanding of the conditions in which maternal CJS involvement was exacerbated or ameliorated. Maternal CJS involvement was a significant predictor of change in youth delinquency only in the presence of the moderating variables. Youth with maternal CJS involvement experienced decreases in delinquency regardless of monitoring compared to similar youth who experienced more delinquency in the presence of low monitoring. A timing effect was found such that youth whose mothers were arrested 4.5 to 9.5 years ago were more likely to have elevated delinquency scores at the

follow-up assessment. The results of the study suggest families with dual-system involvement are distinct from other families in the CWS. Given concerns to the intergenerational transmission of criminality, this study highlights the importance of interagency coordination around policy and interventions so that at-risk families avoid slipping through the cracks of multiple service involvement.

Examining the Pathway from Maternal Criminal Involvement to Adolescent Delinquency

The prison population in the United States is the largest in the world and continues to grow at the highest rate compared to other countries (Walmsley, 2009). Reforms in U.S. criminal justice policies in the 1980s and 1990s, including mandatory sentencing laws, have increased the number of people coming into contact with the criminal justice system (CJS) and lengthened prison sentences (Phillips et al., 2010). An estimated one in thirty-two adults in the United States is under some form of correctional supervision, including parole (Bureau of Justice, 2010). This expansion of the CJS has been associated with unintended consequences for children and families (Travis & Waul, 2003). Rates of parental incarceration have increased 79% between 1991 and 2007 (Glaze & Marushak, 2008). In 1999, nearly 3.6 million parents were under some form of correctional supervision (Mumola, 2000), with 1.1 million having been incarcerated at the local, state, or federal level (Parke & Clarke-Stewart, 2002). Approximately 2.3% of American children have been affected by the incarceration of a parent (Glaze & Marushak, 2008). This is 3.5 times more children than those affected by autism spectrum disorders (Dallaire & Wilson, 2010). These children are five times more likely than other children to become incarcerated in the future (Seymour & Hairston, 2000). The growing trend of parental involvement within the CJS poses a serious public problem, given the intergenerational transmission of crime and incarceration (Dallaire 2007; Huebner & Gustafson 2007; Murray& Farrington 2005).

Many of the factors that have put families at risk of CJS involvement have also put them at risk of involvement with other systems, as many issues cut across human service agency boundaries (Ross, 2011). One system in particular that has shared many of the risk factors with CJS involvement is the child welfare system (CWS). Many of the adversities associated with criminal activity, such as economic hardship, family instability, parental substance abuse, maternal mental illness, have also been associated with child maltreatment and neglect. Alternatively, parental involvement in the CJS may have disrupted family functioning, such as parenting practices, which may have called attention to the CWS authorities. For these reasons, it would be expected that some degree of overlap exists within these two systems. The high rates of parental arrest history in the CWS population compared to the general population has suggested there is indeed an overlap. One-third of the families in the CWS population have had a parent arrested at least once, with 1 in 8 families having had a parent arrested in the past 12 months (Bureau of Justice, 2010; Phillips et al., 2010). Little is known of families that fall into both systems. It is possible that these families are distinct from others in either system, although they might share similar adversity. If this is the case, they might require specialized services that neither system has been giving them. It is imperative that researchers investigate these families in greater detail to know whether their needs are being met.

Parental Incarceration and Youth Delinquency

A relationship has been repeatedly demonstrated between parental incarceration and child delinquency across multiple studies and meta-analyses

(Giordano, 2010; Murray, Farrington, & Sekol, 2012; Swisher & Roettger, 2011). Furthermore, parental incarceration and arrest have been identified as independent risk factors accounting for unique variability in the prediction of youth delinquency even after statistically controlling for other risk factors (Kinner et al., 2007; Murray & Farrington, 2005). Murray and Farrington (2005) examined whether parent-child separation due to parental incarceration predicted boys' antisocial problems. They used longitudinal data from the Cambridge Study in Delinquent Development to compare 411 males separated from their parents because of parental incarceration with four control groups: males whose parents were not incarcerated and did not experience any kind of parental separation of 1 month or more from age 0 to 10; males who experienced separation in their first 10 years due to parental hospitalization or death; males separated for other reasons (mainly divorce) in their first 10 years; and males whose parents were incarcerated only before their birth. Individual and family risk factors were gathered at baseline in 1961 when the boys were 8-11 years old, and outcome data were collected at ages 18 and 32 years. The majority of the sample was Caucasian (97%) and of British origin. The results showed that separation due to parental incarceration predicted the boys' antisocial problems later in life, even after controlling for individual, parenting, and family risk factors. This suggested that parental incarceration was not only a proxy of parental criminality but also a risk factor predicting youth antisocial problems over and above parental criminality and disadvantages commonly associated with incarceration. Further, the group with parental incarceration occurring during the first 10 years of a child's life had

significantly higher levels of antisocial problems later in life than the other groups, which pointed to a potential sensitive period for exposure to parental arrest.

Maternal incarceration has also been linked with offspring involvement with the CJS. Using data from the National Longitudinal Survey of Youth 1979, researchers examined whether maternal incarceration predicted adult offspring antisocial problems (Huebner & Gustafson, 2007). Data were collected from adults yearly from 1979 to 1994 and biannually from 1996 to 2000. Analysis focused on 1697 adult offspring and their mothers (n = 1258). Adult offspring of incarcerated mothers were significantly more likely to have been convicted of a crime or been on probation than the adult offspring of mothers who were not incarcerated. A series of logistic regression models showed that maternal absence increased the chance of conviction by 75 percent and that males were 3.5 times more likely to have been convicted of a crime or served time on probation.

