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**An Exploratory Study of the Impact of the Baby and Mother Bonding
Initiative (BAMBI) in Previously Incarcerated Mothers**

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**An Exploratory Study of the Impact of the Baby and Mother Bonding
Initiative (BAMBI) in Previously Incarcerated Mothers**

by

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Dedication

I dedicate this work to all the staff at BAMBI who work tirelessly to ensure the success of the BAMBI prison nursery program.

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An Exploratory Study of the Impact of the Baby and Mother Bonding Initiative (BAMBI) in Previously Incarcerated Mothers

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There has been a dramatic increase in the number of women who have been incarcerated in prisons across the United States during the past decade and the fastest growing segment are women of childbearing age (Zust, Busiahn, & Janisch, 2013). Texas leads the United States in the number of women incarcerated and 5% are estimated being pregnant when entering prison. A series of seminal studies of mothers in prison by Chambers (2009) and Byrne (2013) have pointed to potential detrimental effects on maternal-infant attachment when incarcerated mothers and infants are separated at birth.

The purpose of this exploratory pilot study was to examine the impact of a unique prison nursery program entitled Baby and Infant Bonding Initiative (BAMBI) on maternal infant attachment and nurturing competencies among previously incarcerated women who gave birth in prison and graduated from the BAMBI program. A sample of 41 participants were recruited from a population of 215 women through a closed “members only” BAMBI Alumni Facebook page and non-probability snowball sampling and responded via Survey Monkey or mailed surveys to instruments which measured maternal-infant attachment and

nurturing. Data were analyzed using descriptive statistics, analysis of covariance, correlation coefficients, multiple regression, and logistic regression. Although many specific aims were not significant, one notable finding was that a significant predictor of positive maternal nurturance was related to the number of children living in the mother's household post incarceration. Conversely, however, the number of children in the household was the most significant predictor of an increased risk for infants to have insecure attachment to mothers.

Results of this study provided initial data on effects of a prison nursery program on maternal-child attachment and nurturance among previously incarcerated mothers and their infants. The study adds to research literature about this growing population of women who give birth in prisons and underscores the need for more prison nursery programs for pregnant prisoners to help reduce risks of insecure child attachment and enhance maternal nurturing. Future research should include larger samples of BAMBI graduates with more sensitive instruments and longitudinal studies that examine comparative outcomes of prison-based and community nursery programs.

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List of Abbreviations

AAI	Adult Attachment Interview
ACA	American Correctional Association
ANA	America Nurses' Association
ANCOVA	Analysis of covariance
ANOVA	Analysis of Variance
AQSQ	Attachment Q-Sort questionnaire
BAMBI	Baby and Mother Bonding Initiative
CES-D	Center for Epidemiologic Studies-Depression Scale
CDC	Centers for Disease Control and Prevention
COA	Clinical Operations Administration
COM	College of the Mainland
CPS	Child Protective Services
CYMF	Carol Young Medical Facility
GED	General Educational Development
GSBS	Graduate School of Biomedical Science
IRB	Institutional Review Board
LOBS	Length of BAMBI Stay
MAI	Maternal Attachment Inventory
MHA	Masters in Healthcare Administration
MORS	Mother's Object Relations Scale
NCCHC	National Commission on Correctional Healthcare

PDI	Parent Development Interview
PDI-S	Parenting Dimensions Inventory-Short Form
PhD	Doctor of Philosophy
PI	Principal Investigator
SES	Socioeconomic Status
SPSS	Statistical Package for Social Sciences
SSP	Strange Situation Procedure
STD	Sexually Transmitted Disease
TDC	Thesis and Dissertation Coordinator
TDCJ	Texas Department of Criminal Justice
RN	Registered Nurse
UK	United Kingdom
UNICEF	United Nations International Children's Emergency Fund
US	United States
UTMB Health	University of Texas Medical Branch Health
WISEWOMAN	Well-Integrated Screening and Evaluation for Women Across the Nations
WON	Wee Ones Nursery

Chapter 1: Study Introduction

STATEMENT OF PROBLEM

Issues related to health care of women who are in United States prisons, and especially those who are pregnant, have become more pronounced due to the dramatic rise in the number of women incarcerated in prisons across the country during the past decade (Grubb & Carmen, 2016; Ferszi & Clarke, 2012). Women of childbearing age represent the fastest growing segment of the overall prison population (Zust et al., 2013) and the Bureau of Justice Statistics (2013) has estimated that at least 5% of women are pregnant when initially incarcerated and most deliver their babies while in prison. This increasing number of babies “born behind bars” raises profound ethical, legal and policy issues about the adequacy and quality of health care provided to these women and infants during pregnancy and delivery, but also about the humaneness of policies that separate mothers and infants shortly after birth.

Although most United States prisons provide some level of pre-natal and post-natal health care to pregnant prisoners and newborns, numerous studies have found wide variation among prisons in the type and overall quality of pre-natal, ante-natal, and post-natal care, especially for pregnant women who have chronic physical and mental health issues and high-risk pregnancies (Maruschak, Berzofsky & Unangst, 2015; National Commission on Correctional Health Care, 2014).

One of the most distressing and enduring practices in many United States prisons’ treatment of pregnant women has been the forced separation of mothers and infants shortly after birth, a practice which has been verified by both research studies and various

correctional reports (Chambers, 2009; Griggs, 2011; Grubb & Carmen, 2016; National Commission on Correctional Health, 2014). Most prisons have historically provided only minimal contact between incarcerated mothers and infants immediately after birth and then mothers must say goodbye and return to their prison environment. The majority of prison policies typically require that mothers and babies remain separated after the initial meeting although some provide for a very limited number of post-partum visits. Mothers are then required to arrange for the placement of their infants with family, friends or with child protective services while they serve the remainder of their sentences (Zust et al., 2013).

