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Children's Experiences of Maternal Incarceration-Specific Risks: Predictions to Psychological Maladaptation

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Abstract

Children of incarcerated mothers are at increased risk for social and emotional difficulties, yet few studies have investigated potential mechanisms of risk within this population. This research simultaneously examined the association of children's experience of incarceration-specific risk factors (e.g., witness mother's arrest) and environmental risks (e.g., low educational attainment) to children's psychological maladaptation using a multi-informant design and a latent variable analytic approach. Participants were 117 currently incarcerated mothers (64.1% African American), their 151 children (53.6% boys, *M* age =9.8 years, range =6–12 years, 61.7% African American), and the 118 caregivers (74.8% female, 61.9% grandparents, 62.2% African American) of the children. Mothers, children, and caregivers each provided accounts of children's experiences related to maternal incarceration and children's internalizing and externalizing behavior problems. Mothers and caregivers each supplied information about 10 environmental risk factors. Findings from structural equation modeling indicate that children's incarceration-specific risk experiences predict internalizing and externalizing behavior problems whereas the influence of environmental risks was negligible. Follow-up analyses examining the contribution of specific risks indicate that significant predictors differ by reporter and separate into effects of family incarceration history and direct experiences of maternal incarceration. Incarceration-specific experiences place children at higher risk for maladjustment than exposure to general environmental risk factors. These findings indicate the need to critically examine children's exposure to experiences related to maternal incarceration and family incarceration history to help to clarify the multifaceted stressor of maternal incarceration.

As adults, children of incarcerated mothers are at risk for antisocial behavior and criminality (Dallaire, 2007b; Murray, Farrington, & Sekol, 2012) as well as poor physical and mental health (Lee, Fang, & Luo, 2013). As children, separation from parents because of incarceration has been associated with unstable living environments (Kjellstrand & Eddy, 2011), poor school behavior (Trice & Brewster, 2004), and externalizing and internalizing behavior problems (Murray & Farrington, 2005). However, it is unclear to what extent parental incarceration contributes to children's risk over and above other risk factors. There are many preexisting, or selection effects because "incarceration does not occur randomly in the population" (Murray, 2005, p. 448); that is, incarcerated individuals are

disproportionately of low socioeconomic status in that they tend to have low educational attainment and be minimally employed or unemployed. In addition, children of incarcerated parents may be exposed to parental arrest, school and home transitions, including separation from siblings, as well as lack of contact with a parent. The goal of the current research is to simultaneously investigate the impact of incarceration-specific risk experiences (ISRE) and general environmental risk (GER) on children's internalizing and externalizing problem behavior and the incremental risk associated with experiencing ISRE in a sample of children of incarcerated mothers using multiple reporters (child, mother, caregiver).

Given the high and steady rates of incarceration nationally, it is critical to examine factors affecting this population. Over the last two decades there has been a tremendous increase in the number of children affected by parental and particularly maternal incarceration, at the state and federal level (Glaze & Maruschak, 2008; Mumola, 2000). At midyear 2007 the 65,600 mothers incarcerated in state and federal prisons reported having 147,400 children (Glaze & Maruschak, 2008). According to this most recent Bureau of Justice Statistics report "since 1991, the number of children with a mother in prison has more than doubled, up 131%" (Glaze & Maruschak, 2008, p. 2). Although there have also been similar increases in the number of mothers incarcerated at jails at the local level, and it is estimated that there are millions of additional children who have a mother in jail (Western & Wildeman, 2009), the actual number of affected children is difficult to estimate as there are no formal procedures in place to collect these data.

Although greater numbers of children are impacted by a father's incarceration, children with incarcerated mothers often experience greater disruption in their lives because mothers are more likely to have been providing the primary care for their children prior to incarceration (Glaze & Maruschak, 2008). Relative to children with incarcerated fathers, children with incarcerated mothers are more likely to be separated from both of their biological parents because of parental incarceration (Dallaire, 2007b; Dallaire & Wilson, 2010). Further, children with incarcerated mothers present with negative immediate and future outcomes across many domains. For example, school-age children with incarcerated mothers exhibit high levels of anxiety, depression, and aggressive behaviors (Hanlon, Bateman, Simon, O'Grady, & Carswell, 2004; Murray & Farrington, 2005; Myers, Smarsh, Amlund-Hagen, & Kennon, 1999). According to incarcerated mothers' report, their adult children are 2.5 times more likely to be incarcerated than adult children with incarcerated fathers (Dallaire, 2007b) and 3 times as likely to be incarcerated as adults when compared to children whose mothers have never been incarcerated (Huebner & Gustafson, 2007).

Maternal incarceration is both a risk marker and a risk mechanism (Johnson & Easterling, 2012; Murray & Farrington, 2005). As a risk marker, maternal incarceration indicates the presence of other risk experiences for a child or family (e.g., low income, low education). As a risk mechanism, maternal incarceration confers unique or specific risk (e.g., lack of mother-child contact, witnessing mother's arrest). Incarceration as a risk mechanism is not yet well understood (Johnson & Easterling, 2012); however, incarceration as a risk marker has been investigated more fully. For example, Phillips, Erkanli, Keeler, Costello, and Angold (2006) examined risk experiences of 1,420 youth, 306 of whom had mothers who were in contact with the criminal justice system. They found that children whose mother was

in contact with the criminal justice system versus children whose mother was not were more likely to experience socio-demographic and caregiving risk factors (e.g., living in a large family, experiencing poverty, parental unemployment), harsh and punitive parenting, and less parental supervision. It is unclear, however, to what extent incarceration impacts children's development and adaptation once sociodemographic risk factors are taken into account. For example, Aaron and Dallaire (2010) found that although parental (mainly maternal) incarceration was associated with adolescents' risk for delinquency, once family process variables were taken into account, this increased risk diminished. Likewise, other studies (e.g., Kinner, Alati, Najman, & Williams, 2007; Murray et al., 2012; Murray, Janson, & Farrington, 2007; Shlafer, Poehlmann, & Donelan-McCall, 2012) have reported few or no differences between children with and without incarcerated parents on key outcome variables once sociodemographic, environmental, and arrest/conviction variables have been taken into account. This lack of consistency in the literature highlights the need for investigators to better understand parental incarceration as a mechanism for risk.