Although parental incarceration has been identified as an independent risk factor for youth delinquency, others have argued that the risk for delinquency reflects socio-demographic risk experiences that may not be teased apart easily in bivariate relationships but emerge longitudinally (Eddy & Reid, 2003; Hagan & Foster, 2011). Some longitudinal research has suggested that parental incarceration fails to predict change in delinquency over time when controlling for sociodemographics risks. In a national birth cohort study of Australian youth sampled at birth and studied at 14 years of age (n = 2399), parental imprisonment failed to predict youth externalizing behavior after controlling for risks for

deviancy and parental incarceration (Kinner, Alati, Najman, & Williams, 2007). Research is needed that takes advantage of rigorous and longitudinal design to examine the unique effect of parental incarceration. Although experimental designs remain elusive, studies are needed that account for many of the factors associated with parental incarceration as well as adverse youth outcomes. Factors that have been most strongly associated with parental incarceration and youth delinquency are poverty, neighborhood quality, parental marital status, parental substance abuse, parental criminality, maternal education level, and ethnicity (see Farrington, 2003; Loeber, 1990).

Adding to the complexity is the fact that parental incarceration has likely had differential effects on children (Murray & Farrington, 2005; Phillips & Erkanli, 2008). While it is largely assumed that parental incarceration will lead to negative youth outcomes, it is also possible that the removal of the negative influence of a criminally involved or antisocial parent will improve the child's environment by removing inadequate parents. Furthermore, research looking at the negative effects of parental incarceration on youth has included diverse samples of children of all ages and across various ethnicities, socioeconomic statuses, and genders. Although samples have varied by age across studies, little has been done to examine how youth age at the time of parental CJS involvement impacts childhood adjustment. Developmental theorists have long stressed the importance of sensitive periods in youth development, where environmental stressors (i.e., family disruptions) have the most impact. Periods that mark important transitions, such as the transition from early to middle childhood, or middle childhood into adolescence, could be especially susceptible to stressful life events.

Parenting

A number of theories have postulated the relationship between parental incarceration and child delinquency, including shared vulnerabilities in genetic and environmental risk as well as assortative mating (Murray & Farrington, 2011). Yet, disrupted parenting has garnered much attention in the literature given its malleability to policy and intervention. Numerous studies have replicated a robust correlation between low levels of parental monitoring and increased youth problem behaviors across different samples and settings using a variety of measurement techniques (Dishion & McMahon, 1998). In a meta-analysis of 161 published and unpublished manuscripts, negative aspects of parenting (i.e., neglect, hostility, and rejection) and poor supervision (i.e., low levels of active parental monitoring, parental knowledge, and child disclosure) were strongly linked to delinquency (Hoeve et al., 2009). This is in accordance with the results of a previous meta-analysis which found parental rejection and poor supervision as being among the best predictors of delinquency (Loeber & Stouthamer-Loeber, 1986).

The literature has shown a great deal of evidence that ineffective parenting is a risk factor for delinquency. However, while some children in adverse environments have developed antisocial tendencies, many have not. Certain factors have likely provided protective effects that have decreased the likelihood of adverse child outcomes. Aside from functioning as a risk factor, parental monitoring might also serve as a protective factor, particularly in adverse environments (Dishion et al., 1998; Wilson, 1980). Several studies have found an association between effective parenting techniques and lower levels of delinquency (Forehand, Miller, Dutra, & Chance, 1997; Griffin, Botvin, Scheier, Diaz, & Miller, 2000; Simons, Chao, Conger, & Elder, 2001). In a sample of families referred to treatment for antisocial boys,

Forgatch (1988; as cited in Patterson, Debaryshe, & Ramsey, 1989) found that changes in parental discipline and monitoring significantly reduced antisocial behavior in the boys, while antisocial child behavior did not change for families showing no changes in parental discipline and monitoring. This is especially important for the CJS population, as parents having experienced incarceration had lower levels of effective parenting and higher levels of substance abuse and mental illness, which further impeded parenting (Dannerbeck, 2005).

Rationale

Families involved within the CJS have been an at-risk group for youth delinquency. The current body of research looking at the effects of parental CJS on youth delinquency has been mixed, suggesting a possible moderation of risk. To elucidate the findings in the literature, the effect of maternal CJS involvement on adolescent delinquency over time above and beyond identified confounds was examined, along with the moderating effects of parental monitoring and nonviolent discipline. The current study examined mothers instead of both parents because of the differential effects of maternal versus paternal incarceration. Families with a history of maternal arrest rather than incarceration were investigated because they are a larger at-risk group compared to the small subset of families having had mothers in prison. The two dimensions of parenting were selected for analysis for the following reasons: both dimensions of parenting have been shown to be negatively related to youth delinquency; incarcerated parents are at risk for ineffective parenting practices; these two behavioral dimensions of parenting are amendable to change via intervention. The moderating effect of timing of arrest was also examined because family disruptions can have

differential effects depending on sensitive periods of youth development. Because families involved with the CWS are at high-risk of CJS involvement and poor parenting practices associated with delinquency, a longitudinal data set composed of families in the CWS was used for analysis. The longitudinal design allowed the ability to assess change over time and thus more valid conclusions could be drawn. This data set captured families involved in both systems, which may be distinct from families in either system. The results of the study would help determine whether child welfare services need to address specific risk for criminally involved families who come into contact with the system.

Statement of Hypotheses and Research Questions

Hypothesis I. Maternal arrest during childhood would predict youth-reported delinquency over an 18-month period among adolescents who were the subject of a child protective services investigation above and beyond other risk factors, including family income, neighborhood quality, type of child maltreatment, child age, child ethnicity, caregiver marital status, maternal age, maternal education level, maternal substance abuse, and child welfare services received.