This practice of forced separation of mother and infant shortly after birth has been found to be extremely distressing for new mothers and serves as a barrier to the bonding process in a number of research studies including those by Chambers (2009), Gilham (2012), and Zust et al. (2013). Chambers' (2009) seminal research examined perceptions about bonding and separation among twelve post-delivery incarcerated mothers and found that these women had experienced strong emotional connections to their babies during pregnancy which persisted through delivery and post-partum, but experienced substantial anguish after separation from their infants. Chambers (2009) concluded that the opportunity for incarcerated mothers to develop maternal-infant bonding is essential because that process helps shape abilities to relate effectively to their infants. The researcher further noted that for women in the general non-prison population, giving birth usually signifies a time of happiness; but for women prisoners, happiness at birth is often short-lived and turns to sadness once facing the stark reality of separation from their infants. Rapid, forced separation poses a threat to developing emotional attachments

when mothers and newborns are later reunited (Chambers, 2009). Similarly, Gilham's (2012) study of incarcerated mothers found that they expressed very strong desires to bond and establish relationships with their infants and also experienced grief and anguish about early separation from their infants.

In response to the threat of impaired bonding between mothers and infants in prison, ten states, i.e., Texas, Idaho, Illinois, Indiana, Nebraska, New York, Ohio, South Dakota, Washington, West Virginia, have implemented prison nursery programs in which select populations of mother-child dyads are given the opportunity to live together for a period of time. In Texas, the Baby and Mother Bonding Initiative (BAMBI) was created in 2010. BAMBI was an attempt to diminish threats to bonding between incarcerated mothers and their infants by keeping mothers and babies together after childbirth when these mothers are incarcerated during pregnancy.

BACKGROUND AND SIGNIFICANCE

The significance of this current research, which examined the impact of the BAMBI prison nursery program, is underscored by the startling statistical picture of women in prisons across the United States and the increasing number who are pregnant at the time of incarceration. The Bureau of Justice Statistics (2016) reports that there was a total population of 202,600 females in United States prisons in 2015 and Texas leads the country in the overall number and rate of women entering prisons with a reported 22,300 women currently incarcerated across the state (Kaeble & Glaze, 2016).

Based on the Bureau's estimation that 5% of incarcerated females are pregnant on admission to the United States prison system (Bureau of Justice Statistics, 2013), Texas may have one of the largest number of incarcerated pregnant women in the United States.

There were a reported 969 single births in Texas prisons between 2008-2014 (i.e., not including multiple births), with 200 single births occurring from September 1, 2013 to August 31, 2014 (TDCJ Executive Services, 2014). This statistical profile reflects the growing numbers of pregnant women in prisons who are “birthing behind bars” and the issue of hundreds of women and infants separated from each other at a critical point in their lives. This trend also points to the fact that many of these children born in prison are being raised by either family, friends, or foster families due to their mothers’ incarceration. The impact on the family unit and the community and the need to keep families together was recently stressed by President Obama in his 2015 visit to the Oklahoma Federal Penitentiary where he also discussed the monetary and non-monetary cost of incarceration (Clemmons, 2015).

There have been no studies to date that have examined the outcomes of the BAMBI program. One of the rationales for the current study of the BAMBI program’s potential impact on maternal infant attachment and nurturance was that it is the only program in the United States that provides for mothers and infants to be in a nursery program that is housed outside the prison environment. There are currently nine other states with prison nursery programs, but each of them are housed within the confines of the prisons. There has been a series of longitudinal studies (Byrne et al., 2009; Goshin, 2010) that have examined outcomes of prison nursery programs and those studies have uniformly found that the programs help foster attachment between incarcerated mothers and their infants. Those studies have provided important data about programs that can support mothers and babies in prison and foster attachment; however, the programs were also carried out within the walls of the prison. In contrast, the BAMBI program has

created a program in a non-prison environment and may be conducive to mothers' adaptation as they transition back into society. The stated purpose of BAMBI is:

To provide an opportunity for mother and child bonding and attachment, which is important to healthy growth and development, socialization, and psychological development during the infant's formative years, while in a safe and secure environment (TDCJ, n.d.).

The BAMBI program is unique in that mothers are offered an opportunity to live in a dorm-type setting with other new mothers. Criteria for acceptance into the BAMBI prison nursery are short prison sentences (i.e., 12 month or less), no psychiatric issues, no history of injury towards a child, and minimum security risk (TDCJ, n.d.). Participants admitted into BAMBI are identified during the last trimester or immediately after infant delivery. During the last trimester of pregnancy, all pregnant incarcerated mothers within TDCJ sector are transferred to Carol Young Medical Facility (CYMF) in Texas City, Texas, to await labor and childbirth. When labor begins, pregnant incarcerated mothers are transferred to the University of Texas Medical Branch (i.e., UTMB Health) for childbirth. After childbirth and discharge from the hospital with their newborn infant, incarcerated mothers selected for BAMBI are transferred to the BAMBI hostel. Once the mother and baby are united at the hostel, the bonding initiative continues for 12 months or until the mother has served her sentence (TDCJ Executive Services, n.d.).

In addition to providing an opportunity for mothers and infants to stay together after childbirth, the BAMBI program offers parental education classes for mothers to foster healthy infant attachment (Haggerty, 2010). This research study sought to examine the impact of BAMBI prison nursery program on maternal child attachment and nurturing

among graduates of the BAMBI prison nursery program. This was the first research study to examine the possible impact of the BAMBI program since its inception in 2010 and these pilot study findings help to fill a gap in research on the potential impact of this unique community-based program for incarcerated women.

This study may assist in changing public policy since the BAMBI program is legislatively mandated but unfunded at the time of the study's writing. Future studies could evaluate current BAMBI enrollees and provide a pre-and post-assessment of program efficacy and effectiveness, which is not possible with post-assessment only data. In addition, the results of this study may provide the basis for longitudinal research that could examine the long-term impact of BAMBI prison nursery education program on both current and future mothers who graduate from the program.

THEORETICAL FRAMEWORK

Attachment theory is the underlying framework that guides this study of the BAMBI program's effectiveness in fostering maternal-infant bonding in incarcerated mothers. Klaus et al. (1972) initially discussed attachment in the context of human maternal infant attachment as compared to animals imprinting with their young. Klaus et al.'s (1972) study of maternal attachment emphasized the importance of the immediate postpartum period. Twenty-eight first time mothers were divided into control (n=14) and treatment (n=14) groups. The control group received a short contact period with their infants after childbirth, which included 20-30 minute visits every 4 hours for feeding. The treatment group were allowed to hold their newborns within an hour after childbirth and provided with an extended contact throughout the hospital stay. After discharge, the mothers and infants were evaluated in a clinical setting after 28 – 32 postpartum days;

and independent observer administered interview questions, a physical examination of the infants, and videotaped feeding sessions. The researchers observed a special bond between mothers and infants based on increased maternal contact with infants during the postpartum phase (Klaus et al., 1972). The research added to the body of knowledge of the importance of maternal-infant bonding.