Few studies have been deliberately designed to understand the impact of incarceration on children and families; thus, we know little about how incarceration operates as a mechanism of risk. Most research has used large archival data sets that were not designed to examine questions related to maternal incarceration (e.g., Aaron & Dallaire 2010; Phillips et al., 2006). Using the National Survey of Child and Adolescent Well-Being, Phillips and Zhao (2010) reported that exposure to a family member's arrest was associated with more symptoms of posttraumatic stress; however, it was unclear whether the arrested family member was a parent. Similarly, Roberts and colleagues (2013) showed that exposure to the arrest of a family member was associated with greater exposure to other traumatic events as well as greater internalizing and externalizing behavior problems. Using a sample of 32 children with currently incarcerated mothers and fathers, Dallaire and Wilson (2010) reported that after accounting for other environmental risks, exposure to parental criminal activity, arrest, and sentencing were associated with difficulties in children's regulation of negative emotions. Taken together, the results of these studies provide preliminary support for the notion that ISRE may influence children's development but more in depth research with larger sample sizes and a larger array of ISRE is needed. In particular, greater attention needs to be paid to potentially traumatic events children may experience as a result of their mother's incarceration.

The goal of the current study is to demonstrate empirically that children exposed to ISRE are at a unique risk for psychosocial maladaptation that is different from that experienced through exposure to GER. ISRE confer risk through multiple mechanisms including increasing children's exposure to potentially traumatic experiences, as well as through the experience of separation from one or more attachment figures. Some researchers have asserted that children's experiences with parental incarceration may not confer a unique risk for maladjustment after controlling for GER (e.g., Kinner et al., 2007) and maternal arrest/conviction (e.g., Shlafer et al., 2012). An examination of this issue is clearly needed given that the implications of the answer to this question of risk exposure is critical information to obtain in order to design effective interventions for this unique sample of children. That is, based on the types of risk experienced by these children, interventions can be tailored to their particular challenges rather than applying a general environmental risk approach that

may not effectively target needs based on incarceration-specific experiences. Further, the time of middle childhood may be an important period for intervention. The research has demonstrated that by adolescence and early adulthood, children of incarcerated parents are at increased risk for behavioral and school problems (Murray et al., 2012; Trice & Brewster, 2004). Interventions that are implemented prior to the transition to adolescence may have a preventive effect. Thus, in the current study, we examined whether ISRE uniquely predicted internalizing and externalizing behavior problems, as rated by children, mothers, and caregivers, in comparison to a general risk index. We also sought to understand whether any specific experiences may have unique associations with psychological outcomes.

Although research has indicated the importance of certain incarceration risk variables (Dallaire & Wilson, 2010; Foster, 2012; Phillips & Zhao, 2010; Shlafer & Poehlmann, 2010), no study has included numerous risk variables in a single index. The incarceration-specific risk index (ISRI) developed for this study was formulated from previous quantitative (e.g., Poehlmann, 2005), and qualitative research (e.g., Arditti & Few, 2006) as well as review articles (e.g., Dallaire, 2007a). Our work capitalized on the specific stress associated with jail internments to create such an index. Jails are located in closer proximity to families than prisons, thus, visitation and contact is more of a salient issue in this population. In comparisons to prisons, jails also detain individuals for a relatively short period (Minton, 2011), thus most of our participants had lived with or had frequent contact with their children in the past 12 months and planned on reuniting with their children upon their release. Furthermore, we focused on events that might be frightening and potentially traumatizing for children. We adopted a cumulative risk approach (e.g., Rutter, 1979; Sameroff, Seifer, Baldwin, & Baldwin, 1993) and utilized children's, mothers', and caregivers' reports of the following ISRE in order to construct the ISRI: mother is not in current contact with the child, child is separated from siblings because of incarceration, mother has been incarcerated three or more times in child's life, child changed schools because of incarceration, child witnessed mother's arrest, child's biological father is incarcerated, child witnessed mother's criminal sentencing, child's maternal grandmother has been incarcerated, and the child is living with a new caregiver because of maternal incarceration.

To demonstrate the unique impact of incarceration-specific risk, we compared the ISRI to a general environmental risk index (ERI) that allows us to account for a wide range of environmental risks and has been used successfully in previous research with this population (e.g., Aaron & Dallaire, 2010; Dallaire & Wilson, 2010). Specifically, we used mother and caregiver reports to assess 10 GER including maternal and caregiver anxiety, mental illness, traditional beliefs about child-rearing, harsh parenting style, working in an unskilled profession, noncompletion of high school (or GED), member of an ethnic minority group, lack of a father (or father figure) in the home, experience of stressful life events, and large family size.

Based on the available literature and theory, we hypothesize that the experience of ISRE will predict children's internalizing and externalizing problem behaviors even after controlling for the effect of GER. We then conduct follow-up, exploratory analyses extending the initial

analyses just described to examine in more detail the incremental, predictive utility of individual ISRE by reporter on children's internalizing and externalizing behavior.

METHOD

Participants

The initial sample included 236 incarcerated mother participants. About half of the families/caregivers of these mothers agreed to participate in the study. Thus, the final sample used for analyses in this study comprises 151 children of 117 incarcerated mothers and the 118 caregivers of the children residing in central Virginia comprising both urban and rural areas. Children (53.6% boys; M age =9.8 years, SD =1.67 years, range =6.50–12.98 years) were ethnically diverse (61.7% African American, 29.8% Caucasian). Children's mothers ranged from 24 to 50 years of age (M =32.85 years, SD =5.91 years), and had three biological children on average (range =1–7). If mothers had multiple children in the eligible age range, each child participated.¹ In total, 41.7% of children (n =58) had a sibling participate. Mothers were ethnically diverse (64.1% African American) and many reported low educational attainment, with 35.1% reporting not completing the 12th grade or the high school equivalency exam. Mothers were incarcerated for various reasons which, according to their self-report, included contempt of court (e.g., parole violations, 31.6%), property crimes (e.g., larceny, 27.2%), substance abuse issues (e.g., prescription fraud, distribution of illegal substances, 16.7%), and other less frequently reported reasons like fraud (e.g., identity theft, 12.3%) and violent crimes (e.g., armed robbery, 6.1%). The number of times mother had been incarcerated ranged from 1 to 11 (M =2.65, SD =1.64), with 25% of mothers experiencing their first incarceration.

Caregivers included children's grandparent (61.9%), father (18%), relative (e.g., aunt, sibling, 17.3%) and stepparent (2.9%). The majority of caregivers were female (74.8%) and ranged from 19 to 70 years of age (M =47.8 years, SD =11.6 years). Although 28.3% reported having not completed 12th grade, 21% had taken some college courses and 9.5% had graduated from college. Caregivers identified as 63.2% African American and 30.7% Caucasian.