Hypothesis II. High levels of parental monitoring would mitigate the effects of maternal arrest on delinquency over time, such that youth whose mothers had been arrested would report lower levels of delinquency when families reported higher levels of parental monitoring.

Hypothesis III. High levels of nonviolent primary caregiver discipline would mitigate the effects of maternal arrest on delinquency over time. Youth exposed to

maternal arrest would report lower levels of delinquency when families endorsed higher levels of parental nonviolent discipline.

Research Question I. Did youth age at the time of maternal arrest impact the severity of delinquency exhibited during adolescence?

Method

Participants

The present study drew data from the second cohort of the National Survey of Child and Adolescent Well-being (NSCAW II), a nationally representative longitudinal study of 5,873 children who were the subject of maltreatment investigations closed between February 2008 and April 2009 (DFUM). The participant selection for the current study resulted in a sample size of 554 at baseline. While NSCAW II sampled children aged 0 to 17.5 years at baseline, the current study was interested in children nearing or in adolescence, thus only children aged 11 to 17.5 years were included. The sample was further restricted by only including children of intact families with mothers as the primary caregivers. Families whose children were removed from the home at baseline were excluded due to inadequate data collected on biological parental incarceration. Mothers were the focus of this study to limit potential confounds of gendered responses to parent incarceration; specifically, research suggested that families reorientate differently in response to maternal versus paternal arrest, which may cofound the relationship between parenting and delinquency in these analyses (Murray & Farrington, 2008).

The ethnic composition of the children was 17% African-American, 53.9% European-American, 29% Hispanic, and 0.1% who identified as "other." The majority of children were male (62%) with mean age of 13.5 years (*SD* = 1.8). The majority of the families were being investigated for physical abuse (27%), neglect (27%), sexual abuse (11%) or emotional abuse (35%). Most

families (70%) reported receiving some kind of CWS service, such as case management, counseling, day care, and housing services among many others. Mothers were 37.7 years on average, 38% reported being married, and most had obtained at least a high school diploma (70%). About half of the mothers reported being unemployed or not working (49%).

Measures

Maternal CJS involvement. Caregivers reported on their involvement with the criminal justice system at baseline and at the 18 month follow-up, including the number of arrests, date of arrests, whether the arrest resulted in a conviction, probation placement, periods of incarceration, and duration of incarceration. A dichotomous variable was created to capture whether caregivers reported *any* arrests prior to baseline that occurred during the child's lifetime. The categorical approach to capturing parent criminality has been used extensively in prior research (Murray & Farrington, 2005; Phillips et al., 2002, Phillips et al., 2006).

Timing of the most recent arrest was computed by taking the difference in months between the date of most recent maternal arrest and the date of the caregiver interview at baseline. The distribution of the variable was examined to create a categorical variable with subgroups as close in size as possible. This resulted in a categorical variable with five levels (*never arrest/arrest before birth, 0-12 months since most recent arrest, 13 to 54 months since most recent arrest, 55-101 months since most recent arrest, over 101 months since most recent arrest*). The categorical variable was then dummy coded so that each level was a

new variable coded 1 for yes or 0 for no. In addition, c*hange in maternal CJS involvement* indicated whether or not caregivers who did not have an arrest history at baseline reported having been arrested between the baseline and follow-up assessment.

Nonviolent discipline. The Parent-Child Conflict Tactics scale assessed parental discipline within the past 12 months (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). The current study used the Nonviolent Discipline subscale which measured the use of four disciplinary practices commonly used as alternatives to corporal punishment (explanation, time out, deprivation of privilege, and substitute activity). The measure uses an uses an 8-point Likert-type scale (*1 time, 2 times, 3 to 5 times, 6 to 10 times, 11 to 20 times, more than 20 times, not in the past 12 months, never*) to measure the total frequency of parental acts of non-violent aggression as reported by youth. Used extensively in prior research of at-risk adolescents, this measure has demonstrated adequate reliability, including in the NSCAW I sample ($\alpha = .70$; (Dowd et al., 2004).

Parental monitoring. The Parental Monitoring Scale was adapted by the Fast Track Committee from the original measure created by Loeber, Farrington, Stouthamer-Loeber & van Kammen (1998). This 18-item youth-reported scale assesses parenting supervision and involvement. The scale uses Likert-type responses (*never, almost never, once in a while, pretty often, very often*), with example items including, "How often do you leave the house without telling your caregiver or without leaving a note?" and "How often does your caregiver know where you are when you are away from home?" A total sum score was computed,

with higher scores reflecting closer supervision. This measure demonstrated adequate reliability and validity in large studies of adolescents.

Delinquency. Youth self-reported on their delinquency at the baseline and follow-up assessments. The Self-Report of Delinquency (SRD) (Elliott & Ageton, 1980) is a 72-item measure assessing participation in and frequency of delinquent acts. Responses to the items included Likert-type (1 = *once* to 5 = *5 or more times*), dichotomous (*yes, no*), and multiple response options (*to get away from parents, for fun and adventure, had fight with parents, other*), with items including, "In the past 6 months, have you run away from home?" and "How many times in the past 6 months have you run away from home?" A total score was computed, with higher scores denoting more delinquent behavior. This measure demonstrated adequate psychometric properties and validity within the NSCAW I (Dowd et al., 2004).

Child Demographics. Child demographic information was collected during the interview. Gender is a dichotomous variable (male/female), derived from five source variables reporting gender when discrepancies existed. The hierarchy was as follows: the majority from the parent, caseworker, and youth-reported gender; the majority of all responses on the five source variables; if gender still could not be determined, parent report of the youth's gender at baseline were used. The child's age was also given. Youth, parents and caseworkers were asked for the child's date of birth to calculate age. When age discrepancies existed, age was determined by the following reporting hierarchy: youth, caseworker, parent. The ethnicity variable of each child was measured at

baseline as a four-option categorical variable (Black/Non-Hispanic, White/Non-Hispanic, Hispanic, Other) and derived from reports given by caseworkers and parents. A series of dichotomous variables compared each race category with youth from all other categories.