For this current research study, Bowlby's (1988) attachment theory was utilized because it provided a meaningful framework for helping to identify and analyze factors that may have influenced maternal-infant attachment among incarcerated mothers during pregnancy and childbirth as well as during and after the post-partum period (Figure 1.1). Attachment theory focuses on the formation of close emotional ties with particular individuals and stresses the influence of parents in child development (Bowlby, 1988). Based on his research, Bowlby (1988) defined attachment behavior as maintaining closeness to a clearly identified individual who is considered to be better able to cope with the world. When the attachment is positive (i.e., the attachment figure is accessible and receptive), there is contentment; however, if the attachment is negative, behaviors such as jealousy, anger, and anxiety may manifest themselves. In addition, attachment behaviors that are developed by one year of age have been found to continue into adulthood (Bowlby, 1988).

One of Bowlby's (1988) most significant findings was based on a longitudinal study assessing pre-and postnatal experiences of mothers with infants and impact on bonding. The length of time a mother was separated from her infant after childbirth was found to be a strong predictor for maternal bonding. This finding is in alignment with earlier results on maternal-infant bonding reported by Klaus et al. (1972). In addition to

the links between maternal-infant interaction and attachment, Bowlby (1988) also found that adverse childhood experiences with attachment may lead to adverse experiences in adulthood with other types of attachment. Thus, secure attachment as an infant is seen as necessary component of child and adult development (Bowlby, 1988). This study used attachment theory to examine maternal infant attachment and nurturing after mothers and infants graduated from the BAMBI program (Figure 1.1).

DEFINITION OF RELEVANT TERMS

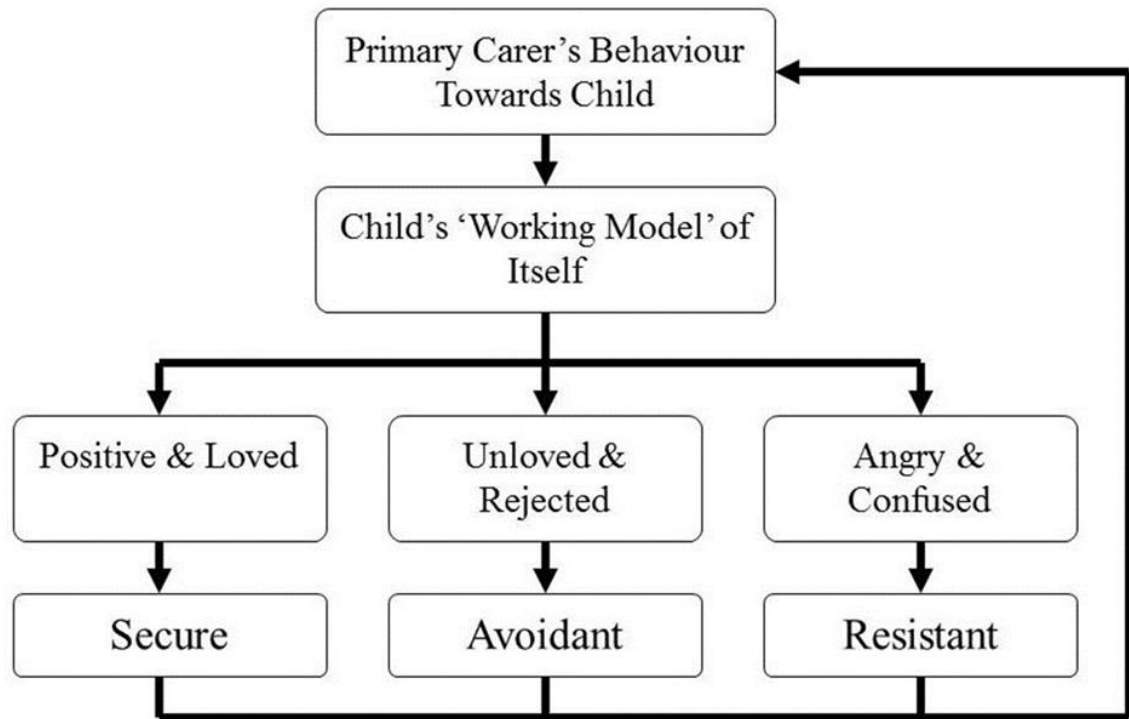
The following conceptual and operational definitions of key research terms were used during the course of this study:

Bonding was conceptually defined as “the parents’ tie toward the fetus” (De Jong-Pleij et al., 2012, p. 84). *Attachment* behavior was conceptually defined as maintaining closeness to a clearly identified individual who is considered to be better able to cope with the world (Bowlby, 1988). The Maternal Attachment Inventory (MAI) is used to operationally define maternal attachment to their infant. The Attachment Q-Sort Questionnaire (AQSQ) is used to operationally define infant attachment to their mother.

The following three factors were operationally defined within the MAI:

- The first factor measures the need for closeness (Shin & Kim, 2007);
- The second factor measures to relaxed behavior during interaction with the infant (Shin & Kim, 2007); and
- The final factor measures with the mother’s understanding of her infant (Shin & Kim, 2007).

Figure 1.1. Attachment Theory Operative Model



In addition, the AQSQ operationally defines attachment via one subscale, with criterion points to operationally define secure and insecure attachment:

- Secure is operationally defined as a score of 72 or above (Robinson et al., 1995); and
- Insecure is operationally defined as a score of below 72 on the AQSQ (Robinson et al., 1995).

Nurturance is conceptually defined as “the emotional climate of the parent-child relationship” (Slater & Power, 1987, p.199) and was operationalized by utilizing the nurturance subscale of The Parenting Dimensions Inventory-Short Version (PDI-S) (Hughes et al., 2005).

