Prison Nurseries: A Review of Maternal and Infant Rooming in Outcomes for Incarcerated Mothers

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ABSTRACT

Women are the fastest growing prison population in Canada, and at incarceration, 4-10 percent of women are pregnant. These women, their correctional facilities, and Canadian health care services are increasingly forced to address the issues of motherhood and reproductive health care during incarceration. Most incarcerated women are separated from their infants soon after birth. The authors claim that prison nurseries, as a harm reduction strategy, are a positive alternative to this separation. Midwives could play a valuable role in these health care units.

Methods: This paper is a literature review examining the outcomes of mother-infant dyads who have access to prison nurseries. The search strategy included 15 health research databases, applying similar search terms to all databases.

KEYWORDS

prison nursery, rooming in, women, pregnancy, incarceration, infants

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BACKGROUND

In 2013, the Alouette Correctional Centre reopened its prison nursery program after the Supreme Court of British Columbia ruled in "Inglis v British Columbia" (Minister of Public Safety) that "the decision to cancel the Program violated the rights to security of the person and liberty contrary to the principles of fundamental justice under s. 7, and violated the right to equality under s. 15".[1] In his ruling, Judge Ross concluded that infants' and mothers' charter rights outweigh the Government's claim that because infants are not under the mandate of prison system the province has no responsibility to accommodate them within this system.[1]

No formal review of the Alouette prison nursery system had occurred prior to closure, and empirical data examining nursery programs is limited. These programs are rare, and historically the bulk of prison research has focused on male imprisonment. However, expert witnesses at trial attested to the strong social and health benefits for both mothers and infants who remain together in the post-partum period, despite their incarceration. The purpose of this review is to examine the the existing data on prison nurseries to determine whether their outcomes support mother infant rooming in, and if so, how midwifery care may complement these programs.

Demographics of Incarcerated Women

In Canada and internationally, women are the fastest growing prison population[2,3,4] Intersecting struggles of race, gender, poverty, sexuality, addiction, violence, and colonialism have led to an overrepresentation of incarcerated impoverished women of colour. In Canada, indigenous women make up 1-2% of the Canadian population, yet constitute 34% of the federal female prison population[5] and 29% of British Columbia's female prison population.[6]

Many incarcerated women are in their childbearing years, with 58% under the age of thirty-five.[7] Two-thirds of incarcerated women have one or more dependent children, and the majority of these women are primary caregivers prior to imprisonment. Approximately 85% intend to reunite with their children upon release.[8] US data suggest that 77% of incarcerated mothers provide the bulk of daily care for their children, while only 26% of incarcerated fathers are primary care providers. Furthermore, up to 52% of incarcerated mothers report being the sole parent of the household, while only 19% of incarcerated fathers are single parents.[9] Therefore, continuity of care is disproportionately disrupted by a maternal imprisonment, and families are much more likely to become unstable as a result of such incarceration.

The scarcity of women's prisons and prison nursery programs means that most infants born to pregnant women are separated from their mothers shortly after birth and placed in foster care or under the custody of a family member.[4] When this separation occurs, it is not inconsequential, and for many families it is permanent.[4].The ruling of "Inglis v. British Columbia" agreed that separation after birth restricts mother-infant bonding, disrupts breastfeeding, and restricts the many known health and social benefits for both mothers and their infants (1). They further claim immediate separation limits a prisoner's experience of "motherhood" and purportedly impacts her long term relationship with her child.[4]

Incarceration and Pregnancy

In "Inglis v British Columbia" both parties agreed that incarcerated women tend to be less violent than their male offenders. They are more vulnerable, with low levels of education and employment, and often have concurrent mental health issues and histories of abuse.[1] The most common crime for women to commit is theft under 5,000 dollars (47%), followed by minor assault (28%), and offences against the administration of justice, such as failure to appear (17%).[1] Sex trade offences and narcotics possession account for the remainder of the Canadian female prisoner population (7%).[10] Major offences such as homicide, attempted murder, and sexual assault are rare (1%) and in Canada these offenders are segregated out of provincial level prisons.[10]

