


Preschool Outcomes of Children Who Lived as Infants in a Prison Nursery

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Abstract

This study examined long-term outcomes of children who spent their first 1 to 18 months in a U.S. prison nursery. Behavioral development in 47 preschool children who lived in a prison nursery was compared with 64 children from a large national dataset who were separated from their mothers because of incarceration. Separation was associated with significantly worse anxious/depressed scores, even after controlling for risks in the caregiving environment. Findings suggest that prison nursery co-residence with developmental support confers some resilience in children who experience early maternal incarceration. Co-residence programs should be promoted as a best practice for incarcerated childbearing women.

Keywords

prison nursery, maternal incarceration, behavioral development

Eight U.S. states currently allow eligible incarcerated women to care for their infants in special segregated nursery units within prisons (Carlson, 2009;

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Women's Prison Association [WPA], 2009). Concerns remain regarding whether prison nurseries are in these children's best interest (Pösö, Enroos, & Vierula, 2010). Long-term developmental outcomes of children who co-resided with their mothers in prison nurseries have not previously been described. Post-release results are needed to determine the full effectiveness of prison nurseries as a policy option for incarcerated childbearing women. This article reports preschool (3-5 years of age) behavior outcomes of children who spent their first 1 to 18 months with their mothers in a prison nursery. Development in children who co-resided is compared with a subsample of preschool children from a large national dataset who were separated from their mothers at some point during infancy or toddlerhood because of incarceration. Results are analyzed in the context of ecological risks associated with both criminal justice involvement and adverse child development outcomes.

Children of mothers involved in the criminal justice system are a vulnerable group. Preschoolers and young school-aged children separated from their mothers due to incarceration show disproportionately high rates of insecure attachment to their mothers or alternate primary caregiver (Poehlmann, 2005b). Results of research on older children and adolescents strongly suggest a link between maternal incarceration and worse mental health (Dallaire & Wilson, 2009; Hagen, Myers, & Mackintosh, 2005; Hanlon et al., 2005) and academic outcomes (Cho, 2009; Trice & Brewster, 2004). As adults, children of mothers with a history of incarceration are more likely to have criminal justice contact than their peers whose mothers do not have this history (Huebner & Gustafson, 2007).

Child development is affected by ecological risks known to be associated with both incarceration and child development (Kjellstrand & Eddy, 2011). Preschoolers and younger school-aged children whose mothers have a history of incarceration are also more likely than their peers whose mothers do not have this history to live in environments characterized by material hardship and residential instability (Geller, Garfinkel, Cooper, & Mincy, 2009; Poehlmann, 2005a). When compared with the children of incarcerated fathers, this group has a larger number of ecological risks in their lives (Johnson & Waldfogel, 2004) and is more likely to witness their parents' illegal activity, arrest, or sentencing (Dallaire & Wilson, 2009). Aspects of the environment can also support positive development. Staying with one caregiver for an extended period and less risk in the home environment are associated with better intellectual and attachment outcomes in this group (Poehlmann, 2005a, 2005b).

Children of incarcerated mothers are most often cared for by a grandparent, followed by the father, another relative, friend of the mother, or a foster

caregiver (Glaze & Maruschak, 2008). Maternal history of incarceration has also been associated with increased time in child welfare custody and decreased likelihood of reunification (Ehrensaft, Khashu, Ross, & Wamsley, 2003). Out of necessity, children may be shuttled from one home to the next, becoming “second-hand kids” to whoever is able to accept care for them at the time (Snyder, Carlo, & Coats Mullins, 2001, p. 51). Grandmothers providing the bulk of child care to this group of children are often in poor health, rely on public assistance to meet basic needs, and may have their own struggles related to histories of substance use, mental illness, and incarceration (Hairston, 2003; Johnson & Waldfogel, 2002; Poehlmann, 2005a). With respect to care by fathers, children with an incarcerated mother are likely to also have a father involved in the criminal justice system (Dallaire & Wilson, 2009).