STATEMENT OF RESEARCH OBJECTIVES

The primary objective of this descriptive pilot research study was to explore the extent to which the unique prison nursery program, the Baby and Infant Bonding Initiative (BAMBI), may have impacted maternal and infant attachment by assessing BAMBI graduates' maternal-infant attachment and nurturing competency and to explore the relationships between selected demographic characteristics of study participants and current levels of attachment and nurturance.

The rationale for the research was the need to assess the potential impact of the BAMBI program, which has been in operation since 2010 but has never formally evaluated the outcomes of the program on those women and infants who graduated from the program. The goal of this pilot research was to explore whether this unique opportunity for incarcerated women and their newborns to have close contact and receive education on parenting could contribute to positive maternal-infant attachment after release from incarceration.

SPECIFIC AIMS

The following specific aims and related research questions were developed to address the study's research goals and objectives:

Specific Aim 1

To explore the relationships between demographic variables (i.e., length of time in BAMBI, the number of years following BAMBI participation, number of live births), maternal-infant attachment as measured by the MAI (mother's attachment), and AQSQ (infant's attachment) and nurturance in graduates of the BAMBI program.

RESEARCH QUESTION 1.1

What is the relationship between maternal attachment behavior (MAI), infant attachment (AQSQ), and nurturance with selected demographic variables (i.e., length of time in BAMBI, the number of years following BAMBI participation, and number of live births)?

RESEARCH QUESTION 1.2

What are the relationships between the MAI, the AQSQ, and the nurturance subscale from the PDI-S when controlling for time since graduation from BAMBI and length of BAMBI stay?

Specific Aim 2

To explore differences in maternal-child attachment (MAI and AQSQ) and nurturing competency (PDI-S Nurturance) in different demographic subgroups of previously incarcerated BAMBI graduates.

RESEARCH QUESTION 2.1

Are there differences in maternal attachment behavior (MAI) or infant attachment (AQSQ) between demographic subgroups, i.e., marital groups, education, ethnic groups?

RESEARCH QUESTION 2.2

Are there differences in maternal attachment behavior (positive or negative) across demographic subgroups, i.e., marital groups, education, ethnic groups?

RESEARCH QUESTION 2.3

Are there differences on perceived nurturing competency among demographic subgroups, i.e., marital groups, education, ethnic groups?

Specific Aim 3

To assess the contribution of selected demographic and participation characteristics to outcomes on the MAI, the AQSQ, and the nurturance subscale from the PDI-S.

RESEARCH QUESTION 3.1

What are the best predictors of maternal attachment, infant attachment, and nurturance among age, marital status (married/living with other vs. single/divorced/widowed), education (high school or less vs. high school or above), length of time in BAMBI, time since graduation (months), and number of live births?

RESEARCH QUESTION 3.2

What are the best predictors of insecure attachment ($AQSQ < 72$) among maternal attachment, nurturance, age, marital status (married/living with other vs. single/divorced/widowed), education (high school or less vs. high school or above), length of time in BAMBI, time since graduation (months), and number of live births?

IMPLICATIONS OF THE CURRENT STUDY

The findings of this exploratory study provided preliminary data about maternal-infant attachment and maternal nurturance in a sample of formerly incarcerated women who graduated from BAMBI, a unique community-based prison nursery program.

Findings from this study add to exiting research literature about the possible effects of prison nursery programs on maternal-infant attachment and maternal nurturance, especially among mothers in a nursery program housed in a non-prison setting.

While Chapter One provides an introduction to and background information about the study, Chapter Two examines relevant research and scholarly literature addressing issues related to incarcerated women. Chapter Three describes specific methodology and research design for the study and Chapter Four provides detailed statistical analysis of the research questions and findings. Chapter Five presents an in-depth discussion and synthesis of key research findings and a comparative analysis with existing relevant literature as well as recommendations for future research.

Chapter 2: Literature Review

Chapter Two presents a review of selected research and scholarly literature related to the current study, which examined the impact of the BAMBI prison nursery program on previously incarcerated women who gave birth while in prison and participated in this unique program. This review includes an introductory discussion of studies that have examined health care issues and needs, including prenatal care, of women incarcerated in United States prisons, including unique challenges that arise in providing care to pregnant women in a very restricted environment primarily focused on security. Additionally, there is discussion and analysis of research that has explored outcomes of both on-site and community-based prison nursery programs on maternal and infant attachment, maternal nurturance and recidivism. Lastly, there is an examination of literature that addresses pertinent ethical, legal, and policy dimensions of conducting research among incarcerated or formerly incarcerated women who gave birth in prison.

HEALTHCARE ACCESS AND HEALTH STATUS OF FEMALE PRISONERS

There is a lack of substantive research and scholarly literature which has addressed overall health care needs of women who are incarcerated in prisons across the United States although women represent a growing segment of the prison population. While data about health status and access to care of women prisoners has been limited, there is growing evidence from a few recent studies and criminal justice reports that many women prisoners often have serious and sustained health care issues that may have preceded incarceration and thus may come into prison in overall poor health. These conditions may be exacerbated in prison by living conditions and lack of adequate health

care (Harner & Riley, 2013; Maruschak, 2015). The 2011-2012 Bureau of Justice survey of chronic healthcare conditions faced by offenders found that more than half of female inmates reported a current medical issue and had much higher rates of overall chronic medical conditions than male inmates as well as non-incarcerated women. They also have higher infectious disease rates including HIV and other sexually transmitted diseases, as well as higher rates of mental health issues which may be related in part to previous physical abuse and substance abuse (Maruschak, 2015). Although most states provide some level of health care services for female inmates including those who are pregnant, a recent national report based on a comparative analysis of state prison health care services reflects that treatments differ widely across states. Many states reported substantial budget and staffing constraints in providing a range of care to women with chronic illness and to pregnant inmates (Corrections Compendium, 2006).

In response to growing concerns about prisoner access to care, the National Commission on Correctional Health Care (2014) has noted that deliberate indifference to or potential neglect of inmates' health care needs can be considered as a violation of an individual's rights under the Eighth amendment and may constitute "cruel and unusual punishment." They have recommended that state legislatures and the United States Congress address current constraints on healthcare coverage for prisoners (National Commission on Correctional Health Care, 2014). Updated standards of prisoner care indicate the need for more comprehensive healthcare, including adequate pre-and postnatal services for incarcerated pregnant patients.