At incarceration, between 4-10% of women are pregnant and need access to reproductive health care, obstetrical care, perinatal education, childbirth support, and postpartum care.[11] Yet, obstetrical care is inconsistent among correctional facilities, and these services are often inadequate.[12,13] In addition to disproportionately suffering from mental health issues, incarcerated women's pregnancies

are often complicated by illicit drug and alcohol misuse and smoking. They often have concurrent comorbidities such as HIV/AIDs or other sexually transmitted infections, tuberculosis, hepatitis B and C, hypertension, respiratory problems, and lack of nutrition.[13] While these women often need complex care and consultations with several different health care providers, they often receive only the very basic maternity care and no continuity of care. [12,13] As a result of delays in accessing adequate prenatal care, pregnant inmates have higher rates of perinatal morbidity and mortality.[12,1 3]

Prison Nurseries

The prison nursery program allows mothers to receive prenatal and postpartum care, and after delivery care for their own infants, some for as long as two years of age.[12]. An inmate eligibility protocol excludes women with a history of violent crimes, particularly violence against children, and excludes women with sentences longer than 24 months.[14] These nurseries are often housed in a separate unit or facility, where only pregnant inmates and mothers of infants live and work together.[14] Nursery programs typically offer women and their infants immediate access to healthcare workers, drug and alcohol counseling, parenting classes, prenatal and life skills classes.[14]

METHODS

Search Strategy

Our initial search included Medline(Ovid), Cinahl, EMBASE(ovid), EBSCO, Web of Science, Trip Database, Proquest, ClinicalTrial.gov, ISRCTN, National Guidelines Clearing House, Google Scholar, and NCJRS (National Criminal Justice Reference Service Abstracts) (See Table 1). The search string applied to Medline included the terms Nursery* or *Infant, Newborn or *Infant, Newborn, Diseases or *Nurseries, Hospital or *Intensive Care Units, Neonatal and*Prisoners/ or *Prisons/ or prison*. Identical or similar search terms were used remaining database searches (See Table 1).

FINDINGS

The initial search strategy yielded 717 studies. After deduplication and preliminary exclusions, only 89 were considered for close examination. A second iterative search using citation chaining identified additional studies not captured by our initial search terms. Three additional papers were found, of which two were excluded, bringing the total number of studies reviewed to 90. After applying a final inclusion/exclusion criteria these studies were reduced to 31 applicable studies, with only 10 studies appropriate for inclusion for this review (See Table 2).

Inclusion/Exclusion Criteria

Studies were limited to peer-reviewed publications in English, published after 1990, and examined outcomes specifically related mother and/or infant, or child and/or pregnancy, outcomes in prison nurseries, or rooming in, programs during the incarceration period. Only countries with similar criminal justice systems to Canada's and/or countries with studies generalizable to Canadian prison populations were included. Our initial exclusions removed any articles related to other other uses of "prison nursery*" such as "gardens" or "geriatric prison care." One randomized control trial was excluded because its intervention only examined an educational program introduced to the infants of one prison nursery and not to another, and did not include mother-infant outcomes.

In addition to limited data, synthesizing the data into a review was challenging as the study designs employed both qualitative and quantitative methodologies, several different outcomes/ interventions were measured, and no single outcome was measured by all the studies (See Table 3). Grouping the findings into four themes produced the most robust analysis, and these themes were: delivery and neonatal outcomes, bonding and attachment, recidivism, and child behaviour. Most of the studies reported outcomes for one or more of these themes.