Procedure

Ethics approval was obtained by the authors' university's protection of human subjects committee and cooperating jail facilities reviewed and approved the research protocol. Eligible women incarcerated at one of six jail facilities were recruited to participate by project staff. These jail facilities housed individuals who were awaiting trial as well as those who had already been sentenced; both incarceration situations were reflected in our sample. If mothers were released before the child and caregiver participated in the study, the family was no longer eligible to participate. Additional eligibility requirements included having one or more child within the specified age range (6–12 years), having maintained parental rights, and no documented history of abuse or neglect to the target child. If mothers had multiple

¹Analyses were also performed on a smaller sample of 117 mother–child and caregiver triads that only included one child chosen at random from the family and did not include siblings. The results are essentially the same and are available upon request.

children in the age range, they were interviewed on separate occasions about each participating child. Mothers participated by completing a privately conducted 1-hr individual interview with the research assistant at the jail facility in which they answered questions about themselves and their children. Mothers provided consent to contact the child's caregiver along with contact information. We were able to interview 50% of the families of incarcerated mothers with nonparticipation due to being unable to contact the caregiver (e.g., phone number had been disconnected), caregivers not wanting any association with the incarcerated mother, or lack of interest in the project. When the children and caregivers participated, mothers had been incarcerated less than two months ($M = 56.11$ days, $SD = 85.34$ days).

After contact was made with a caregiver, interviews were scheduled at the caregiver's homes (80%), local libraries (16%), other public locations (e.g., restaurant, 2%), and campus lab facility (2%). After obtaining caregiver consent and child assent, caregivers and children participated in separate locations to ensure privacy. Caregiver and child interviews took approximately an hour to complete. Caregiver interviews took longer if multiple children in the same family participated. Caregivers received \$50 per participating child for their participation and children received \$10 and a small toy.

Measures

The measures collected in the current study are presented next by construct, beginning with the ISRE for child, mother, and caregiver; the ERI variables for mother and caregiver; and the psychological functioning outcome variables (i.e., internalizing and externalizing behavior problems).

Incarceration-specific risk index—Three ISRI variables were created based on children's, mothers', and caregivers' report of events related specifically to incarceration (e.g., child witnessed mother's arrest) and/or events that occurred as a result of the mother's incarceration (e.g., child is with a new caregiver). The specific items chosen for inclusion were based on the previous research in the empirical literature.

Children's ISRI was calculated based on their responses to 10 items that were added to the Life Events Checklist (LEC; see Table 1 for items). Children indicated whether the event occurred in the previous 6 months by answering either "Yes" (1) or "No" (0). Children's raw score on this measure constituted their ISRI and was used in all subsequent analyses. Children's scores on the incarceration-specific LEC questions ranged from 0 to 7 ($M = 2.66$, $SD = 1.69$).

Mother and caregiver ISRI variables were collected during a demographic and background interview (see Table 1). The following variables were included: lack of contact with the child, three or more maternal incarcerations during the child's lifetime, separation from siblings because of mother's incarceration, child changed schools because of mother's incarceration, child witnessed mother's arrest, child witnessed mother's sentencing, and child's biological father was also incarcerated. Mothers reported whether their biological mother had been incarcerated and caregivers reported whether they were a new caregiver to this child.

Summed across the eight variables, scores ranged from 0 to 6 for mothers ($M = 2.74$, $SD = 1.37$), and from 0 to 6 for caregivers ($M = 2.31$, $SD = 1.29$). Mothers' and caregivers' reports were significantly, positively correlated ($r = .501$, $p < .01$). Children's and mothers' ISRI were not significantly correlated ($r = .089$, ns), whereas children's and caregivers' ISRI were marginally associated ($r = .150$, $p = .10$).

Environmental risk index—Two ERI variables were created including one from mothers' report and the other from caregivers' report. These variables were formed using the following measures.

Maternal/caregiver authoritarianism was assessed with the 30-item Parental Modernity Scale of Child-Rearing and Educational Beliefs (Shaefer & Edgerton, 1985) that assesses authoritarian and progressive beliefs about child rearing. Only the 26-item Traditional Beliefs subscale was used in this study. Mothers and caregivers rated the degree to which they agreed with statements (e.g., "The most important thing to teach children is absolute obedience to parents") using a 5-point scale, ranging 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores on this measure indicate more traditional beliefs about parenting characterized by strict rules and unidirectional communication. This measure has demonstrated high reliability and validity (NICHD SECCYD, 2007; Shaefer & Edgerton, 1985). In the current study, internal consistency was high (mothers = .82, caregiver = .85). Mothers and caregivers scoring in the top 25% for traditional beliefs were coded as 1 (parenting belief risk present), with all other scores coded as 0 (risk absent).

Maternal/caregiver hostility was assessed with the 20-item Parenting Behavior Inventory (PBI; Lovejoy, Weis, O'Hare, & Rubin, 1999) that measures parenting behaviors. Ten items assess hostile and coercive parenting behaviors, and 10 items assess supportive and engaged parenting behaviors. Only the Hostile/Coercive subscale was used in the current study. Mothers and caregivers rated how often they engaged in hostile/ coercive behavior with the target child (e.g., "I grab or handle my child roughly") using a 6-point scale from 0 (*I never do this*) to 5 (*I often do this*). Higher scores on this measure indicate greater use of hostile and coercive parenting behaviors. Strong psychometric properties have been demonstrated (Lovejoy et al., 1999). Internal consistencies on the Hostile/Coercive scale were acceptable for mothers ($\alpha = .73$) and caregivers ($\alpha = .80$). Mothers and caregivers scoring in the top 25% for hostile/coercive behavior were coded as 1 (parenting behavior risk present); all other scores were coded as 0 (risk absent).

To assess the frequency and severity of stressful life events, mothers and caregivers completed the 30-item LEC (Work, Cowen, Parker, & Wyman, 1990) in which they indicated whether the child had been exposed to each of the events in the past 6 months. This life events measure was developed for inner-city, low-socioeconomic status youth and contains relevant items for the demographics of our sample (e.g., "A case worker came to you home" and "Sometimes your family had little food to eat."). Internal reliabilities were high (mothers = .74; caregivers = .76). Mothers and care-givers scoring in the top 25% were coded as 1 (stressful life events risk present); all other scores were coded as 0 (risk absent).