Abuse type. The most serious type of abuse or neglect experienced by the child was derived at the baseline interview, placing children into one of ten categories. The variables were then recoded to indicate physical abuse, sexual abuse, emotional abuse (including emotional maltreatment, moral/legal maltreatment, educational maltreatment, exploitation, and other), and neglect (including physical neglect didn't provide, neglect – no supervision, and abandonment).

Child welfare services. A dichotomous variable differentiated the children and their families who received services provided by Child Protective Services agencies during baseline from those who did not. Such services included but were not limited to case management, counseling, day care, education, training, employment, family preservation/reunification.

Caregiver Demographics. Current caregiver age, in years, was self-reported at baseline. Caregivers also self-reported employment status, marital status, and level of education at baseline. Employment status was assigned to one of five categories: full-time, part-time, unemployed, do not work, and other. From this source variable, a dichotomous *unemployment* variable was created that compared unemployment and do not work to all other categories. Marital status was assigned to one of five categories: married, divorced, widowed, separated,

and single. A dichotomous *marital status* variable was created that compared married to all other categories. A dichotomous *caregiver education* variable was created that compared high school graduates and beyond to all others groups.

Caregiver substance abuse. The Drug Abuse Screening Test (DAST-20; Skinner, 1982) is a 20-item instrument used to capture caregiver self-reported substance use during the past 12 months. This instrument provides a brief but valid assessment of psychoactive drug abuse. A total sum score reflects the degree of problematic drug use, with higher scores indicating increased severity of problems. The item response format is dichotomous (*yes, no*), with items including, "Do you abuse more than one drug at a time" and "Are you always able to stop using drugs when you want to?" High internal consistency and validity has been demonstrated across various populations (Cocco & Carey, 1998).

Neighborhood problems. Caregivers were asked about their neighborhood at baseline. Nine items were asked on the abridged community-environment measure developed for the Philadelphia Family Management Study (Furstenburg, 1990). The first five items ask how much of a problem certain occurrences are within the neighborhood. These questions are rated on a 3-point Likert scale (*not a problem at all, somewhat of a problem, or a big problem in your neighborhood*). The final four items ask the respondents to compare their neighborhood to others on safety, neighbor support, parent involvement, and whether or not it is a better or worse place to live. The mean of the nine community items measured the overall neighborhood environment, with higher scores indicating worse neighborhoods. Sufficient reliability has been reported for

this measure in NSCAW (α = .86; Hazen, Connelly, Kelleher, Barth, & Landsverk, 2006).

Change in out-of-home placement status. Although the entire sample of children was living with their caregivers at baseline, some children were removed from their homes by the follow-up assessment. A dichotomous variable was created to identify the children who were living in an out-of-home setting.

Procedure

Data for the NSCAW II study were gathered through first-hand child and caregiver interviews comprised of several questionnaires assessing caregiver and child mental and physical health, emotional and behavioral problems, social support, household composition, demographic information, and criminal history. The families interviewed remained intact after initial child welfare investigation and may or may not have received services. Follow-up data were collected on youth and caregivers 12, 18, 36, and 60 to 72-months following the initial assessment. The current analysis focused only on data collected at baseline and at the 18-month follow-up.

NSCAW employed a stratified cluster sampling procedure to ensure a representative estimate of the population. The sample contains nine strata composed of 97 counties throughout the country. Eight strata comprise the eight states with the highest number of Child Protective Services (CPS) cases, with each state representing one stratum. The ninth stratum contained the remaining states. Primary sampling units (PSU), which represented the population in a geographic area served by a single CPS agency, were formed within each stratum.

PSUs were assigned a selection probability, and 100 PSUs were randomly selected.

Analytic Approach

A series of multiple regression analyses examined the direct and interactive effects of maternal arrest on youth delinquency over time while controlling for sociodemographic and contextual risk and protective factors. Iterative models regressed delinquency scores at 18 months on maternal arrest plus an increasingly comprehensive set of covariates. This approach allowed empirical examination of important contextual contributors to delinquency, as well as account for processes that lead to maternal arrest. Covariates were added to models based on proximity of influence on selection and behavioral outcomes. Delinquency at baseline assessment and maternal arrest were entered first (Model 1), followed by other caregiver characteristics (caregiver age, marital status, education, employment status, and level of substance abuse; Model 2). Then, Model 3 included child characteristics (age, ethnicity, type of child maltreatment, child welfare services received at baseline), and Model 4 added family and neighborhood functioning at baseline (parental monitoring, nonviolent discipline, and neighborhood quality). Model 5 included changes in maternal arrest history or out-of-home placement status (arrest between interviews and placement into foster care between interviews). Continuous covariates (baseline delinquency, parental monitoring, nonviolent discipline, and neighborhood problems) were grand-mean centered to improve interpretability, and were used to create interaction terms with the maternal arrest history.

A final model used to test hypothesized moderating effects of maternal arrest included covariates identified to predict delinquency in prior model iterations. This included interactive terms and their main effects; variables that predicted maternal arrest; and other covariates that significantly predicted delinquency in any prior model. The same set of covariates tested the research question of whether timing of maternal arrest predicted more delinquency. This model included four dummy-coded variables indicating whether most recent arrest occurred 1) never 2) 0-12 months before baseline, 3) 13 to 54 months before baseline, 4) 55-101 months before baseline, or 5) over 101 months since most recent arrest. Never arrested served as the reference group in these analyses.