THEMES

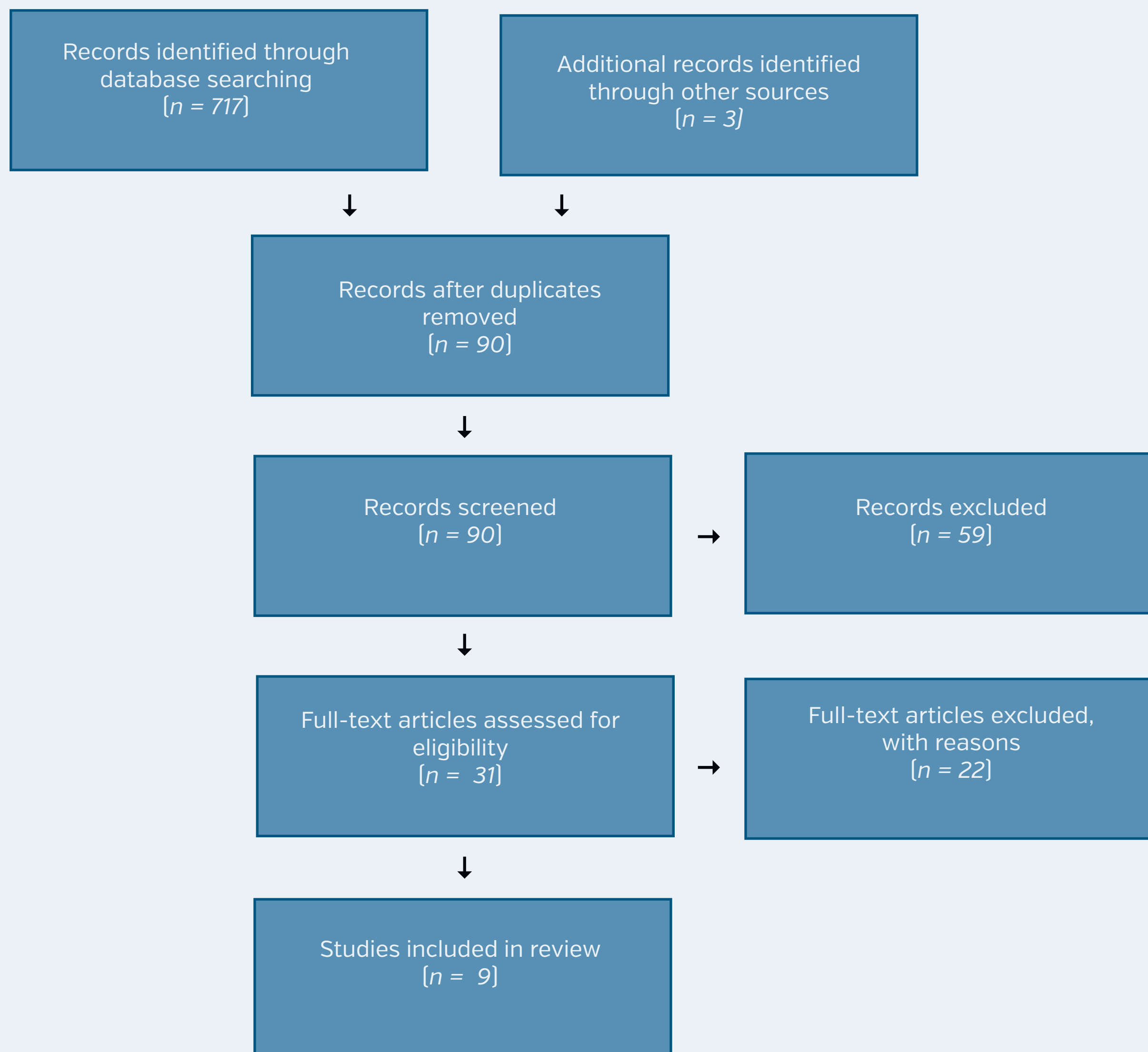
Theme One: Delivery and Neonatal Outcomes

Three studies reviewed delivery and neonatal outcomes in the immediate postpartum period. In the first study, Barkauskas et al. compared two cohorts of incarcerated pregnant women who had histories of drug misuse prior to incarceration (*n= 125*), one cohort participating in a prison nursery program (*n = 52*), and one receiving routine prison