Mother and caregiver anxiety and presence of mental health problems was assessed with the 139-item Psychiatric Diagnostic Screening Questionnaire (PDSQ; Zimmerman & Chelminski, 2006; Zimmerman & Mattia, 2001). The PDSQ is a self-report questionnaire comprised of 15 subscales, which assess psychological and substance abuse problems. Using a dichotomous response format, respondents indicate whether they have experienced the symptom in either a 2-week or 6-month period. Subscales used in the current study and corresponding Cronbach's alphas for mothers/ caregivers are as follows: depression ($\alpha = .79/.80$), post-traumatic stress ($\alpha = .91/.90$), obsessive compulsions ($\alpha = .76/.75$), panic attacks ($\alpha = .85/.89$), psychosis ($\alpha = .35/.34$), agoraphobia ($\alpha = .89/.86$), social phobia ($\alpha = .93/.86$), generalized anxiety disorder ($\alpha = .89/.89$), and somatization ($\alpha = .61/.43$). The PDSQ has strong psychometric properties (Zimmerman & Chelminski, 2006; Zimmerman & Mattia, 2001). Using the clinical cutoff recommendations provided by Zimmerman (2002), risk variables for mothers' and caregivers' anxiety and mental health were created. Mothers (48%) and caregivers (19%) scoring at or above the clinical cutoff for generalized anxiety received a score of 1 (anxiety risk present), whereas all others received a score of 0 (anxiety risk absent). Mothers (72%) and caregivers (31%) scoring at or above the clinical cutoff on two or more of the other subscales received a score of 1 (mental health risk present).

Additional GER variables were assessed with a demographic and background interview in which mothers and caregivers provided information about their educational attainment, occupational status, individuals and family members who have lived in the home over the previous year, and ethnicity. Mothers (34%) and caregivers (28.5%) who did not complete 12th grade (or GED) received a score of 1 (education risk present). Occupations and the jobs that mothers and caregivers had in the previous 12 months were coded based on the Hollingshead (1957) system. Mothers (79%) and caregivers (76%) who reported being unemployed/ retired or who reported working in menial (e.g., dishwasher) or unskilled position (e.g., garbage worker) positions received a score of 1 (occupation risk present); all other occupations received a score of 0. Caregivers (36%) and mothers (36%) who reported that four or more children younger than age 18 resided in their household received a score of 1 (large family size risk present). Caregivers (66%) and mothers (49%) who indicated that no father figure to the child (grandfather, stepfather, biological father) lived in their household received a score of 1 (lack of father figure risk present). Last, mothers (66%) and caregivers (72%) who identified their race as non-White received a score of 1 (i.e., minority status risk present).

Summed across the 10 variables, scores on the ERI ranged from 1 to 10 for mothers ($M = 4.62$, $SD = 2.03$) and from 1 to 8 for caregivers ($M = 4.11$, $SD = 1.87$). Mother's and caregivers' reports were significantly, positively correlated ($r = .36$, $p < .01$).

Psychological outcomes—Mothers and caregivers reported on children's internalizing and externalizing behavior problems over the previous 6 months using the Child Behavior Checklist (Achenbach & Rescorla, 2001). The Child Behavior Checklist contains 113 items and yields three broadband scales and eight syndrome scales. Only the internalizing and externalizing scales were used in the current study. Validation studies indicate strong internal consistency with adequate content, criterion-related, and construct validity (Achenbach & Rescorla, 2001). In the current study, internal consistencies for Internalizing

and Externalizing problems were strong for mothers/caregivers (Internalizing: $\alpha = .86/.86$, Externalizing: $\alpha = .74/.81$). According to mothers'/ caregivers' reports, respectively, 20.8%/ 17.2% of children were in the clinical range for Internalizing problems whereas 29.2%/ 25.2% of children were in the clinical range for Externalizing problems.

Children's report of depressive symptomatology was assessed using the Children's Depression Inventory (Kovacs, 1992). Due to Institutional Review Board concerns, the suicide item was omitted. The psychometric properties of the Children's Depression Inventory have been well established and are acceptable (Carey, Gresham, Ruggiero, Faulstich, & Enyart, 1987; Kovacs, 1985). Within this sample, raw scores ranged from 0 to 36 ($M = 8.08$, $SD = 7.03$) with six children (3.97%) meeting the clinical cutoff (T score >65) and 35 children (18.2%) receiving total raw scores of 13 or higher, indicating mild to moderate levels of depression (Kazdin, 1989; Smucker, Craighead, Craighead, & Green, 1986). Internal consistency was strong ($\alpha = .84$).

Children's report of externalizing behavior was assessed with the 38-item Risky Behavior Protocol (Conger & Elder, 1994) that contains two subscales: 19 items that evaluate behaviors the child has done ("things you do") and 19 items assess behaviors the child's friends have done ("things your friends do"). Only the "things you do" subscale was used in the current study. The items assess both major risk-taking and delinquency (e.g., purposely set fire in a building or in any other space), minor risk-taking (e.g., ridden in a car without a seat belt), and any risk-taking behavior (e.g., smoked cigarettes or used tobacco). Children indicate on a 3-point scale the frequency of the behavior. This instrument has acceptable internal consistency and validity (NICHD SECCYD, 2007). In our sample, internal consistency was strong ($\alpha = .88$), and scores ranged from 0 to 29 ($M = 4.31$, $SD = 4.08$).

RESULTS

Descriptive data and correlations among study variables are presented in Table 2.

Preliminary Analyses

Because we had a 50% participation rate between mothers interviewed at the jail ($N = 236$) and the participating families/caregivers ($N = 118$), we first explored differences between mothers whose children and caregivers participated and mothers whose children and caregivers did not participate. There were no significant differences in maternal-reported ISRI, with both groups reporting their children experienced 2.4 incarceration-specific risks on average. Mothers with participating children reported significantly higher environmental risk index scores ($M = 4.61$, $SD = 2.09$) than mothers of nonparticipating children ($M = 3.86$, $SD = 1.55$), $t(234) = 3.11$, $p = .001$. There were no significant differences between the two samples with respect to maternal report of children's internalizing and externalizing behaviors.

Next, we examined child age, gender, and ethnicity differences in the three reports of psychological outcome variables. Although child age was not associated with any reports of internalizing symptoms, it was significantly correlated with child report of externalizing behavior, $r(148) = .19$, $p = .02$. There were no significant gender differences in children's

internalizing or externalizing behavior. Child ethnicity was associated with both internalizing and externalizing behavior problems, such that relative to non-White children, African American children showed fewer internalizing and externalizing behaviors. In addition, as shown in Table 2, child age, gender, and ethnicity were associated with other variables of interest and thus they were entered as control variables in all analyses that follow.

Hypothesis 1

The main hypothesis was that ISRI would predict internalizing and externalizing behavior problems over and above the contribution of ERI. Given that we obtained child, mother, and caregiver report of most variables, we used structural equation modeling to disentangle structural effects among latent constructs from correlations due to reporter-specific method variance. As illustrated in Figure 1, ISRI and ERI were modeled as simultaneous predictors of internalizing and externalizing behaviors. Residual error terms for observed variables reported by the same reporter (e.g., e1, e3, e6, and e9 in the case of mother-reported variables) were specified to be intercorrelated (these paths are omitted from Figure 1 for clarity of presentation). Child age, gender, and ethnicity were controlled by specifying these variables as exogenous predictors of both outcome variables.