The statistical package MPlus version 6 (Muthén & Muthén, 2010) was used to analyze the models. The complex survey function was employed to accommodate the features of the NSCAW sampling design including unequal selection probabilities into the sample as well as missing data at the 18 month follow-up (Dowd et al., 2010). Because the outcome variable was a count type with non-normal distribution, the data were modeled using a negative binomial distribution (Muthen & Muthen, 2010).

Results

Descriptive Statistics and Study Variable Intercorrelations

Means, standard deviations, and zero-order correlations between all study variables are presented in Table 1. Of the 554 families in the sample, 151 had a history of maternal arrest with an average of 2.9 arrests (SD = 3.0). Maternal arrest was not significantly associated with youth reported levels of delinquency

at either baseline or the 18-month follow-up. Parental monitoring had a negative association with baseline and follow-up levels of delinquency, however only the former was significant. There was a small but significant and positive association between parental monitoring and maternal arrest. More nonviolent discipline related with more delinquency at both baseline and follow-up. Other potentially confounding variables that were significantly associated with delinquency were maternal arrest between waves, caregiver substance use, child age, and neighborhood problems score.

A series of logistic regression models compared demographic and contextual characteristics of families with and without a history of maternal arrest at baseline to investigate important differences. As presented in Table 2, families with a history of maternal arrest were more likely to be single-parented households, have African American children, and have higher levels of youth-reported parental monitoring.

Regression Models

The parameter estimates of the six models are presented as unstandardized beta coefficients (*b*) with their standard errors and significance tests in Table 3. Higher baseline levels of delinquency predicted subsequent problems at 18 months across all models. Maternal arrest did not significantly predict change in youth delinquency in Model 1. This indicated the average wave 2 delinquency scores of children with mothers having an arrest history were similar to the children whose mothers did not have an arrest history after controlling for prior levels of delinquency. In Model 2 that added caregiver characteristics, caregiver

substance use had a positive significant association with change in youth delinquency. Caregivers who had higher levels of substance use were more likely to have children exhibiting elevations in delinquency scores. In the third model that added child characteristics, older youth and youth who identified as "Other" (compared to whites) exhibited significant increases in delinquency at the 18-month follow-up. After the addition of the child level variables, caregiver substance use was no longer significant, whereas caregiver unemployment reached significance. Adolescents with unemployed mothers at baseline exhibited decreases in delinquency 18 months later controlling for other variables. Child age dropped from significance after the addition of family level variables in Model 4, while caregiver unemployment at baseline and child other race continued to be significant. A similar pattern of effects emerged in Model 5, which included the between wave variables of subsequent maternal arrest and child out-of-home placement.

Based on the results of Models 1 through 5, a final model was selected to test hypotheses regarding moderation and timing effects. Model 6 in Table 3 presents the results of the moderation model. A significant interactive effect was found between maternal arrest and parental monitoring (see Figure 1). As expected, low parental monitoring was associated with increased delinquency scores for the comparison group; however the opposite was found for the maternal arrest group. This suggests that low parental monitoring had a more detrimental effect on the children without maternal arrest history. At high levels of parental monitoring, the differences between the two groups diminished. Additionally, the

main effect of maternal arrest was significant and negative in the presence of the interaction terms; delinquency decreased more among youth who experienced maternal arrest when accounting for parenting characteristics. The interaction between nonviolent discipline and maternal arrest was not significant, indicating nonviolent discipline did not attenuate the relationship between maternal arrest and youth delinquency.

The results of the timing analysis are presented in Table 4. Time since most recent arrest significantly predicted increased youth delinquency beyond the omnibus effect of being arrested. Arrests that occurred within the past four and half years did not predict changes in delinquency. Youth whose mothers were arrested between 4.5 and 8.5 years ago experienced increased delinquency during the follow up compared to youth whose mothers had not been arrested. Conversely, youth whose mothers were arrested more than 8.5 years ago exhibited decreased delinquency compared to non maternal arrested youth. Exploratory analyses included child age into regressions to determine whether developmental differences existed in timing but a similar pattern of effects emerged.

Discussion

The current study draws data from a prospective, nationally-representative dataset to examine the effects of maternal CJS involvement on youth delinquency within the CWS population. The divergent body of literature in relation to the effect of parental CJS involvement on youth has led to confusion about whether these youth are at a higher risk of negative outcomes compared to youth without

parental CJS involvement facing similar adversities. Even less is known about the youth whose families are involved in two systems commonly associated with increased risk of poor outcomes. The current study aims to investigate whether families with dual CJS and CWS involvement are distinct from other families within the CWS as a first step in determining the unique needs of this at-risk group. This entails examination of between group differences in delinquency trajectory as well as differential patterns of delinquency change in the presence of moderating variables.

The hypothesis that maternal arrest would predict adolescent delinquency at wave 2 over and above sociodemographic variables was not supported. Children with a maternal history of arrest experienced similar change in delinquency between the baseline and follow-up assessments compared to the comparison group when controlling for confounding variables. One of the greatest challenges in the existing research literature on parental CJS involvement and youth outcomes has been to disentangle the effects of parental CJS involvement from the many other risk factors that often precede such involvement. This has led to disagreement about whether parental CJS involvement has a unique effect on youth or is simply a marker of other adversities. In the current study, the maternal arrest youth were compared to youth similar on several indicators of risk, and the main effect of maternal arrest was not a significant predictor of youth delinquency. Initially these findings show support for the cumulative accumulation of risk model, which posits the type of risk is not as important as the number of risks in predicting youth maladjustment (Rutter, 1987; Sameroff,

Bartko, Baldwin, Baldwin, & Seifer.,1998). Considering most youth in the CWS are struggling with multiple individual and family-level adversities, it is possible maternal arrest is just another indicator of risk, and that youth with a maternal history of arrest are not qualitatively different than their non-maternal arrest counterparts. However parental CJS involvement is a complex, dynamic process rather than a discrete event (Parke & Clarke-Stewart, 2002) that likely has differential effects on youth (Murray & Farrington, 2005; Phillips & Erkanli, 2008) based on several factors. Examining the effects of parental CJS involvement in the absence of moderating contextual factors will likely result in the underestimation of its effects by neglecting the heterogeneity within the group.