Incarcerated women overwhelmingly report that they plan to resume care for their children after release (Glaze & Maruschak, 2008). Infants and toddlers of incarcerated mothers represent a relatively small portion of affected children but are arguably the neediest and most vulnerable group. Post-release parenting may be impaired in women separated from infants because a relationship between the pair never developed (Enos, 2001). The effect of the limited contact methods available in correctional facilities, such as visitation, telephone calls, and letters, on the creation of a positive relationship with an infant or toddler child is unknown. Didactic parenting programs may also be insufficient in this regard, especially if they fail to address the relationship between parents and children that is needed to support positive development. Prison nurseries are one potential way to support both the incarcerated mother and her child.

Child Outcomes of Prison Nursery Co-Residence

Child-specific effects of co-residence have been neglected in the literature on prison nurseries. The histories and operational characteristics of specific programs in the United States and abroad have been described in detail, as have the qualitative perspectives of mothers living in prison nurseries (Gabel & Girard, 1995; Pösö et al., 2010). Mothers in prison nurseries in New York and Nebraska reported that the experience improved their relationship with their child and their own development as a parent (Carlson, 2009; Gabel & Girard, 1995). Finnish residents of prison nurseries also described the practical role they play for women who have limited caregiving alternatives outside the child welfare system (Pösö et al., 2010). Decreased recidivism is currently the most widely reported positive empirical outcome of prison nurseries (Carlson, 2001; Rowland & Watts, 2007). To further the goal of recidivism

reduction through family-focused programming, the U.S. Department of Justice (Office of Justice Programs, 2010) released a call for grant proposals in 2010 to support the creation, implementation, and expansion of prison nursery programs.

Empirical data on development of infants and toddlers during the prison nursery stay suggests positive or neutral short-term outcomes. Children who resided in the nurseries in New York State and whose mothers received an additional developmentally supportive nursing intervention showed motor and mental development within normal limits during the nursery stay (Byrne, 2010). Rates of secure attachment were not significantly different than those seen in low-risk community groups of children (Byrne, Goshin, & Joestl, 2010). This is the inverse of what would be expected given the disproportionately high percentage of their mothers who had insecure attachment or unresolved trauma in their own childhoods (Borelli, Goshin, Joestl, Clark, & Byrne, 2010). Infants and toddlers in Spanish prison nurseries were also found to be developing within normal limits (Jiménez & Palacios, 2003). Infants who spent their first months of life in English prison nurseries in the 1980s showed progressive declines in motor and cognitive scores during the nursery stay (Catan, 1992). Development returned to what is considered normal within a month of release.

Results appear, as would be expected, to be related to the quality of the nursery environment. Available descriptions of current U.S. programs differ widely from those in the United Kingdom at the time of the Catan study, which were described as restrictive. The prison service of England and Wales implemented changes in the Mother–Baby Units (Her Majesty's Prison Service, 2008), but to our knowledge, no further evaluation research has been disseminated. Descriptions of current U.S. programs suggest an enriched environment. Nurseries in the United States are generally segregated away from other prison facilities, renovated specifically to house children, and staffed by civilians in addition to correction officers. Programming focuses on developing the relationship between incarcerated mothers and their infants, promoting child development, and providing parenting and life skills education (Byrne, 2010; Fearn, & Parker, 2004; Kauffman, 2006).

Significant gaps remain in our knowledge of the outcomes of prison nursery co-residence. Development in formerly co-residing children has not been reported past their first reentry year, nor have co-residing children been compared with those who were separated from their mothers due to incarceration. Other aspects of life after release have also not been described. The reentry period can be chaotic and dominated by the search for necessities of survival (Richie, 2001). This struggle may worsen instead of improve over time, especially in mothers caring for young children, as prerelease plans and

excitement are replaced by difficult realities and the stress of parenting (Hayes, 2008). Post-release substance use relapse also threatens the mother–child relationship created in the nursery and places the mother at risk of recidivism and separation from the child.