Analyses were conducted using Amos version 20 (Amos Development Corp., Crawfordville, FL). Covariance matrices were analyzed using full-information maximum likelihood estimation.² Fit indexes indicated excellent fit, $\chi^2(37) = 37.20$; Tucker–Lewis index = .99, comparative fit index (CFI) = 1.00, root mean square error of approximation (RMSEA) = .01; RMSEA 95% CI [.00, .06]. Standardized and unstandardized parameter estimates appear in Table 3 and Figure 1 (paths significant at the $p < .10$ level are in bold). As predicted, the ISRI positively predicted both internalizing ($\beta = .43$, $p = .001$) and externalizing ($\beta = .41$, $p = .001$) behavior problems over and above environmental risk. Effects of ERI over and above ISRI were positive but not significant.

Follow-Up, Exploratory Analyses

The previous analyses suggest that ISRE negatively impact children's internalizing and externalizing behavior. We then sought to determine whether specific ISRE uniquely predicted outcomes and whether the patterns differed by reporter. We conducted three structural equation models (also using Amos v. 20 and full-information maximum likelihood estimation), one for each reporter (child, mother, caregiver). Standardized estimates and fit index information for all three models appear in Table 4.

Model 1 included each of the nine observed child-reported ISRE predicting to the latent internalizing and externalizing behavior variables (as shown in Figure 1). The data fit the model marginally well, $\chi^2(57) = 89.58$, $p = .01$; non-normed fit index (NFI) = .82, .82, CFI = .89, RMSEA = .06; RMSEA 95% CI [.04, .09]. Children's reports of witnessing criminal

²FMIL was used to account for missing data. Data were missing at random. Less than 3% of children and less than 9% of mothers had missing data across all measures with all caregivers having complete protocols. Incomplete child data were generally due to fatigue, whereas for mothers, missing data resulted when they had another activity scheduled at the facility (e.g., lunch) that interfered with finishing the interview or they were transferred to another facility.

activity in the home ($\beta=.25, p=.02$), and not living with their father ($\beta=.22, p=.05$) were associated with more internalizing behaviors, whereas witnessing their mother's criminal sentencing was associated with fewer internalizing behaviors ($\beta=-.25, p=.02$). Children's reports of changing schools ($\beta=.17, p=.09$) and being separated from siblings ($\beta=.17, p=.10$) marginally significantly predicted externalizing behaviors.

Model 2 examined mothers' reports of eight observed ISRE predicting latent internalizing and externalizing behavior variables. The data fit the model very well, $\chi^2(49)=53.47, p=.31$; NFI=.87, CFI=.98, RMSEA=.03, RMSEA 95% CI [.00, .06]. Children's internalizing and externalizing behaviors were predicted by mothers' reports of being incarcerated three or more times in the child's lifetime (Internalizing: $\beta=.30, p=.001$; Externalizing: $\beta=.32, p=.001$) and the children's father's incarceration (Internalizing: $\beta=.26, p=.02$; Externalizing: $\beta=.19, p=.07$). Maternal report of the child's maternal grandmother being incarcerated was marginally significantly related to Externalizing behaviors ($\beta=.17, p=.07$).

Model 3 examined caregivers' reports of eight observed ISRE predicting the latent internalizing and externalizing behavior variables. The data fit the model very well, $\chi^2(49)=51.90, p=.36$; NFI=.88, CFI=.99, RMSEA=.02; RMSEA 95% CI [.00, .06]. Caregivers' reports of children's biological father's incarceration predicted both internalizing ($\beta=.26, p=.02$) and externalizing behavior ($\beta=.27, p=.01$). In addition, caregiver's report of children's separation from siblings because of maternal incarceration also marginally significantly predicted internalizing behavior ($\beta=.21, p=.07$).

DISCUSSION

The goal of this research was to simultaneously examine the association of the multifaceted stressor of maternal ISRE and general environmental risks to children's psychological maladjustment. In contrast to previous work, much of which entailed reanalysis of archival data, the current study was planned purposefully to examine specific experiences children encounter as a result of their mother currently being incarcerated. Although research has demonstrated that children with incarcerated parents are at heightened risk for externalizing, and to a lesser degree, internalizing behavior problems (Murray et al., 2012), the mechanism of risk remains unclear. Further, some studies have even suggested that parental incarceration is not a unique risk for maladjustment after GER (e.g., Kinner et al., 2007) and maternal arrest/conviction (e.g., Shlafer et al., 2012) are considered. The results of the current study distinctly indicate that when children experience more negative experiences associated with maternal incarceration while controlling for GER, their internalizing and externalizing behavior problems are higher. Particularly noteworthy is the finding that children's ISRE predicted to outcomes, whereas GER did not. This set of findings makes a significant contribution to the growing literature examining children's responses to and adjustment to maternal incarceration.

Previous research has primarily examined the risk factors used in this study in isolation. For example, research indicates that children with incarcerated mothers are also more likely to have an incarcerated father (Dallaire, 2007b), lack of contact with an incarcerated mother is associated with greater maladjustment (Shlafer & Poelmann, 2010), and witnessing

parental arrest is associated with behavior problems (Dallaire & Wilson, 2010; Phillips & Zhao, 2010). As others have suggested, parental incarceration by itself is a social address variable (Murray, 2005) and, viewed as a single variable, may be unrelated to social or behavioral competencies. Although this approach has yielded important information, it has not permitted an investigation of the additive effects of having multiple risk factors due to the life event of maternal incarceration. We created an informed ISRI based on the literature that can guide subsequent research to better understand the numerous ways children are impacted by maternal incarceration.

Our findings suggest that it is critical to assess multiple, specific experiences children have that are related to their mother's incarceration in order to understand how this stressor impacts psychological functioning. This finding dovetails previous work by Sameroff and colleagues (1993) and others (Burchinal, Roberts, Zeisel, & Rowley, 2008) who have substantiated the utility of adopting a cumulative risk approach given their findings that, as children experience greater environmental risk, they display increasing cognitive and behavioral maladaptation. In our study, however, it was not general risk that predicted maladjustment but, rather, the ISRI, which may be due to the high-risk nature of our sample. When children are coping with the stress of separation from their mother because of incarceration, our data would suggest that the more proximal processes and experiences related to the conditions of that separation play a more important role in their functioning than the more distal, general environmental risk factors, such as a mother's attitude toward parenting or a caregiver's occupational status.