The second hypothesis that high levels of parental monitoring would mitigate the effects of maternal arrest such that delinquency levels would decrease at wave 2 was partially supported. This result should be interpreted with caution because the maternal arrest group with low parental monitoring showed greater decreases in delinquency compared to those with high monitoring. The current study tested parenting characteristics as moderators to observe whether the relationship between maternal CJS involvement and youth delinquency was attenuated with the inclusion of salient contextual factors. The results of the study show the maternal CJS group exhibits a different pattern of delinquency change compared to the comparison group in the presence of parenting factors. Parental monitoring does not affect youth with maternal CJS involvement as much as other youth within the CWS. Further, the pattern of association is different for the

maternal CJS involvement group, such that the low-monitored youth had bigger drops in delinquency than the high-monitored youth. Additionally, nonviolent discipline failed to decrease levels of delinquency in either group. These results are inconsistent with the parenting literature that has identified effective parenting techniques including monitoring and nonviolent discipline as protective factors to prevent youth delinquency (Dishion et al., 1998; Wilson, 1980). However the results are consistent with another body of literature that has demonstrated differential effects of parenting across cultures (Baumrind, 1972, Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987 Iyengar & Lepper, 1999). Within this framework, the impact of parent practice is due in large part to youth interpretation of what the parenting behavior symbolizes, which is shaped by cultural values and norms. Future research should examine the impact of established parenting techniques in marginalized populations to inform the development of culturally-competent parenting programs. Special attention should be paid to families with dual CWS and CJS system involvement who have shown a differential response to at least one dimension of parenting compared to the broader CWS population.

Finally, the study results provided evidence of a timing effect in relation to the research question inquiring into the relationship of timing of most recent arrest and youth delinquency. Timing is another dimension that can provide insight into the differential effects of maternal CJS involvement on youth outcomes. The results of the current study suggest that timing of most recent maternal CJS involvement matters: youths whose mothers were arrested 4.5 to 8.5 years prior to

baseline fared worse compared to the non-maternal arrest group at the follow-up assessment. Based on the mean age of children in each of the timing subgroups (approximately 13.5 years), the majority of these children were aged approximately 5 to 9 years at the time of maternal arrest. This finding supports previous research that found differential youth outcomes based on the timing of parental CJS involvement (Murray & Farrington, 2005; Murray, Janson, Farrington, 2007). However the most vulnerable group in the current study is inconsistent with the results found by Murray, Janson, & Farrington (2007) where early childhood disruption (ages 0 to 6) is the most sensitive time period. The disparate results do not necessarily contradict one another; rather the discrepancy is likely a reflection of study differences in the measurement of timing. Murray et al. (2007) separated the children into two groups (0 to 6 years, and 7 to 19 years), whereas the current study separated children into four groups. Had the current study dichotomized the children as well, a similar pattern may have emerged because the decreases in delinquency observed in the older children would have cancelled out the increase of delinquency in the school-aged group.

This study aimed to elucidate the findings of previous research on parental CJS involvement and youth delinquency while focusing on an at-risk group vulnerable to parental CJS involvement. The complex sampling design of the study enables the findings to be generalized to families with dual CJS and CWS involvement across the United States. Nonetheless, study findings should be interpreted in light of the study limitations. Causal inferences cannot be made between maternal CJS involvement and youth delinquency due between-group

differences and difficulty establishing temporal precedence. The maternal CJS involvement group was similar to the comparison group on many sociodemographic factors, however a few notable differences exist. The maternal CJS involvement group was more likely to be African American, be a single-parented household, and have higher parental monitoring scores relative to the comparison group. Although the disproportionate representation of African Americans and single mothers within the maternal arrest group reflects their overrepresentation within the broader context of the CJS (Mumola, 2000; Glaze & Maruschack, 2008), these differences, along with any unmeasured risk factors, may be driving the observed study effects.

The study findings highlight the distinctness of dual CJS and CWS-involved families from similar families in the CWS. Although more research is needed to determine the extent to which these families differ, as well as whether these families could benefit from unique, targeted support services, identification of these families remains a challenge. Neither the CJS nor the CWS routinely gather information about inmates' children or parental incarceration, respectively. Instituting a systematic framework which would allow for the routine exchange of information across agencies would facilitate the identification of families involved within both systems. Further, relying on official records as opposed to self-report would provide a more accurate estimation of the prevalence of dual-system involvement because it would circumvent the accuracy problems associated with parent self-report, such as poor memory or intentional concealment.