This secondary analysis examined behavioral development and ecological risks in preschool children participating in a prospective, longitudinal study of long-term developmental outcomes of co-residence in a prison nursery program in one U.S. state. Behavior development in preschool children who formerly co-resided with their mothers was compared with a non-equivalent comparison group of children separated from their mothers during infancy or toddlerhood because of incarceration. Consistent maternal caregiving in the structured environment of the prison nursery was hypothesized to result in lower preschool behavior problems scores, even after controlling for risk in the child’s post-release caregiving environment.

Method

Several design challenges were considered in deciding the most ethical, effective, and efficient way to examine long-term child outcomes of living in a prison nursery. Random assignment of pregnant women entering prison to a nursery program or to have their babies taken from them at birth is unethical. In addition, departments of correction, often under criteria set forth in state statutes, control the implementation of prison nurseries, including who is accepted into them (“Births to Inmates,” 2006; “Prison Nursery Program,” 2001). Identifying a valid comparison group is a challenge in cases in which randomization is unethical and in research with hard-to-access populations. The children of women who are denied entry into a nursery program may be more likely to have been convicted of a violent crime, a crime against a child, or to have exhibited behavior that prison personnel judged incompatible with the ability to independently care for their infants. Women who meet eligibility criteria but do not apply for entry are rare in the state in which this study took place and may be likely to have a more supportive family environment in which to place the infant or conversely to not desire to parent the infant after release. Recruiting and following incarcerated mothers, their infants, and community-residing alternate caregivers in a state with similar inmate demographics but without a nursery has limited feasibility due to potential expense and project complexity.

In light of these ethical, institutional, and feasibility challenges, creative methods were needed to evaluate the long-term effects of prison nursery co-residence. As incarceration disproportionately affects low income, single-parent families, large national datasets aimed at assessing risks and protective

factors in these populations can provide useful comparison data. The Fragile Families and Child Wellbeing Study (FFCWS) was chosen because it included longitudinal follow-up from birth, strong measurement of preschool behavior outcomes, extensive data on ecological risk factors, and report of the mother's incarceration history by the mother herself and in many cases, the child's father, thus limiting the number of families who could be missed by underreporting due to social desirability bias.

Sample

The total sample for this study is comprised of 111 children: (a) 47 preschool children who spent their first 1 to 18 months in a prison nursery in one U.S. state (Byrne et al., 2010) and (b) 64 preschool children from a large national dataset, the FFCWS (Reichman, Teitler, Garfinkel, & McLanahan, 2001), who were separated from the mother during infancy or toddlerhood because of her incarceration. For the prison nursery cohort, baseline data were taken from the reentry phase of an ongoing longitudinal study of mothers and children who lived in a U.S. prison nursery between 2002 and 2006. Families (97 mothers with 100 infants) were initially recruited during their co-residence in the nursery, then followed for the entire nursery stay (average stay = 9 months; $SD = 4.6$) and the child's first reentry year. Families received developmentally supportive nursing intervention throughout this period. The child's primary caregiver was invited to reenroll when the child reached at least 2.5 years of age ($M = 3.5$ years; $SD = 0.8$). The sample ($n = 47$) in this analysis represents 61% of a total eligible sample of 77 children. Twenty-three children from the original cohort were excluded from this analysis for the following reasons: The child and mother spent less than 1 month on the nursery; the child's health precluded long-term community follow-up; the family was unavailable for community follow-up; or the child had reached school age at the time of reenrollment. The remaining 30 families were lost to follow-up at the time of this analysis. Retained families were more likely to be White than Black (African, African American, or Afro-Caribbean) or Latino and to have a longer nursery stay. Retention did not differ by history of substance use, crime type (drug offense vs. non-drug offense), or by whether the child was released from the nursery with mother or to an alternate caregiver.