RESEARCH ON HEALTH CARE ACCESS AND HEALTH STATUS OF INCARCERATED FEMALES

Several research studies have examined health status of and barriers to health care for women prisoners by directly exploring their perspectives. Harner and Riley (2013) utilized qualitative methodologies to study perceptions of incarcerated women about physical and mental health status as well as perceptions about impact of prison on health. The sample included 65 incarcerated women in a maximum-security prison in the United States who volunteered to be part of the study. Data was collected through a series of focus group interviews held in individual prison units and written notes from the interviews were transcribed and analyzed through the process of content analysis. Researchers identified four major themes or ways that participants believed prison had impacted their health including limited access to healthcare, poor nutrition, lack of exercise, as well as increased smoking habits (Harner & Riley, 2013).

Respondents also noted barriers that interfered with receiving health care including prison requirements for inmates to make co-payments for health visits and long wait times to see a health professional after reporting an illness. Some female prisoners were advised by health professionals to delay routine health screenings including gynecological exams and pap smears until after their release from prison. Many expressed beliefs that receiving medical care was tied to length of sentence and that those with very long or life sentences were least likely to receive medical care. Study limitations included a small sample size which limited the range of perspectives expressed in focus groups and the lack of confirmation of information about health status and access to health services through prison medical and health records (Harner & Riley, 2013).

Similar findings were noted in a mixed-methods study by Aday and Farney (2014), which investigated the health status of 327 older women (i.e., mean age of 56) in seven United States prisons in Southern states. Researchers explored participants' health status prior to and during incarceration through a standardized questionnaire with open-ended questions. The majority of the sample indicated a substantial decline in health due to incarceration and reported negative perceptions of prison healthcare workers. These older prisoners also noted that the co-payment requirement was a barrier to receiving medical care which was similar to findings about medical co-pays reported by Harner and Riley (2013). One of the strengths of Aday and Farney's (2014) study was the relatively large sample size but a limitation was the researchers' inability to compare prisoners' questionnaire data and oral comments with prison medical charts.

Stanton-Tindall et al. (2006) used a random sampling method to determine differences in healthcare utilization between prisoners in rural areas and urban areas. In comparing healthcare utilization, participants from rural prisons had a statistically significantly ($p < .01$) higher hospital admission rate compared to urban prison counterparts; however, participants located in urban areas used healthcare services more often than rural participants. And while not statistically significant, there was a report of an increase in transport times to the hospital for incarcerated women in rural areas; overall, however, both groups reported adequate access to care (Stanton-Tindall et al., 2006).

The above referenced studies underscore the myriad issues that incarcerated women as a whole face in accessing healthcare especially in light of the many pre-existing and chronic conditions they present with as well as the range of environmental

stressors in the prison setting that may exacerbate existing physical and mental health issues.

PRENATAL HEALTHCARE NEEDS AND SERVICES

Many of the underlying health issues that affect the general population of women in prison may be further compounded by pregnancy and are addressed in this section on pre-natal care. Ferszt and Clarke (2012) examined United States pregnant prisoners' access to healthcare via a survey of prison wardens who were queried about their prisons' services for pre-natal care, childbirth and parenting classes, childbirth delivery facilities (i.e., onsite or in non-prison hospital), as well as policies regarding use of restraints during pregnancy and labor. A total of 19 wardens from across the United States participated in the survey and the group reported an overall average of 92.8 pregnant women in their prison populations. One of the most significant findings to emerge from the study was that 89% of the wardens reported not having a prison nursery program, although those wardens did support the need to implement such a program. Sixty-three percent of the respondents reported that they had infirmaries in their prisons but transported pregnant women to a designated hospital for delivery or for emergency care during pregnancy. Less than half of the prison warden participants (32%) indicated that breast feeding support was provided to pregnant inmates post-delivery while 42% of participants identified their facilities as having available parenting classes for incarcerated pregnant woman (Ferszt & Clarke, 2012).

Based on survey data, Ferszt and Clarke (2012) concluded that while most facilities provided some level of health care for pregnant inmates, there was wide variation in the types and quality of care across the prisons represented in the study. One

important finding from the study was that many wardens reported substantial challenges in providing health care to female patients with complicated pregnancies and co-morbidities, as well as in assuring that pregnant prisoners receive adequate nutrition during pregnancy. The wardens also noted difficulties related to the issue of helping find homes/placements for the infants born to women in their prison facilities (Ferszt & Clarke, 2012).

In an effort to specifically examine pregnancy outcomes of incarcerated women, Howard et al. (2011) conducted a study of 360 pregnant women in Texas Department of Criminal Justice (TDCJ) during 2002-2004. Data on infant birthweight and pregnancies were collected from electronic medical records and Child Protective Services (CPS) data, and analyses were performed via linear regression modelling. Survey results indicated that infant birthweights were higher in cases where mothers were incarcerated during the first trimester versus mothers who were incarcerated after the first trimester. One of the researchers' conclusions was that the higher birthweights of infants whose mothers were incarcerated earlier in pregnancy may have been related to accessibility to medical care within the prison system. A possible study weakness was that the statistical method of the relationship between maternal pregnancies and infant birthweight could be due to possible effects of incarceration (Howard et al., 2011).

Grubb and Carmen (2016) provided informative data about state statutes related to pregnant prisoner healthcare that was derived from secondary analysis of reports by judicial systems in 42 states. This review of statutes primarily examined prenatal care as well as childbirth, postpartum care, and counseling for inmates. Data analysis reflected that 31 states statutes addressed the need for some type of prenatal care for pregnant

inmates, but often did not provide specific details. Only two states, California and Pennsylvania, had existing statutes that provided specific guidelines regarding care of the pregnant offender mother. Of note, California provided family planning information to all female prisoners and waived use of prison restraints except in the interest of safety. In addition, California social workers were available for the placement of children born while their mothers were incarcerated. California used guidelines to ensure that childbirth was safe and that pregnant incarcerated women were provided with a 6-week postpartum hospital visit. In addition, drug withdrawal treatment care was provided to incarcerated mothers who had drug addictions. Pennsylvania statutes authorized administration of prenatal vitamins, education classes, and tuberculosis testing for pregnant offender mothers. Also, Texas had a program that identified pregnancy complications attributed to alcohol abuse (Grubb & Carmen, 2016).