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Table 1

Summary of Intercorrelations, Means, and Standard Deviations for Study Variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.
1. Arrest	1																					
2. BLDel	.03	1																				
3. W2Del	.07	.46**	1																			
4. PMon	.12**	.-11*	-.04	1																		
5. NVDisc	.01	.27**	.22**	.00	1																	
6. CgAge	-.06	-.06	.03	-.05	-.04	1																
7. CgMar	-.12**	.03	.02	-.11*	-.00	.02	1															
8. CgHS	.01	.06	.01	.02	.07	.15**	.07	1														
9. Unem	.04	-.08	-.02	.03	.01	.04	-.00	-.05	1													
10. CgSU	-.00	.08	.11*	.09*	.06	.04	.05	.01	.07	1												
11. ChdAg	.07	.17**	.09*	-.05	.04	.31**	.07	-.06	.08*	.08	1											
12. ChdGe	-.01	-.02	-.07	.09*	-.07	.08	-.10*	-.07	.02	.03	-.02	1										
13. ChdB	.12**	-.00	.05	.17**	-.07	-.07	-.22**	.08	-.00	.00	-.07	.06	1									
14. ChdH	-.15**	.06	-.04	-.07	.04	-.16**	.04	-.30**	-.12**	-.09*	-.09*	-.07	-.29**	1								
15. ChdO	.02	.02	.08	-.09*	.02	.16**	.05	.14**	.09*	.12**	.04	-.01	-.14**	-.19**	1							
16. Phy	-.02	-.03	-.02	-.14**	.01	.03	.07	.06	-.06	-.06	-.05	.01	.07	-.08	.09*	1						
17. Sex	-.03	.06	.01	.09	.01	-.01	.02	.04	-.08	.02	-.02	-.06	-.04	-.04	-.05	-.21**	1					
18. Neg	.02	-.08	.00	-.01	-.04	-.02	-.14**	-.02	.08	.07	-.01	.05	.09*	.00	-.01	-.36**	-.21**	1				
19. Serv	-.02	-.04	.05	.05	-.07	-.05	.13**	-.03	-.00	-.10*	-.02	-.10*	.10*	-.10*	-.02	.10*	.14**	-.05	1			
20. Neigh	-.02	-.06	.10*	-.03	.06	-.06	-.02	-.09*	.12**	-.07	.03	-.10*	.04	.13**	.04	.14**	-.06	-.03	.03	1		
21. ArBW	.12*	.13**	.12*	.04	.15**	-.05	-.02	.10*	.01	.12*	-.07	-.06	.09	-.04	.01	-.03	-.05	.03	.12*	-.10*	1	
22. OOH	.11*	-.03	-.01	-.04	-.04	.07	-.10*	.02	-.00	.03	.04	-.02	-.02	-.05	-.01	-.05	-.03	.04	-.14**	.02	-.07	1
Mean	(23)	1.18	0.99	40.61	12.20	37.67	(38)	(70)	(49)	-.34	13.47	(38)	(17)	(29)	(8)	(27)	(11)	(27)	(69)	14.36	(12)	(7)
SD				7.70	16.28	5.95				4.31	1.83											

Note. Means and standard deviations for the variables are presented in the horizontal rows; parentheses indicate percentages. Standard deviations are not included for count variables. Arrest = maternal arrest; BLDel = delinquency score; W2Del = wave 2 delinquency; PMon = parental

monitoring; NVDisc = nonviolent discipline; CgAge = caregiver age; CgMar = caregiver marital status; CgHS = caregiver education; Unem = unemployment; CgSU = caregiver substance use; ChdAg = child age; ChdGe = child gender; ChdB = African American; ChdH = Hispanic; ChdO = ethnic Other category; Phy = physical abuse; Sex = sexual abuse; Neg = neglect; Serv = services received; Neigh = neighborhood problems; ArBW = arrested between waves; OOH = out-of-home status. *$p < .05$. **$p < .01$.

Table 2

Comparison of Baseline Characteristics between Groups

	Maternal Arrest History			
	Yes (n = 154)	No (n = 400)	Referent Category	Odds Ratio
Caregiver Demographics				
Caregiver Age	36.58 (5.89)	37.47 (5.84)		0.98
Substance Abuse	0.92 (2.21)	0.76 (1.51)		1.00
Unemployment %	53.2	49.0	Employed	1.13
Marital Status %	26.6	37.3	Unmarried	0.71*
High School Grad %	77.9	73.4		1.01
Child Demographics				
W1 Delinquency	4.14 (7.21)	3.44 (8.27)		1.01
Child Age	13.70 (1.82)	14.44 (1.84)		1.06
Child Gender %	41.6	41.8	Female	0.99
Child Hispanic %	16.2	27.3	White	0.59*
Child AA %	27.9	20.3	White	1.51*
Child Other %	13.0	8.8	White	1.09
Physical Abuse %	18.8	22.8	Other Abuse	0.99
Sexual Abuse %	7.8	11.8	Other Abuse	1.06
Neglect %	24.7	19.8	Other Abuse	1.12
Welfare Services %	59.7	46.5	None received	0.94
Family Characteristics				
Monitoring	41.49 (7.80)	40.72 (7.84)		1.02*
NV Discipline	13.42 (17.04)	12.68 (16.14)		1.00
Neighborhood	14.12 (4.55)	14.09 (4.47)		1.01
OOH W2 %	12.0	6.2	In Home	1.66

Note. Child AA = African American; Child Other = ethnic Other category; OOH W2 = out-of-home at wave 2. *p < .05, **p < .01