The FFCWS followed an initial cohort of 4,898 children born between 1998 and 2000 in 20 U.S. cities. Families were enrolled during the postpartum hospital stay and followed prospectively. The analysis reported here used data from the baseline, Year 1, and Year 3 interviews. Using mother and father reports, 301 women in the study were identified as having a lifetime history of

Table 1. Demographic Characteristics of Former Prison Nursery Resident and Separated Families.

	Prison nursery (n = 47)			Separated (n = 64)		
	%	n	M (SD)	%	n	M (SD)
Caregiver relationship						
Mother	79	37		89	57	
Non-maternal caregiver	21	10		11	7	
Maternal race/ethnicity						
Black, non-Latina* (African, African American, West Indian)	32	15		70	44	
Latina	23	11		22	14	
White, non-Latina*	45	21		8	5	
Maternal age at child's birth			28.0 (6.6)			24.8 (5.4)
Below 20 years of age	6	3		17	11	
Married at child's birth*	17	8		2	1	
High school/general equivalency diploma at child's birth	72	34		56	36	

*p < .01.

incarceration. Of these, 32% (n = 97) were incarcerated after the child's birth, 14% (n = 43) were incarcerated only before the child's birth, and an additional 53% (n = 161) had evidence of a lifetime history of incarceration without sufficient data to determine timing in relation to the child's birth. Of the 97 families in which a mother had a history of incarceration after the birth of the index child, 64 participated in the Year 3 interview in which development data were collected. Mean child age at the interview was 3.1 years (SD = 0.3). Data were not collected on crime types or lengths of incarceration. Retained families were more likely to be Black than White or Latino. Retention did not differ by history of prenatal substance use. Sufficient information was not available in this dataset to assess retention differences by crime type or incarceration length.

Table 1 presents demographic characteristics of the prison nursery and separated groups. Compared with mothers in the FFCWS, mothers in the nursery sample were more likely to be White, non-Latina, and married, although marriage rates were low in both groups. Attainment of a high school or general equivalency diploma, as expected for women involved in the criminal justice system, was also low in both groups. There were no significant differences in whether a child was living with his or her mother or with an alternate caregiver during preschool.

Measures

Child development/behavior problems. The Child Behavior Checklist for Ages 1½ to 5 (CBCL; Achenbach & Rescorla, 2000) was used as the primary study outcome. In this measure, the parent or caregiver reports how much each of a list of 100 behaviors describes their child, from not true to very true. Scales reflecting problem behaviors in these areas were analyzed: Anxious/Depressed, Withdrawn, Aggressive, and Attention Deficit/Hyperactivity (ADH) problems. Due to missing behavior problem questions in two cities in the FFCWS, 50 separated participants had data for the full ADH, Aggressive, and Anxious/Depressed subscales. All 64 separated children had data on the Withdrawn subscale.

Ecological risks. To assess the developmental outcomes in context, we also looked at a number of risk factors associated with both criminal justice involvement and child development. We gathered information on the mother's education and marital status at the child's birth, and whether the family was receiving public assistance at the preschool follow-up. Prenatal substance use/problem drinking was considered positive if a mother reported any of the following during her pregnancy: using alcohol several times a month or more, using any illicit drugs, or that drinking or using drugs during the pregnancy interfered with work or personal relationships. Information regarding prenatal substance use was missing for one former prison nursery resident child. Reporting any of the following behaviors in the 12 months prior to the survey was coded as positive for current substance use/problem drinking: drinking four or more alcoholic beverages in 1 day a few times a month or more; smoking marijuana a few times in the past month or more; using amphetamines, analgesics, cocaine, heroin/opiates, sedatives, tranquilizers, inhalants, or hallucinogens without a prescription or in larger amounts than prescribed; or reporting that they could not keep from drinking or using drugs, that drugs or drinking interfered with their life, or that they caused them emotional or psychological problems. Parenting stress was measured using the Parenting Distress subscale of Abidin's (1995) Parenting Stress Index–Short Form (PSI-SF). Scores were recoded to determine elevated distress, defined as above the 85th percentile in a normative sample. The Parent–Child Conflict Tactics Scale (Straus, Hamby, & Warren, 2003) assessed harsh parenting (minor physical assault, psychological harshness) and neglect. Minor physical assault included spanking, slapping, and pinching. Swearing or cursing at the child was used to indicate psychological harshness. The Neglect subscale assessed emotional, physical, and medical neglect, as well as neglect related to substance abuse or problem drinking.