Table 1: Search Strategy Results

Database	Date Range	Search String	Results
Pubmed	1990-Oct 21, 2016	[("prisoners"[MeSH Terms] OR "prisoners"[All Fields]) OR ("prisons"[MeSH Terms] OR "prisons"[All Fields])) AND (("infant, newborn"[MeSH Terms] OR ("infant"[All Fields] AND "newborn"[All Fields]) OR "newborn infant"[All Fields] OR ("infant"[All Fields] AND "newborn"[All Fields]) OR "infant, newborn"[All Fields]) OR ("infant, newborn, diseases"[MeSH Terms] OR ("infant"[All Fields] AND "newborn"[All Fields] AND "diseases"[All Fields]) OR ("infant"[All Fields] AND "newborn"[All Fields] AND "diseases"[All Fields]) OR "infant, newborn, diseases"[All Fields]) OR ("nurseries, hospital"[MeSH Terms] OR ("nurseries"[All Fields] AND "hospital"[All Fields]) OR "hospital nurseries"[All Fields] OR ("nurseries"[All Fields] AND "hospital"[All Fields]) OR "nurseries, hospital"[All Fields])) AND ("1990/01/01"[PDAT] : "2016/12/31"[PDAT])	107
MEDLINE (Ovid SP)	1990-Oct 21, 2016	(Nursery*.mp. or *Infant, Newborn/ or *Infant, Newborn, Diseases/ or *Nurseries, Hospital/ or *Intensive Care Units, Neonatal/) and(*Prisoners/ or *Prisons/ or prison*.mp.)	197
CiNAHL	1990-Oct 21, 2016	S1Prison* and Nurser*	15
EBM Reviews (OvidSP)		1.) Prison*.mp. [mp=ti, ot, ab, tx, kw, ct, sh, hw] 2.) nursery*.mp. [mp=ti, ot, ab, tx, kw, ct, sh, hw] 2.) nursery*.mp. [mp=ti, ot, ab, tx, kw, ct, sh, hw]	5
EMBASE (OvidSP)		1.)*nursery/ or *pregnancy/ or nurser*.mp. or *breast feeding/ 2.)*prisoner/ or *prison/ or prison*.mp.	91
Cochrane (Cochrange Central Registrar of contolled trials) (OVID)	no limit	Prison* and Nurser*	0
Web of Science	1990-2016	TS=(Prison* and Nurser*) and SU=obstetrics	11
Trip Database			23
Proquest	1990-2016	diskw(prison OR prisoners) AND diskw((nurseries OR nursery))	7
ClinicalTrials.gov		prison* and nurser*	0
ISRCTN	no limit	prison* and nurser*	0
Acedmic Search Complete		KW (Prison*) and KW (Nurser*)	8
Google Scholar	1990-2016	Prison nurse* and women and birth	252
National Guideline Clearinghouse		Prison and Nurser**	0
References found through citation chaining			3
TOTAL			717
After Reduplication			90
Considered for Inclusion			31
Included			9

Table 2: Flow Diagram: 2016 Prison Nurseries Literature Review



care (*n* = 73).[15] Both groups experienced medical complications during pregnancy, and birth related and neonatal outcomes were similar between the two groups. Caesarean section rates for the prison nursery group were lower at 10.8% compared with 14.3% for the routine care group.[15] Episiotomy rates, amniotic fluid colour, and estimated blood loss were statistically insignificant between the groups. Although the prison nursery group had slightly lower rates of respiratory difficulty (20.6% vs. 17.6%), higher average birth weights (mean: 3291g vs 3176g), better APGAR scores at less than 8 at five minutes (10.8% vs. 8.8%), and a longer gestational age at birth (mean: 38.9 weeks vs. 38.8 weeks) these findings were statistically insignificant.[15]. The only negative outcome associated with the prison nursery group was that 88% of the prison nursery mothers smoked compared to and 84% of the comparison group.[15] A statistically significant higher breastfeeding initiation rates for the prison nursery group (19.4% vs. 2.9%) is because the women in the routine care group were separated from their infants