A few states statutes specified that family members of the pregnant offender could be present during the delivery. In terms of delivery, only 13 states specifically required transport of mothers to outside hospitals for labor and delivery. Grubb and Carmen (2016) noted that this was an important finding since many prison infirmaries are not equipped to deal with labor and delivery especially for high risk or complicated patients. One of the most startling findings from Grubb and Carmen's (2016) research was that many state statutes allow pregnant prisoners to be restrained or shackled during the third trimester of pregnancy and during labor even though most of these women are not considered to be violent or to be a flight risk. Restraints during the last trimester of pregnancy and labor are considered to be potentially harmful to the mother and baby and possibly violate the mother's Eighth Amendment rights against "cruel and unusual

punishment”. The ACLU (2012) has noted that 18 states including Texas either prohibit or restrict restraints of pregnant inmates. The other major finding based on Grubb and Carmen (2016) analysis of state statutes is that many states specifically restrict mothers’ contact with newborn babies and only a few states provide for prison nurseries. (Grubb & Carmen, 2016).

PROGRAMS FOR INCARCERATED WOMEN’S HEALTH AND SUPPORT

Various programs have been implemented to facilitate positive healthcare outcomes for incarcerated women. One such program is *MOMS Plus*, which is located in Seattle and was developed to support prenatal care for underprivileged, substance abusing, pregnant women and incarcerated women (Lorenzen & Bracy, 2011). Prenatal care is provided by the jail services, i.e., delivery occurs through a local hospital, and enrollees receive drug counseling and breastfeeding education. *MOMS Plus* is important because correctional staff use the program as a bridge for post-incarceration care of pregnant offenders. After delivery, birth control methods such as contraception education are provided to participants. The benefit of being enrolled in a program such as *MOMS Plus* is that Child Protective Services (CPS) is minimally involved with enrollees after graduation (Lorenzen & Bracy, 2011).

In addition to programs focused on prenatal care, other incarcerated female research focused on access to health screening services by incarcerated females. Khavjov et al. (2007) studied one such program, i.e., “Well-Integrated Screening and Evaluation for Women Across the Nation (*WISEWOMAN*),” by comparing cardiac health of non-incarcerated, low socioeconomic status (SES) women and incarcerated women at a South Dakota prison during 2004 – 2005. Groups were measured based on the variables of

hypertension, hypercholesterolemia, smoking, and obesity. Demographic data revealed that non-incarcerated *WISEWOMAN* participants were more highly educated than incarcerated counterparts. Results indicated cholesterol levels were higher in the non-incarcerated group, perhaps due to healthier meal options, and smoking levels were lower in the incarcerated group because the prison was non-smoking. Yet unawareness of diagnoses of hypercholesterolemia for incarcerated women was significantly higher in incarcerated individuals. Finally, medication adherence for hypertension and hypercholesterolemia was higher for non-incarcerated participants. Study strengths included the availability of the *WISEWOMAN* database to verify health history of all participants and access to a lengthy period of data collection (Khavjov et al., 2007).

OVERVIEW OF PRISON NURSERY PROGRAMS

A significant issue faced by the growing number of women who enter prison while pregnant and deliver during that time include having access to safe deliveries and good infant care. In addition, incarcerated women who have given birth in prison may require adequate time after childbirth to spend with and bond to their newborn baby in a supportive environment. They also want and need to secure long-term placement for their infant while they complete their prison sentence. In response to this need, a number of prison nursery programs have been developed across the country during the past decade to help ensure that mother-baby dyads can live together for a period of time after childbirth. One of the primary goals of these programs is to help foster bonding and attachment between mothers and children that will hopefully carry over into post-incarceration life.

Differences between programs exist: in South Dakota, mothers and infants stay together for one month after delivery, whereas California prison nurseries allow both newborn infants and other children aged six years or less to live with their mothers. In Washington, pregnant incarcerated women who have prison sentences of less than three years are enrolled in prison nursery programs to provide new mother education and encourage mother-child bonding (Fearn & Parker, 2004). Indianan prison nurseries focus on breastfeeding, infant growth, and family therapy (Tomlin, 2012). New York has two nursery programs that provide up to 18 months of mother-child cohabitation. While the focus of the prison nursery is on infants born during incarceration, other infants who are less than one year old and born outside of prison may be granted special permission to be united with their mothers (Goshin, 2010). New York's program is similar to UTMB's BAMBI prison nursery, which allows mothers with short prison sentences (i.e., 12 months or less) who delivered while incarcerated to participate in the program.

Research on Live-in Nursery Programs

Carlson (1998) evaluated a newly established live-in prison nursery program in Nebraska during a two-year period. Program goals were to allow mother-infant dyads to cohabitate for at least 18 months after childbirth, promote bonding, improve parenting skills, and decrease recidivism. Participants received education on childcare and child development, and data collected indicated average length of program stay post-delivery was 2.16 months. Participant recidivism rates decreased from 17% prior to program implementation to 5% after program implementation, and 73% of respondents reported stronger bonding with their infants. Study strengths included the two-year data collection period while a study limitation was the small sample size (Carlson, 1998).

Fritz and Whiteacre (2016) conducted a qualitative study comparing childbirth experiences of 15 previously incarcerated women who participated in an Indiana prison nursery program (i.e., “*Wee Ones Nursery (WON)*”) and 12 incarcerated women who had been separated from their infants prior to program implementation. In contrast with other programs, Indiana allowed pregnant incarcerated women to choose a support person (i.e., family or friend) to be present during labor.

During labor, 58% of non-*WON* participants and 47% of *WON* participants indicated a lack of support from either family or friends. Participants indicated that communication gaps hindered the ability of support persons to arrive on time or attend the birth at all. Moreover, participants were unhappy that support persons were required to leave within 30 minutes after childbirth (Fritz & Whiteacre, 2016). One difference observed between the groups was that the non-*WON* group was separated from their infants after the visitation period following childbirth. Non-*WON* mothers described the uncertainty of available caregivers and the heartbreak of infant separation.