Apart from their nature, the sheer number of ecological risks present in a child's life significantly predicts development (Appleyard, Egeland, van Dulmen, & Sroufe, 2005). A cumulative scale of the ecological risks in the child's life was created by summing these individual risks: maternal education of less than a general equivalency or high school diploma at the child's birth, receiving public assistance in the past 12 months, prenatal substance use, current substance use, elevated parenting distress, minor physical assault on the child, swearing or cursing at the child, or reporting behavior consistent with neglect. A score of 1 was given for each factor, giving a potential range of 0 to 8.

Data Analysis

Behavior problem raw scores were first compared between former prison nursery and separated samples without controlling for risk or other potential confounders using separate one-way ANOVA models. Further exploration was undertaken for subscales on which significant mean differences were found. Separate univariate ANCOVA models were created to predict behavioral outcomes, with two fixed factors (co-residence vs. separated, and gender), the interaction between the co-residence and gender, and a Cumulative Risk Scale score and Propensity score as covariates. A separate Cumulative Risk score was created for each Behavior subscale. This score was composed of the sum of each ecological risk with a significant bivariate association with that outcome. The Propensity score statistically accounted for the differential probability of receiving the treatment, in this case, the prison nursery, given observed baseline differences in race/ethnicity and marital status at the child's birth. Propensity scores can help reduce treatment selection bias in studies like this one in which the use of randomized designs are unethical or not feasible (Rosenbaum & Rubin, 1983).

Results

Table 2 presents mean behavior problem scores, Ecological Risks, and the Cumulative Risk Scale score for both groups. Children who spent time with their mothers in a prison nursery had significantly lower mean anxious/depressed and withdrawn behavior scores than children who were separated from their mothers in infancy or toddlerhood because of incarceration. Contrary to our hypothesis, significant mean differences were not found for Aggressive or ADH behavior problems.

Ecological risks were high and not significantly different between the groups. More than one third of caregivers in both groups reported prenatal substance use

Table 2. Behavior Problems and Risks in the Caregiving Environment of Former Prison Nursery Resident and Separated Preschoolers.

	Prison nursery (n = 47)				Separated (n = 64)			
	%	n	M (SD)	Range	%	n	M (SD)	Range
Behavior problems								
Aggressive ^a			12.4 (7.8)	0-27			14.2 (8.3)	1-33
ADH ^a			5.7 (3.1)	1-12			6.3 (3.1)	0-11
Anxious/depressed ^{a*}			3.2 (2.4)	0-8			4.4 (2.6)	0-10
Withdrawn [*]			1.6 (1.8)	0-6			2.3 (2.2)	0-9
Ecological risks								
Substance use/ problem drinking	35	16			36	23		
Prenatal ^b	28	13			20	13		
Past 12 months								
Public assistance	87	41			84	54		
Elevated parenting distress ^c	17	8			23	15		
Harsh parenting								
Swore or cursed	36	17			22	14		
Physical assault	77	36			80	51		
Neglect	11	5			14	9		
Risk Scale			3.2 (1.5)	0-7			3.2 (1.5)	0-7

Note. Risk scale is the sum of maternal education at the child's birth (1 = less than high school/general equivalency diploma), prenatal substance use, substance use in the past 12 months, current receipt of public assistance, high parenting distress, swearing or cursing, minor physical assault in the past 12 months, and neglect in the past 12 months. ADH = Attention Deficit/Hyperactive.