Table 3: Prison Nurseries

Study	Study Design	# of Women	# of Infants	Intervention	Comparison Group
Barkauskas VH, Low LK, Pimlott S. Health outcomes of incarcerated pregnant women and their infants in a community-based program. J. Midwifery Women's. Health. 2002;47(5):371–9.	Observational - cross-sectional, case-control	37	37	residential rooming-in prison program	Matched prison group: routine prenatal care (N40)
Borelli JL, Goshin L, Joestl S, Clark J, Byrne MW. Attachment organization in a sample of incarcerated mothers: distribution of classifications and associations with substance abuse history, depressive symptoms, perceptions of parenting competency and social support. Attach. Hum. Dev. 2010 Jul;12(4):355–74.	Observational -case contol	69		prison nursery	Meta-analytic sample
Byrne MW, Goshin LS, Joestl SS. Intergenerational transmission of attachment for infants raised in a prison nursery. Attach. Hum. Dev. 2010 Jul;12(4):375–93.	Observational - longitudinal quasi-case control cohort study	30	30	prison nursery	Matched prison cohort not co-residing with their infants
Byrne MW, Goshin L, Blanchard-Lewis B. Maternal Separations During the Reentry Years for 100 Infants Raised in a Prison Nursery. Fam. Court Rev. 2012 Jan; 50(1):77–90	Observational - longitudinal cohort study	97	100	prison nursery	Infant cohort released before one year to cohort rooming-in. Cohort rooming in compared to matched community sample.
Carlson, J.R. Prison Nurseries: a pathway to crime-free futures. Corrections Compendium. Spring 2009; 34(1): 17-24.	Observational-retrospective cohort study	65	65	prison nursery	Infants receivng routine care (N 25)
Carlson J. Prison nursery 2000: A five-year review of the prison nursery at the Nebraska Correctional Center for Women. J. Offender Rehabil. 2001;33(3):75–97	Observational-cohort study/ survey/data analysis	65	65	prison nursery	None
Fritz S, Whitacre A, Prison nurseries: experiences of incarcerated women during pregnancy. J. Offender Rehabil. 2001;33(3):75-97.	Qualitative interview	27		prison nursery	None
Goshin LS,Byrne MW,Henninger AM. Recidivism after release from a prison nursery program.Public Health Nursing, 2014;31(2):109-117.	Descriptive study-prospective cohort	139		prison nursery	None
Goshin L, Byrne MW, Blanchard-Lewis B. Preschool outcomes of children who lived as infants in a prison nursery. The Prison Journal, 2014:0032885514524692, SAGE Publications.	Longitudinal cohort study	0	47/64 = 111	prison nursery	infants who were seperated from their mothers due to incarceration collected from a national data set
Siefert K, Pimlott S. Improving pregnancy outcomes during imprisonment: a model residential care program. Soc. Work. 2001 Apr; 46(2): 125–34.	Observational-cohort study	44	45	residential rooming-in prison program	no comparison group

shortly after delivery.[15]

A second study by Fritz and Whitecare also showed significantly increased rates of breastfeeding initiation for women rooming in with their infants (*n = 15*), when compared to incarcerated women at the same prison who were eligible for a prison nursery programs but were incarcerated in the years prior to the nursery implementation (*n = 12*).[16] Approximately 60% (*n = not stated*) of the nursery program's mothers initiated breastfeeding compared to only 33% (*n = not stated*) of the non-rooming in mothers.[16]

The third study, by Siefert and Pimlott, (*n=44*) examined drug and alcohol misuse and found that all women in the study reported substance abuse upon entering prison, but one hundred percent of the infants were born free of illicit drugs and alcohol when residing in the prison nursery program.[12] One hundred percent of the infants were also average weight for gestational age, notable because prison infants are often small for gestational age.[12] Few bad outcomes were reported with prison nursery program. One infant was diagnosed with fetal alcohol syndrome, one infant was born prematurely at 32 weeks gestation, requiring admission to the neonatal intensive care unit, and four infants experienced congenital anomalies.[12]

Theme Two: Bonding and Attachment:

Prison nurseries are predicated on the claim that both parties benefit from bonding in the early months of a child's life. Ample data support the assumption that bonding and attachment are imperative in the newborn's psychological functioning and for social-emotional development.[17] Four studies reviewed concluded that maternal-infant bonding was improved through prison nurseries. Yet, quantifying this attachment is challenging, even with content validated tools such as the Adult Attachment Interview (AAI) and the Strange Situation Procedure (SSP) employed in the following studies.