Of interest, children in our study exposed to ISRE are at risk for both internalizing and externalizing behavior problems. Although the link between parental incarceration and children's externalizing and antisocial behavior has been documented (Murray et al., 2012; Quinton, Pickles, Maughan, & Rutter, 1993), the relation between parental incarceration and children's internalizing symptoms has been less robust. Our findings suggest that children suffer from anxiety and depression symptoms as well as display their distress in more externalized forms when they are exposed to greater risks specific to their mother's incarceration. Because overt forms of unhappiness and stress typically elicit more attention, it is not surprising that internalizing symptoms may go unnoticed in families that experience high levels of environmental stress. A child who is quiet and withdrawn may be overlooked and his or her needs may be neglected because withdrawn behaviors typically do not require immediate attention. Thus, the findings of this study point to the importance of evaluating carefully the emotional and internalizing symptoms of children who are exposed to ISRE. This is particularly critical, as depression often predicts the presence of other psychological disorders and negative outcomes, such as externalizing behaviors, in adolescence (i.e., substance abuse; Copeland, Shanahan, Costello, & Angold, 2009).

By delineating the specific risk factors for children that are associated with maternal incarceration, we can gain an in-depth understanding of what maternal incarceration signifies for the growing numbers of children and families impacted by this reality. Our results also provide preliminary evidence that there may be specific risk factors that are more powerful predictors of psychological maladjustment than other experiences for this age group of children with incarcerated mothers in jail. Examination of the variables that yielded

significant associations to psychological outcomes across all three reporters indicated two global types of predictors including potentially troubling or even traumatic events that occurred because of maternal incarceration (i.e., change in schools, child no longer living with father, child separated from siblings, witnessing maternal criminal activity) and those connected to a general family history of maternal, paternal, and maternal grandmother incarceration. The strength of these associations with internalizing and externalizing behaviors differed depending on the reporter's unique perspective but suggests the impact of both social contextual variables as well as the proxy for biological influence (e.g., family history of incarceration). These findings provide a promising avenue for further investigation including the need to disentangle the relative effects of individual risk factors on adaptation using longitudinal designs.

A shortcoming of previous research in the effects of parental incarceration on children is the tendency to overrely on the perspective of a single reporter (see Houck & Loper, 2002; Kazura, 2001); of importance, we obtained reports of these events and children's maladjustment from children, mothers, and caregivers. Although the mother and caregiver reports were correlated, they were nonredundant and helped eliminate the mono-reporter bias. It is interesting that child and mother ISRI were not correlated but that child and caregiver were marginally significantly associated. This lack of strong concordance is not unexpected given that there is low concordance in behavioral events between adults and children due to differing perspectives of time and frequency (De Los Reyes & Kazdin, 2005; Hourigan, Goodman, & Southam-Gerow, 2011). However, by having multiple reporters, we were able to apply more sophisticated data analytic techniques that are seldom used with this population and develop a more complete understanding of the specific experiences that may predict uniquely to psychological maladaptation to maternal incarceration. Furthermore, each reporter has his or her own perspective and experience of this issue, as indicated by the discrepancies among children's, mothers', and caregivers' reports of the events that comprised the ISRI. For example, although all children had a mother who was currently incarcerated in jail, only 73.5% of the children endorsed the item, "have a close family member arrested or in jail." Differences like these could arise for many reasons. In some instances, children may have been unaware of their mother's incarceration, some children may not have identified their mother as a close member of the household, and perhaps some children did not feel comfortable sharing this information with the interviewer. Future research should continue to obtain the perspective of multiple reporters, particularly the child's report if it is available, given the richness of data that it provides.

Despite having a relatively large, diverse sample of child, mother, and caregiver participants, particularly for this literature and for this specialized population, an even larger sample would have been desirable to allow for evaluating more nuanced effects and differences by child age, gender, and ethnicity. Our sample only afforded us the power to detect moderate effects. Future research with larger and more diverse samples is warranted. Although we sampled a variety of ISRE, these experiences are specific to jail and may not generalize to prison experiences where the separation period between mother and child is longer. Further, the list of ISRE assessed in this study is not exhaustive; it is likely that other ISRE exist that may also be influential in children's psychological adjustment such as

whether the child knows the mother is incarcerated, if the crime was violent or nonviolent, whether child knows the type of crime committed, and so on.

Implications

In addition to future research directions, the results of the current study suggest several policy implications. Although little can be done to change some of the incarceration-specific factors these children may experience, the findings highlight the importance of protecting children from exposure to potentially traumatic events, particularly during the time of their mother's arrest. Several police departments across the county have adopted best practices and training guidelines for officers making an arrest in the presence of a child. Allegheny County (in Pittsburgh, PA) is a leader in this area, and in a collaborative effort with the Police Department and the Department of Social Services, they have provided training to officers on procedures for arresting an individual in the presence of children (DHS Jail Collaborative, 2013). Furthermore, during the period of parental incarceration, they are working to strengthen family bonds by acknowledging the special needs of incarcerated mothers and helping children to stay connected with their incarcerated parent. Another area of policy formation that has not received adequate attention is the need to provide support to families with an incarcerated member during the reentry process as a means to prevent recidivism given that multiple incarcerations have a damaging effect on parent-child bonds (La Vigne, Shollenberger, & Debus-Sherrill, 2009), particularly for mothers (La Vigne, Brooks, & Shollenberger, 2009).

This study is one of the largest purposefully planned research studies to date to investigate the impact of currently incarcerated mothers on their children. Although some larger studies have been conducted that examine children's development within the context of maternal incarceration, often inconsistent operational definitions of "incarceration" have been used (see Eddy & Poehlmann, 2010, for further discussion). For example, incarceration has been operationally defined as a mother's *contact* with the criminal justice system (e.g., Philips, Burns, Wagner, Kramer, & Robbins, 2002), which is very different than maternal incarceration at a state prison facility (e.g., Poehlmann, 2005). Further, our work examined the specific stress associated with jail internments because in many instances this short period of separation (up to 12 months) between child and mother stressed the family system and allowed us to capture glimpses of the types of factors these children cope with that are specifically related to maternal incarceration. These specific factors significantly contribute to children's well-being and exert greater influence on their functioning than more distal, contextual factors. Researchers, educators, and clinicians who interact with children who experience maternal incarceration should consider the extent to which children have been exposed to the incarceration-specific risks that may place them at greater risk for psychosocial maladaptation.