^aSeparated sample n = 50.

^bPrison nursery sample n = 49.

^cSeparated sample n = 63.

*p ≤ .05.

or problem drinking, and one fifth of caregivers of formerly separated children and one fourth of caregivers of former prison nursery residents reported current substance use/problem drinking. Caregivers overwhelmingly reported receiving public assistance. Contrary to what would be expected, parenting distress scores for both groups more closely matched the range found in parents of preschool children in Early Head Start (Reitman, Currier, & Stickle, 2002; Whiteside-Mansell et al., 2007) than those reported for clinical samples, such as substance dependent women (Kelley, 1998). Both groups reported high rates of harsh parenting in the previous 12 months. More than one third of caregivers in the nursery

group and one fifth in the separated group reported cursing or swearing at their preschool children. Minor physical assault was also reported by the vast majority of caregivers. Slightly more than 10% of caregivers in both groups also reported behavior consistent with neglect in the past year. These caregivers most often reported being so caught up in their own problems that they were unable to show the child affection, but mothers also reported medical neglect, leaving the child without supervision, or difficulty caring for the child due to intoxication.

Cumulative Risk Scale mean scores, ranges, and distributions were identical between the groups. The mean score of 3.2 fell in the second quartile of a total possible scale range of 0 to 8. Only one caregiver in each sample reported no risks, whereas 20% of caregivers in both groups reported five or more risks.

Having co-resided in a prison nursery remained significantly associated with lower mean anxious/depressed scores even after controlling for child's gender, cumulative risk, and the propensity score, $t(92) = 2.18, p = .03$. Being separated was associated with scoring 1.24 points higher on this subscale (95% confidence interval [CI] = [0.11, 2.37]). Whether the child spent time in the nursery or was separated predicted 6% of the variance in anxious/depressed scores, Adjusted $R^2 = .05$.

The Cumulative Risk Scale, comprised of Hispanic ethnicity, elevated parenting distress, current substance use/problem drinking, and minor physical assault were also significantly associated with anxious/depressed scores, $t(92) = 3.45, p = .001$, and independently predicted 12% of the variance. Each additional risk was associated with almost a 1-point increase (95% CI = [.382, 1.42]). The child's gender and the propensity score were not significantly associated with this subscale.

After controlling for gender, propensity, and cumulative risk, children who spent time with their mothers in a prison nursery did not have significantly lower withdrawn behavior problem scores than children who were separated, $t(105) = 0.73, p = .46$. Child gender was significantly associated with withdrawn scores, $t(105) = -1.96, p = .05$. Girls scored almost 1 point less on the Withdrawn subscale than boys (95% CI = [-1.52, 0.01]). Cumulative risk was also significantly associated with this subscale, $t(105) = 2.88, p < .01$. Each additional risk factor was associated with a 0.78 increase in the Withdrawn subscale score (95% CI = [.24, 1.31]). The propensity was not significantly associated with this subscale, $t(105) = 0.19, p = .85$.

Discussion

This investigation used creative methods to examine differences in long-term outcomes for children who experienced the incarceration of their mothers in infancy or toddlerhood. Children from the FFCWS who experienced early

maternal incarceration provided a reasonable estimation of the counterfactual, or what would have happened had children not been allowed to co-reside with their mothers. Cumulative risk was also examined to further reduce the plausibility of other explanations of observed differences. The ongoing longitudinal study of women and children who previously lived together in a prison nursery (Byrne, 2010) and the wealth of ecological and developmental information on a high-risk cohort of young children in the FFCWS provided a heretofore unprecedented opportunity to explore long-term outcomes of children who experienced the incarceration of their mothers in infancy or toddlerhood.