Using the (AAI), Borelli et al. identified three organized patterns of maternal attachment: secure/autonomous, insecure/dismissing, and insecure/preoccupied in incarcerated women with infants using a prison nursery program.[17] The results of her study (*n = 69*) showed that women accessing nurse-led prison nurseries, despite having profound attachment issues of their own, are able to attach securely to their infants at similar rates to women of low socio-economic community samples of women who were not incarcerated.[17]

A second study, using the (AAI), Byrne et al. generated similar results of attachment to Borelli et al. (*n=30*).[18] Additionally, Byrne et al. measured infant attachment using the validated "Strange Situation Procedure." The results showed that mothers in a prison nursery setting can raise infants who are as securely attached to them as those raised in "healthy communities".[18] Furthermore, using the (AAI), Byrne et al. also demonstrated that the infant's attachment could be categorized as secure even when the mother's attachment is categorized as insecure.[18]

A study by Carlson (*n=37*) surveyed incarcerated women as part of a five-year review of Nebraska's state prison nursery program.[19] Ninety-five percent of respondents reported feeling more attached to their infants as a result of the nursery program.[19] The most common response from incarcerated women was that rooming in fostered a better bond, and gave them the opportunity to take (parenting) classes, reportedly also beneficial. Finally, they reported benefitting from the homelike atmosphere, and increased learning opportunities and responsibilities.[19]

In a longitudinal study on maternal-infant separation (*n=100*), Byrne et al. followed infants raised in a prison nursery out into the community and found that about 60%, or fifty-nine infants, left the prison nursery with their mothers at the time of their release. Of those dyads released together, in the majority remained together three years after their release (*n=44*).[11] Forty-one infants were separated from their mothers during or at the end of their stay in the prison nursery. However, by the end third year after release many of these infants had reunited with their mothers as primary care providers (*n = 16*).[11] All of the studies showed an increased attachment to a biological mother and this attachment superseded that of infants in matched cohorts, who were either fostered out or raised by close relatives.

Theme Three: Prison Misconducts and Recidivism

All of the studies examining recidivism

and misconduct found these rates significantly decreased for women accessing prison nurseries. During his five-year review of Nebraska's state prisons, Carlson's study (*n=42*) showed that after implementing prison nurseries misconduct reports decreased by 13%.[19] Recidivism rates for these women also decreased. Prior to the live-in nursery program (January 1991-November 1994), the recidivism rate for women who had babies born while in prison was 33.3%. After the nursery program's implementation (1994-99), this rate dropped to 9%.[19] In a second 2009 study (*n=95*), Carlson continued his research analyzing 10 years of data and found that women accessing prison nursery programs had a recidivism rate of 16.8% (*n=65*) compared to a 50% (*n=30*) rate to those who did not.[14] This represents a 33.2-point reduction in recidivism for women remaining with their infants in the Nebraska state prison. Goshin et al. also found decreased recidivism rates (*n = 139*) in women who had access to a prison nursery in New York State.[20] After their release, 86.3% women remained in the community at three years. Of the 14% of women who returned to prison, the majority did so because of parole violation, and only 4% returned as a result of committing a new crime.[20]

Theme Four: Behavioral Development

Only the one study by Groshin et al. met the inclusion criteria. The dataset for this study included 111 children, 47 children who spent up to 18 months in a prison nursery and 64 children who were separated from their mothers due to incarceration. This longitudinal study had two objectives. The first was a comparison of "behavioural outcomes" in infants born and raised in prison nurseries to the separated infants group; the second objective compared "ecological risks" defined as substance use, harsh parenting (yelling etc), and receipt of social assistance in the mothers who had access to prison nursery programs to those who were separated in infancy or toddlerhood.[21] No differences were found in "ecological risks" between the two groups. Despite this lack of difference, Groshin demonstrated that children who lived in prison nurseries had significantly lower anxious/depressed and withdrawn behaviour scores than in those separated from their mothers.[21] The results of this study suggests that even if incarcerated women do not directly benefit from prison nurseries in terms of changing their own "ecological risks," their offspring still seem to benefit. No significant differences were found regarding aggressive behaviours or ADHD.[21]

DISCUSSION

Based on the data included in this literature review, rooming in prison nursery programs are associated with better outcomes for both mothers and infants. Mother-infant togetherness supports a prolonged breastfeeding relationship, and this prolonged relationship allows mothers to bond with their infants within the prison environment in a more permanent way than if separated shortly after birth. Likewise, infants can form a more secure and lasting attachment to their mothers. This longer attachment fostered by the prison nursery appears to be protective against depressed and withdrawn behaviours in school aged children when compared to children who were separated as a result of incarceration. Of course, these focussed studies cannot be taken as a generalized claim that the attachments of biologically raised infants are more secure those of infants who are adopted or born as a result of surrogacy and parented by non-biological parents.