During the postpartum period, a majority of the *WON* participants (i.e., 60%) chose breastfeeding as a primary mode for infant nutrition. When describing their experiences in the prison nursery, the *WON* group described the program positively and expressed positivism about the kindness of *WON* staff in meeting mother-baby needs. In addition, *WON* participants encouraged others to enter the program (Fritz & Whiteacre, 2016).

To supplement data from prisoner surveys, Campbell and Carlson (2012) studied prison nursery perceptions of senior correctional staff (i.e., wardens or administrators) in all-female facilities. Recruitment was open to all 50 states, and 28 states (i.e., 20 states

without a prison nursery and 8 states with a prison nursery) responded. Half of the states without a prison nursery program indicated unfamiliarity with prison nurseries, but most respondents expressed interest in learning more about such programs. Some concerns included the expense of creating prison nursery programs, securing a location to implement nursery programs, and the perception that public citizens would not support implementing nursery programs in correctional settings (Campbell & Carlson, 2012).

Although most states differ in the amount and methods of care provided to incarcerated females, the studies above suggest that prison nursery programs provide benefits to mothers and children. This benefit was evidenced by incarcerated women who kept their infants after childbirth through prison nursery programs. Yet most states prisons remain unfamiliar with the concept of prison nurseries and do not have prison nurseries available to their prisoners.

OUTCOMES OF CHILDREN RAISED IN PRISON NURSERY PROGRAMS

Several studies have linked incarcerated mothers' infant attachment levels to mothers' prolonged interactions with infants in prison nursery programs. Byrne et al. (2009) used several instruments, including the *Strange Situation Procedure* (SSP) and *Adult Attachment Interview* (AAI) scales, to examine attachment levels of 30 infants who lived with mothers in a prison nursery program. The study assessed the differential quality of attachment of infants and mothers who spent at least a year in prison nurseries as compared to mothers and infants who spent less than a year in nursery programs due to parole. SSP measured infant confidence with the mothers' availability to explore stressful situations, while AAI measured adult perspectives on attachment. Results indicated that "secure" attachments were more prevalent among mother-infant dyads who spent a year

or more in nursery programs than for those who spent less than a year in the program. The authors hypothesized that those differences may have been related to paroled mothers' time commitments to finding work and housing, which in turn reduced time allocated to infant care (Byrne et al., 2009).

Goshin (2010) examined the psychological status of 47 preschool children who stayed with their incarcerated mothers for up to 18 months (i.e., average stay of nine months) in prison nursery programs until the time of their mothers' release. A comparative group of 64 children who were separated from their mothers as an infant or toddler due to maternal incarceration was used as a baseline. Study instruments included the *Child Behavior Checklist*, which was used to evaluate issues related to a child's attitude, and the *Adaptive Social and Behavioral Inventory* scale, which was used to assess the preschooler's abilities. Results indicated that 42% of children who were separated from their mothers had high levels of maladjustments indicative of aggression whereas 30% of children who resided in a prison nursery program with their mother had similar aggression levels. In addition, children living in prison nurseries with their mothers were less likely to be anxious or depressed when compared to children who were separated from their mothers. Limitations for this study included the inability to randomize prison nursery participants and the possibility of undocumented or undisclosed maternal incarceration in the national database (Goshin, 2010).

Borelli et al. (2010) evaluated maternal attachment of 69 incarcerated women residing with infants in a prison nursery program. The research investigated associations between levels of infant attachment; histories of substance abuse; maternal attachment; and concepts such as depression, parental knowledge, and perceived communal

assistance on adjustment and parenting. The study used several instruments: the *Adult Attachment Interview scale* (AAI), a 20-item semi structured interview questionnaire, the *Center for Epidemiologic Studies- Depression Scale* (CES-D), the *Sarason Social Support Questionnaire*, and the *Parenting Sense of Competency Scale*. Results indicated study mothers had lower secure attachment rates than the general public considered low-risk, similar rates as low SES individuals, and higher rates than other prison nursery samples (Borelli et al., 2010).

All of the studies described above suggest that prison nursery programs provide measurable benefits, especially in terms of fostering attachment between mothers and children. In addition, the placement of infants in prison nurseries has been associated with better emotionally adjusted children than children who were separated from their mothers at birth. Mothers who participated in prison nurseries were also reported to have improved attachment behaviors with their children.

ALTERNATIVE COMMUNITY AND NON-INCARCERATED COMPARISON

As previously described, the use of prison nursery programs has been shown to be associated with development of securely attached infants to mothers and also promoted incarcerated women's attachment to and nurturance of their newborns. Although most prison nurseries are located within prisons, some facilities operate their programs in external, alternative community settings. One example of an alternative community-based nursery is *Tamar's Children*, which is a 15-month jail diversion intervention program designed for 20 non-violent pregnant offenders with a history of substance abuse (Cassidy et al., 2010). This program has two distinct phases: the first is a residential phase, in which women reside in the *Tamar's Children* facility during pregnancy and

delivery until infants are six months old; and, a second phase, in which women and infants live in community housing from 6 to 12 months of age. Program participants received education classes focused on maternal sensitivity and infant attachment.

In an effort to explore the outcomes of the program on maternal and infant attachment and maternal sensitivity, Cassidy et al. (2010) did a comparative analysis of 20 mothers and infants who were enrolled in *Tamar's Children*, with an infant population from a meta-analysis study of infant attachment. Study results indicated there were secure attachment bonds in 70% of the mother-infant pairings in the Tamar's Children group. This level of attachment was significantly higher than attachment rates in infants noted in the meta-analysis whose parents suffered from depression, were of low socioeconomic status, engaged in substance abuse, or maltreated their infants. One of the major conclusions from this study is that mothers who participated in this jail diversion program could potentially have the requisite knowledge and skills to raise securely attached infants (Cassidy et al., 2010).

Byrne et al. (2009) conducted an intervention study of maternal-infant attachment among two groups of mothers and infants who had been enrolled in a prison nursery program. Group one spent at least a year in the program; and, group two, were mothers who were enrolled in the program for less than one year. Individuals were discharged from the program and living in a community setting with their infants after parole. Results revealed that mothers and infants enrolled in a yearlong residency prison nursery group had higher rates of secure attachment than those mothers who spent less than a year in the program and were living in the community. Results suggested that prison nursery programs of at least a year's duration may help promote stronger mother-infant

bonds and attachment when compared to mothers who spend less time in a prison nursery program (Byrne et al., 2009).