These findings comprise one of the only examinations of any dimension of long-term child developmental outcomes specifically associated with the experience of maternal incarceration with resulting child separation during the first years of life or of mother and child co-residence in a prison nursery. To our knowledge, they provide the first investigation comparing outcomes of children who lived with their mothers in a prison nursery with those of children who were separated due to maternal incarceration. The study of early childhood development in the context of ecological risk in the post-release period also represents a unique addition to the knowledge base on this population of mothers and children.

Findings suggest that in spite of high levels of contextual risk in the post-release environment, prison nursery co-residence may confer resilience to anxious/depressed behavior problems in the preschool period. Attachment security may provide the protective factor moderating the effects of ecological risk on preschool behavioral outcomes. The creation of secure attachment was supported by prison co-residence and the additional nursing intervention received during the nursery stay and for the first year after release (Byrne et al., 2010). In contrast, separation due to early maternal incarceration is associated with much higher rates of insecure attachment to both the mother and alternate caregiver (Poehlmann, 2005b). Separation may damage a developing attachment, thus increasing the likelihood of poor developmental outcomes.

Secure attachment serves as a buffer, even in children with genetic susceptibility to mental illness (Kochanska, Philibert, & Barry, 2009). Evidence is also mounting that loss or separation from a parent during childhood can permanently alter parts of the brain that affect reactions to stress and potentially play a large role in the development of depression and anxiety (Tyrka et al., 2008). Of particular relevance to children experiencing early maternal incarceration is that the power of attachment security to predict preschool outcomes is greatest in children growing up in

adversity compared with children living in low-risk conditions (Belsky & Pasco Fearon, 2002).

At certain critical levels of cumulative risk, however, security may no longer be able to exert a protective influence. Children in this study live at the high end of that continuum. Null findings for aggressive behavior problems, in particular, may be a function of adversity overwhelming attachment security. Of the four problem areas measured, aggressive behavior in preschool children is most closely associated with adversity in the caregiving environment (Campbell, 2002; Campbell, Shaw, & Gilliom, 2000).

Limitations

The results of this inquiry must be interpreted and generalized with caution. State laws, correctional procedures, and policies governing the ethical conduct of research made it impossible to conduct an experiment testing the effect of residing in a prison nursery. For this reason, this study can only report outcomes associated with this intervention and cannot attribute causation of better behavioral adaptation to the prison nursery program. Findings also may not be generalizable to prison nurseries without developmentally supportive programming.

The two samples in this study may differ on an unmeasured variable, biasing the results and causing the appearance of better behavioral outcomes in the nursery group. The small sample size limited the use of complex statistical models that estimate unmeasured bias. Potential variables that could have affected results include maternal mental illness and paternal incarceration. Data incompatibility between the two studies prevented the inclusion of a measure of maternal depression, a common condition in this population. Data on paternal incarceration was not systematically collected for the nursery sample. Anecdotal reports during the course of the study suggest similarly high rates, with many fathers imprisoned on the same case as the mothers. Paternal incarceration in infancy or toddlerhood may be more destabilizing in the separated sample, however, as mothers and children in the nursery group co-resided without the fathers in the nursery for at least some portion of this period.

Incomplete criminal justice histories for mothers in the FFCWS may have led to the exclusion of children who experienced early maternal incarceration but whose mothers or fathers did not report it. It is unclear how non-reporting families differ from those who disclosed an incarceration. Incarceration is a stigmatizing event, and families with better overall functioning may choose to hide this history.

Implications

Given the amassing evidence regarding positive outcomes for co-residing women and children, prison nurseries that support the mother–child relationship and administer or arrange for continued post-release services should be promoted as a best practice in corrections. The behavioral outcomes reported here and the previously published attachment and development outcomes (Byrne, 2010; Byrne et al., 2010) give evidence that prison nurseries can support positive adaptation in the young children of incarcerated mothers. These findings also assuage the common concern that prison co-residence harms children. Interdisciplinary community collaborations and the use of non-corrections public funding improve cost efficiency (Fearn & Parker, 2004). Finally, the strong association between prison nursery participation and reduced recidivism also increases political viability.