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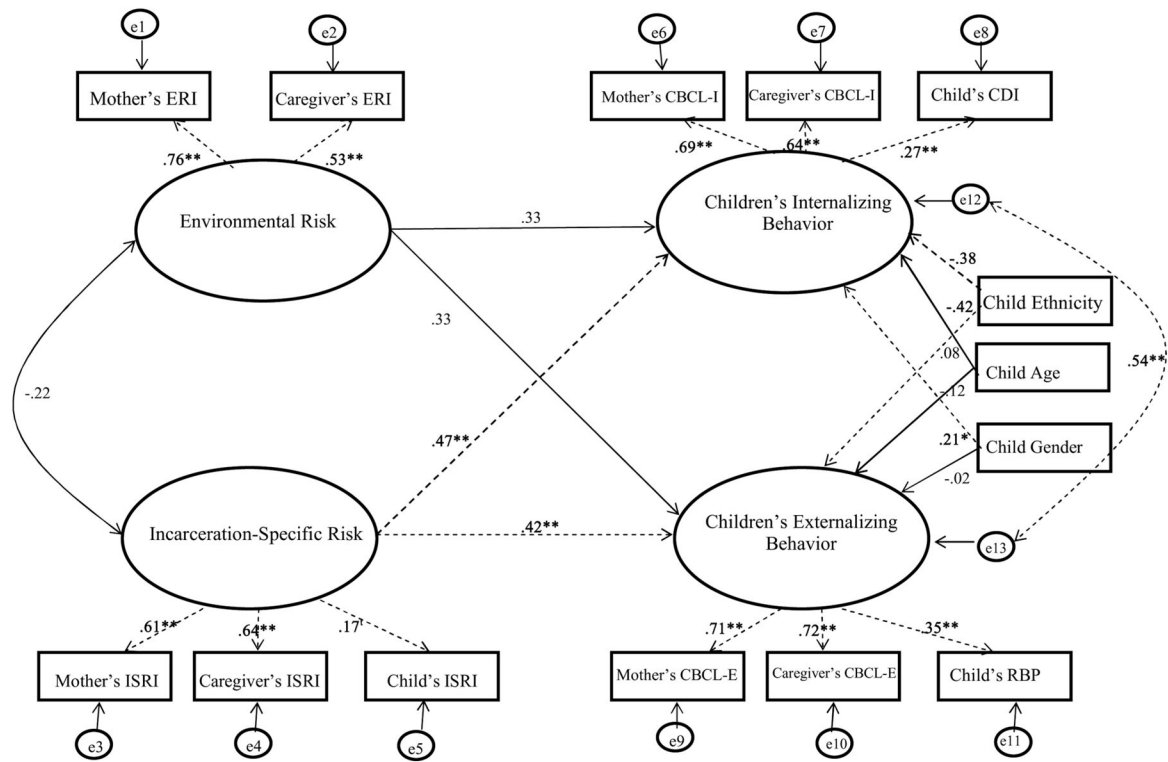


FIGURE 1. Structural equation model testing the predictive validity of incarceration specific risks over environmental risks to children’s internalizing and externalizing behavior among children with incarcerated mothers ($N = 151$ children-mother-caregiver triads). *Note:* ERI =Environmental Risk Index; ISRI =Incarceration-Specific Risk Index; CBCL-I =Child Behavior Checklist–Internalizing Behavior Problems Subscale; CDI = Children’s Depression Inventory; CBCL-E =Child Behavior Checklist–Externalizing Behavior Problems Subscale; RBP =Risky Behavior Protocol. *Child Ethnicity* was dichotomized as 1 =Black, 0 =Not Black and Child Gender. In the model tested, error terms for variables assessed by same participant were correlated. $\chi^2(44) = 49.49, p = .21$; NFI =.90, CFI =.98, RMSEA =.03; RMSEA 95% CI [.03, .06]. † $p < .10$. * $p < .05$. ** $p < .01$.

TABLE 1

Percentage Endorsement of Incarceration-Specific Risk Variables for Children, Mothers, and Caregivers

Reporter	Child	Mother	Caregiver
Child Incarceration-Specific Risk Index Variables			
A close family member was arrested or in jail	73.5%	—	—
Child changed schools because of a change in residence	33.6%	—	—
Child is no longer living with his/her mother	46.6%	—	—
Child is no longer living with one of his/her siblings	19.3%	—	—
Child is no longer living with his/her father	26.2%	—	—
Child witnessed criminal activity in the home	11.6%	—	—
Child witnessed mother's arrest	32.9%	—	—
Child witnessed father's arrest	8.3%	—	—
Child witnessed mother's criminal sentencing	8.2%	—	—
Child witnessed father's criminal sentencing	3.5%	—	—
Mother and Caregiver-Reported Incarceration-Specific Risk Index Variables			
Mother is not in current contact with the child	—	12.7%	17.9%
Mother's been incarcerated 3 or more times in child's life	—	43.1%	43.9%
Child is separated from siblings because of incarceration	—	19.8%	21.4%
Child changed schools because of incarceration	—	12%	14.6%
Child witnessed mother's arrest	—	25.9%	44.8%
Child witnessed mother's sentencing	—	0.7%	1.4%
Child's biological father is incarcerated	—	57.9%	61.4%
Child's maternal grandmother has been incarcerated	—	24.5%	—
Caregiver is a new caregiver to this child	—	—	77.5%

TABLE 2

Descriptive and Correlational Data

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	M (SD)
1. Child Age (in Months)	—	-.07	.05	.20*	.19*	.08	.09	.03	.12	.10	-.13	-.02	.03	.19*	118.13 (19.93)
2. Child Gender ^a		—	-.04	.00	-.16 [†]	-.09	-.13	-.01	.08	.05	.03	-.06	-.09	-.06	0.47 (0.50)
3. Child Ethnicity ^b			—	.52**	.27*	.09	-.22*	-.03	-.10	-.22**	-.11	-.17*	-.22**	-.06	0.60 (0.49)
4. Mother-Reported				—	.36*	-.02	-.17 [†]	.08	.21*	-.07	.03	.09	-.13	.14 [†]	4.62 (2.02)
Environmental Risk Index					—	-.04	-.02	.02	.03	.35**	.01	.09	.35**	.12	4.11 (1.87)
5. Caregiver-Reported						—	.51**	.15	.20*	.18 [†]	-.02	.22*	.19*	.15	2.23 (1.32)
Environmental Risk Index							—	.15	.20*	.24*	.02	.22*	.26**	.17 [†]	2.75 (1.37)
6. Mother-Reported								—	.10	.11	.34**	.07	.10	.23*	2.67 (1.69)
Incarceration Specific Risk Index									—	.38**	.24**	.62**	.30**	.21*	6.96 (6.45)
7. Caregiver-Reported										—	.18*	.24*	.59**	.23**	7.41 (7.11)
Incarceration Specific Risk Index											—	.28**	.22**	.20*	8.08 (7.03)
8. Child-Reported												—	.52**	.28**	10.02 (9.37)
Incarceration Specific Risk Index													—	.27**	11.44 (10.38)
9. Mother-Reported CBCL														—	4.31 (4.08)
Internalizing Behavior Problem Subscale															
10. Caregiver-Reported CBCL															
Internalizing Behavior Problem Subscale															
11. Child-Reported Children's															
Depression Inventory															
12. Mother-Reported CBCL															
Externalizing Behavior Problem Subscale															
13. Caregiver-Reported CBCL															
Externalizing Behavior Problem Subscale															
14. Child-Reported Risky															
Behavior Protocol															

Note: CBCL = Child Behavior Checklist.