Table 3

Multiple Regression Models Predicting Youth Delinquency

Predictor	Model 1 *b* (SE)	Model 2 *b* (SE)	Model 3 *b* (SE)	Model 4 *b* (SE)	Model 5 *b* (SE)	Model 6 *b* (SE)
Maternal Arrest	0.40 (0.52)	0.64 (0.52)	0.02 (0.31)	0.13 (0.32)	0.20 (0.34)	-4.06 (1.44)**
W1 Delinquency	0.09 (0.02)**	0.10 (0.02)**	0.10 (0.02)**	0.10 (0.02)**	0.10 (0.02)**	0.10 (0.02)**
Unemployment		-0.52 (0.29)	-0.85 (0.30)**	-0.91 (0.32)**	-0.87 (0.34)*	-0.90 (0.27)**
Caregiver Age		-0.02 (0.03)	-0.01 (0.03)	-0.02 (0.30)	-0.02 (0.03)	
Substance Use		0.18 (0.09)*	0.16 (0.09)	0.16 (0.92)	0.03 (0.10)	
Marital Status		0.03 (0.30)	0.15 (0.25)	0.10 (0.26)	0.15 (0.28)	
Cg Education		-0.02 (0.31)	-0.30 (0.34)	-0.29 (0.36)	-0.11 (0.39)	
Child Age			0.17 (0.07)*	0.12 (0.07)	0.12 (0.09)	
Child Gender			0.10 (0.36)	0.20 (0.36)	0.26 (0.39)	
Child Hispanic			0.28 (0.39)	0.19 (0.39)	0.18 (0.43)	-0.01 (0.38)
Child AA			0.02 (0.32)	-0.08 (0.31)	-0.09 (0.34)	0.36 (0.32)
Child Other			0.95 (0.36)**	0.90 (0.35)*	1.06 (0.37)**	0.83 (0.27)**
Physical Abuse			0.28 (0.29)	0.12 (0.32)	0.35 (0.36)	
Sexual Abuse			-0.19 (0.34)	-0.31 (0.34)	-0.15 (0.35)	
Neglect			0.09 (0.27)	-0.05 (0.30)	0.23 (0.35)	
Services			-0.02 (0.24)	0.03 (0.24)	-0.04 (0.27)	
Monitoring				-0.02 (0.02)	-0.01 (0.02)	-0.05 (0.03)*
NV Discipline				0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Neighborhood				0.04 (0.03)	0.06 (0.04)	
Arrest b/w Wave					0.38 (0.41)	
OOH W2					-0.60 (0.43)	
Arrest X Monitor						0.09 (0.04)
Arrest X NV Disc						0.06 (0.03)*

Note. Cg Education = caregiver education level; Child AA = African American; Child Other = ethnic

Other category; Services = services received; OOH W2 = out-of-home at wave 2. ** p < .01; *p < .05.

Table 4

Timing Multiple Regression Analysis

Predictor	*b* (SE)
Maternal Arrest	-0.81 (0.34)*
W1 Delinquency	0.08 (0.01)**
Unemployment	-0.95 (0.27)**
Child Hispanic	0.05 (0.36)
Child AA	0.29 (0.32)
Child Other	0.90 (0.32)**
Monitoring	-0.04 (0.02)*
NV Discipline	0.02 (0.01)*
0-12 months	0.26 (0.47)
13-54 months	0.40 (0.41)
55-101 months	2.02 (0.83)*
102+ months	-1.00 (0.28)**

Note. ** $p < .01$; *$p < .05$.

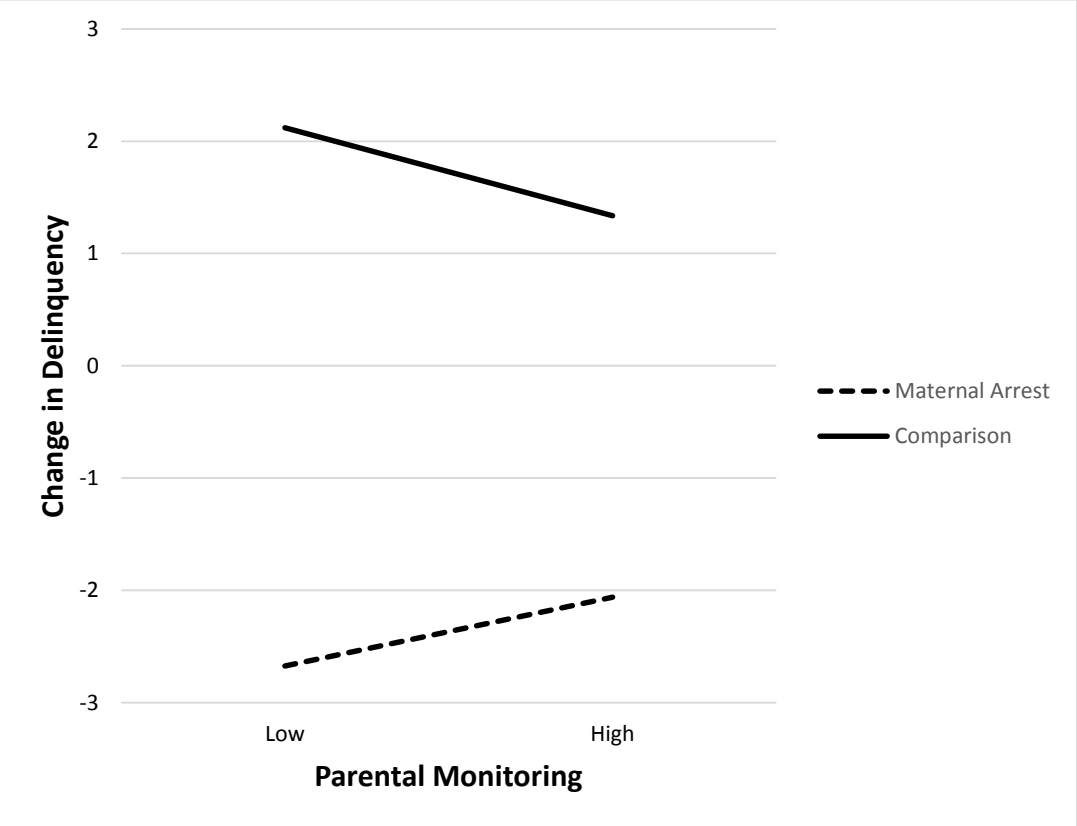

Figure 1. The moderating effect of parental monitoring on the relationship between maternal CJS involvement and change in youth delinquency. Youth in the comparison group experience increased delinquency in the presence of low monitoring, whereas youth with maternal CJS involvement experience decreased delinquency regardless of monitoring level.