Limited access to prison nurseries constrains the widespread effectiveness of this policy solution. Women incarcerated in California, Florida, Georgia, and Texas, four of the five states with the highest prisoner censuses, do not have access to these programs. Women imprisoned in these states must separate from their newborns almost immediately postpartum. Propagation of quality programs aimed at the parent–child relationship and child development are needed to close the gap between mothers and infants in need and those currently being served.

Operational policies in facilities housing nurseries must be fully in-line with supporting the women and children living there. Infant age limits and discharge in response to a mother's relatively minor disciplinary infractions are often responsible for forced separations (Byrne, Goshin, & Blanchard-Lewis, 2012). Families in which a child left the nursery without his or her mother show a pattern of interrupted separation even after the mother returns to the community; whereas more continuous parenting is seen in women and children who were released together.

Although defined by co-residence, prison nursery programs must consist of more than just mothers and children being housed then released together. The dyads in this study who co-resided also received programming from civilians working within the prison nursery and additional developmental support of nurses inside and for the first reentry year. The primary motivations of departments of correction are not consistent with child development. This may affect implementation of evidence-based practices in correctional institutions (Friedmann, Taxman, & Henderson, 2007; Kubiak, Arfken, & Gibson, 2009). To ensure the positive outcomes seen here, nurseries should be staffed by an interdisciplinary team of civilian professionals.

A family support approach should similarly guide policy regarding parole supervision and post-release placement (Mullins & Toner, 2008). Women can be released from a prison nursery program with their children only to be mandated to a community drug treatment facility that does not allow children. All residential reentry placements for mothers being released from a prison nursery should also provide co-residence. Co-residence options in substance abuse treatment are slowly increasing but are still not the norm (Robbins, Martin, & Surratt, 2009).

Augmentation of parent–child relationship promoting programs, such as prison nurseries, should not come at the expense of programs designed to support economic self-sufficiency or recovery from drug dependence. Apart from the effects of separation, post-release socioeconomic adversity is independently associated with child outcomes. The integration of educational, vocational, drug use, and parenting programs into correctional and post-release mandates is needed to meet the multifactorial needs of mothers involved in the criminal justice system and their children (Phillips, Erkanli, Costello, & Angold, 2006).

Community-based alternative to incarceration (ATI) programs must also be acknowledged as a policy option for this population of predominately non-violent offenders. As incarceration rates slow and evidence accumulates regarding the positive effects of programming over incarceration, lawmakers and the public are showing increasing interest in community alternatives (Pew Center on the States, 2010). Advocates argue that least restrictive community options are safer, less expensive, and in the best interest of the children (WPA, 2009). More than 10 years ago, Acoca and Raeder (1999) wrote that “a key question for policy makers in the twenty-first century [*sic*] will be whether or not to replicate the existing mother-baby program model in women’s correctional facilities across the nation or to provide higher quality, lower cost, community-based alternatives” (p. 139). The limited information available suggests that, like prison nursery programs, the availability of ATI programs is highly variable geographically and limited by strict eligibility criteria (National Institute of Corrections, 2010; WPA, 2009). Research is needed to evaluate the promise of community co-residence ATI programs.

Conclusion

Allowing incarcerated women to care for their children in a secure setting has the opportunity to provide positive, short- and long-term bi-generational outcomes. This study greatly extends the available knowledge regarding the developmental trajectories of children who have experienced early maternal incarceration and exposure to a prison nursery program. These results enrich

the policy discussion in this area by providing critical information to address questions regarding the long-term effects of nursery programs on child development. Federal-level agencies and professional groups that provide policy and program assistance and protocols to correctional institutions now have an expanded evidence base on which to build service recommendations for incarcerated mothers and their children both inside and on reentry to the community. Professionals providing direct services to this group of children and their mothers can also better anticipate their needs to provide individual care and design developmentally appropriate, evidence-based programs.

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