Reduced prison misconduct and reduced recidivism correlate to accessing prison nurseries. This reduction is also less disruptive to families, and results in fewer children in foster care. Decreased recidivism and decreased perinatal morbidity lowers the public cost of the prison and foster care systems, and these savings may outweigh the additional costs maintaining these nurseries.

FUTURE RESEARCH

A paucity of data exists regarding prison nursery programs because the programs are rare. This limitation - along with small sample sizes, a difficulty of finding matched cohorts, and a lack of robust longitudinal data or any randomized control trials - poses challenges for generalizing the existing data, and parsing causation from correlation is always challenging. Nonetheless, cohort and case control studies are good study designs by which to examine harm. There may also be significant differences

between the prison nurseries themselves with regards to programs, and it is not clear that the results from one nursery program are generalizable to other programs. Many of the research subjects are marginalized, impoverished, women of colour, but none of the researchers address the use of culturally and politically safe methodologies in their research. No studies included midwifery care in these care units. Nonetheless, other than a slightly increased risk of smoking, no study to date has reported increased negative outcomes associated with these programs.

These findings buttress the Charter claim in "Inglis v British Columbia" that "rooming in is considered best practice for mothers and infants in the postpartum period and is associated with health and social benefits for both".[1] As such, prison nurseries appear to fall under a harm reduction model of public health. In British Columbia, Fir Square at BC Womem's Hospital and the InSite safe injection program in Vancouver's Downtown Eastside are positive examples of this approach. These programs, while controversial in their implementation, have been shown to improve health outcomes.[22, 23, 24] If prison nurseries improve health outcomes, lower costs, and are consistent with Charter claims, then employing a similar harm reduction model for pregnant inmates seems appropriate.

Midwifery Care and Prison Nurseries

In many Canadian provinces, midwives are primary maternity care providers for low-risk pregnant women and their infants. Despite their incarceration, pregnant Canadian women have legal rights protecting their decisions regarding their bodies and their pregnancy. As a model of care rooted in the principles of non-judgmental, culturally safe, client-centered practice, midwifery recognises the right of each person to be the primary decision maker of her care.[25, 26] As Indigenous women are overrepresented within the prison system, supporting these women and other marginalized imprisoned women to make culturally safe, informed choices around pregnancy and birth may be the first empowered relationship they have had with a health care provider. Such a relationship may support incarcerated women to move beyond some of the cultural and gendered victimization they have experienced prior to prison.[27] Not only does midwifery care reduce public maternity care costs, it promotes continuity of care and improves maternity outcomes.[28, 29] This philosophy, along with a commitment to informed choice and the practice of evidence-based birth may improve the apparent, beneficial outcomes of the prison nursery system. Working alone or in small teams, midwives in Canada are uniquely positioned to care for mothers and their infants both in and out of hospital settings from conception and well into the postpartum period. Midwives have longer routine care visits than other maternity care providers in Canada, enabling individualized care plans for complex clients. A commitment to holistic, collaborative care encourages midwives to work closely with other care providers and support workers while remaining a consistent presence over the course of a person's pregnancy and thereafter. Models of shared-care can allow midwives and obstetricians to care jointly for higher risk pregnant women. Building a trusting relationship could serve as a catalyst for other trusting relationships with healthcare providers, which for many has never occurred in their lifetime.[27]

Empowered women build healthy families and communities.[27] Birth is a transformative process that can generate a sense of inner strength and accomplishment. It can also perpetuate victimization and powerlessness.[27] A positive birth experience, regardless of the outcome, may impact the other choices an incarcerated woman may make for herself and her children. The midwifery model of care, as a health care model, supportive of autonomy and choice, seems well positioned to build on the already positive outcomes associated with prison nursery programs.

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AUTHOR'S NOTE:
The authors use the terms "mother," "woman," and "female" interchangeably to reflect the terminology of the literature, but are sensitive to the historical context of these terms, their limitations, and that not all pregnant people or incarcerated people identify as such.