^a Child gender was coded as 1 =female, 0 =male.

^b Child ethnicity was coded as 1 =Black, 0 =Not Black.

[†] $p < .10$.

* $p < .05$.

** $p < .01$.

TABLE 3

Unstandardized, Standardized, and Significance Levels for Model in Figure 1

Parameter Estimate	Unstandardized	Standardized	p
Measurement Model Estimates			
Child Age →Children's Internalizing Behavior	0.01 (0.03)	.025	.83
Child Age →Children's Externalizing Behavior	-0.04 (0.04)	-.122	.26
Child Gender →Children's Internalizing Behavior	1.91 (0.93)	.210	.04
Child Gender →Children's Externalizing Behavior	-0.29 (1.35)	-.020	.83
Child Ethnicity →Children's Internalizing Behavior	-3.48 (1.60)	-.375	.03
Child Ethnicity →Children's Externalizing Behavior	-6.29 (2.03)	-.423	.00
Environmental Risk →Mother's ERI	1.00 (—)	.762	—
Environmental Risk →Caregiver's ERI	0.66 (0.12)	.528	.00
Incarceration-Spec. Risk →Mother's ISRI	1.00 (—)	.610	—
Incarceration-Spec. Risk →Caregiver's ISRI	1.39 (0.46)	.835	.00
Incarceration-Spec. Risk →Child's ISRI	0.36 (0.21)	.173	.09
Children's Internalizing Behavior →Mother's CBCL-I	1.00 (—)	.686	
Children's Internalizing Behavior →Caregiver's CBCL-I	0.99 (0.22)	.635	.00
Children's Internalizing Behavior →Child's CDI	0.41 (0.16)	.265	.01
Children's Externalizing Behavior →Mother's CBCL-E	0.95 (0.19)	.709	.00
Children's Externalizing Behavior →Caregiver's CBCL-E	1.00 (—)	.720	—
Children's Externalizing Behavior →Child's RBP	0.20 (0.06)	.346	.00
Structural Model			
Environmental Risk →Children's Internalizing Behavior	0.97 (0.70)	.326	.17
Environmental Risk →Children's Externalizing Behavior	1.54 (1.00)	.327	.13
Incarceration-Spec. Risk →Children's Internalizing Behavior	2.63 (0.97)	.469	.01
Incarceration-Spec. Risk →Children's Externalizing Behavior	3.73 (1.45)	.420	.01
Environmental Risk ↔Incarceration-Spec. Risk	-0.28 (0.19)	-.222	.14
E12 ↔E13	12.38 (4.58)	.539	.01

Note: Standard errors in parentheses. $N = 151$. Child ethnicity was dichotomized as 1 =Black, 0 =Not Black. Child Gender was scored as 1 =Female, 0 =male. $\chi^2(44) = 49.49$, $p = .21$; NFI = .90; CFI = .98; RMSEA = .03; RMSEA 95% CI [.03, .06]. ERI =Environmental Risk Index; ISRI =Incarceration-Specific Risk Index; CBCL-I =Child Behavior Checklist-Internalizing Behavior Problems Subscale; CDI =Children's Depression Inventory; CBCL-E =Child Behavior Checklist-Externalizing Behavior Problems Subscale, RBP =Risky Behavior Protocol; Spec. =specific.

TABLE 4

Standardized Estimates from Structural Equation Models Examining Predictive Utility of Incarceration-Specific Risk Variables to Internalizing and Externalizing Behavior

	Internalizing Behavior	Externalizing Behavior
Model 1: Child Reported Incarceration-Specific Risk Index Variables ^a		
A close family member was arrested or in jail	.084	-.006
Child changed schools because of a change in residence	.072	.169 [†]
Child is no longer living with his/her mother	-.010	-.021
Child is no longer living with one of his/her siblings	-.029	.076
Child is no longer living with his/her father	.215*	.170 [†]
Child witnessed criminal activity in the home	.253*	.159
Child witnessed mother's arrest	.027	.023
Child witnessed father's arrest	.146	-.030
Child witnessed mother's criminal sentencing	-.252*	-.108
Child witnessed father's criminal sentencing	.101	-.029
Model 2: Mother-Reported Incarceration-Specific Risk Index Variables ^b		
Mother is not in current contact with the child	.048	.047
Mother's been incarcerated 3 or more times in child's life	.317**	.300**
Child is separated from siblings because of incarceration	-.133	-.052
Child changed schools because of incarceration	-.021	.069
Child witnessed mother's arrest	-.084	-.034
Child witnessed mother's sentencing	-.115	.043
Child's biological father is incarcerated	.259*	.192*
Child's maternal grandmother has been incarcerated	.147	.169 [†]
Model 3: Caregiver-Reported Incarceration-Specific Risk Index Variables ^c		
Mother is not in current contact with the child	-.007	-.058
Mother's been incarcerated 3 or more times in child's life	.051	.114
Child is separated from siblings because of incarceration	.214*	.049
Child changed schools because of incarceration	.065	.149
Child witnessed mother's arrest	-.044	-.138
Child witnessed mother's sentencing	.106	-.065
Child's biological father is incarcerated	.262**	.272**
Caregiver is a new caregiver to this child	-.120	.106

^aFit indexes for the child model are as follows: $\chi^2(57) = 89.58, p = .01$; non-normed fit index (NFI) = .82, comparative fit index (CFI) = .89, root mean square error of approximation (RMSEA) = .06; RMSEA 95% CI [.04, .09].

^bFit indexes for the mother model are as follows: $\chi^2(49) = 53.47, p = .31$; NFI = .87, CFI = .98, RMSEA = .03; RMSEA 95% CI [.00, .06].

^cFit indexes for the caregiver model are as follows: $\chi^2(49) = 51.90, p = .361$; NFI = .88, CFI = .99, RMSEA = .02; RMSEA 95% CI [.00, .06].

[†] $p < .10$.

* $p < .05$.

**
 $p < .01$.