The Byrne et al. (2009) study reinforces the need to establish at least yearlong programs within the prisons as well community based programs for women who are paroled. This is important since insecure attachment in infancy has been correlated with higher rates of aggressive behavior in adults (Fearon et al., 2010) and also has been associated with future internalization of symptoms such as depression, anxiety, social withdrawal, and somatic complaints (Groh et al., 2012).

RECIDIVISM

Several research study findings have suggested that participation of incarcerated mothers in prison nursery programs is correlated with reduced recidivism rates among this group of mothers once they have been discharged from prison. For example, Goshin et al. (2013) analyzed recidivism rates among a sample of 139 mothers who lived with their infants in a New York prison nursery from 2001 to 2007. It was found that incarcerated women who participated in the prison nursery program had an overall lower re-incarceration rate of 4.3% as compared to a rate of 8.9% for non-prison nursery participants (Goshin et al., 2013).

Kubiak et al. (2010) conducted a longitudinal intervention study which explored the extent to which placement of incarcerated women in nursery programs in alternative community settings could help prevent mothers from returning to prison and being separated from their children. The intervention group included 48 mothers enrolled in the community-based program and a control group of 36 pregnant incarcerated women who did not enter the program due to various reasons. Data were collected on mother-infant

pairs over a 10-year period using vital statistics data from child welfare and criminal justice sources. Study results indicated lower recidivism rates in the intervention group than in the control group. Of note, 100% of treatment group mothers had custody of their children at one point after release compared to only 57% of control group mothers.

Stanley et al. (2015) evaluated a birthing support center that aimed to decrease recidivism in previously incarcerated women. The *East Bay Community Birth Support Project* was developed as an 18-month training tool to provide eight low SES women and eight previously incarcerated women with education on how to provide support to others during childbirth, “doula”, which offered employment potential and social acceptability. Data collection was accomplished via questionnaire, focus group participation, and separate interviews. Participants indicated the doula program offered increased confidence, proficiency, and job opportunities, while the short time-span of the program was viewed as a deficiency. Upon program completion, 87.5% of the trained women had supported 60 laboring women during childbirth. No participant who engaged in the doula training were reported to have returned to prison. A limitation of the study was that non-incarcerated women were not used as a comparison group. A study weakness was that previously incarcerated women were compensated, and thus results could have been affected by relative income levels (Stanley et al., 2015). Nonetheless, providing opportunities such as prison nurseries or job opportunities for incarcerated and previously incarcerated women has a potential to positively affect recidivism, which in turn can help to keep family units together.

Mothering After Prison

A major issue affecting incarcerated and non-incarcerated women is the lack of resources and income, as prison discharge does not resolve inequality concerns. In fact, previously incarcerated woman may gain new responsibilities following prison release, including child care, economic pressures, and parole requirements. Hayes (2008) conducted a phenomenological study about the experiences of motherhood after release from prison. Study participants reported that children who reunited with their previous incarcerated mothers exhibited insecure attachment behaviors. Moreover, children attached more strongly to their caregivers and less intensely with their biological mothers. Previously incarcerated mothers also felt there were competing demands to meet justice system requirements and attention needs of their children. Other factors identified included issues in locating adequate jobs and housing. Although saturation was claimed, the small sample size (n=2) was a limitation. The study authors concluded that mothers returning from imprisonment confronted social pressures such as unemployment, which were compounded by having maladjusted children. Thus, children remaining with mothers in prison nursery programs may positively affect attachment for both mothers and children (Hayes, 2008).

FOREIGN HEALTH AND NURSERY PROGRAMS

Some European studies have addressed the health of incarcerated mothers, maternal attachment, and health of infants within prison nurseries. Slead et al. (2013) investigated an attachment-based group intervention for mothers and babies in seven UK prisons, using a longitudinal methodology. Participants (n=88) from three prison units comprised the intervention group, which participated in an attachment course, i.e., *New*

Beginnings Program; and, the control group (n=75) consisted of the four remaining prison units. The *New Beginning Program* was an 8-week course designed to enhance the attachment relationship between mothers and babies. Sample populations were assessed on the same measures of instruments such as *Parent Development Interview* (PDI), *Center for Epidemiologic Studies Depression Scale* (CES-D), and *Mother's Object Relations Scales* (MORS). Results indicated a decline in the quality of maternal-infant attachment in the control groups, i.e., those who did not participate in the *New Beginning Program*. Study limitations included inequality of the sample and increased attrition during the study (Sleed et al., 2013).

Tarabulsky et al. (2005) reviewed attachment behavior of non-incarcerated younger individuals and their infants in Canada. Infants were assessed at six months of age and again at 10 months of age. The study found a correlation of insecure attachment with lower education levels (Tarabulsky et al., 2005), which was consistent with Sleed et al.'s (2013) results. Taken together, the data suggest the importance of pairing education with prison nursery programs.

Ferrara et al. (2009) conducted a retrospective study comparing the health of 150 children living with mothers in an Italian female prison, 150 children living with Italian parents, and 91 children living with non-Italian families. The study noted a gestational age of less than 37 weeks for pregnant incarcerated Italian women, which resulted in lower infant birthweight for the prison nursery group when compared to Italian and foreign-born community infants. The study identified that children who lived with their mother in prison were a vulnerable group who reported an increase in child illnesses (Ferrara et al., 2009). These study results differed from that in United States research,

which indicated positive benefits of infants born to incarcerated mothers (Howard et al., 2011). One difference between this study and the BAMBI program is that the children in this study were permitted to stay with their mothers up to three years in age, whereas BAMBI has a 12-month age limitation. Similar to BAMBI, mothers were removed from prison environments, which may have allowed for bonding in less restrictive surroundings.

Birmingham et al. (2006) evaluated mental health and needs of 59 incarcerated mothers living with their infants in four UK prison nursery units. The study aimed to find undiagnosed psychiatric problems faced by women in prison nurseries and associated risks to mothers and children. Through interviews, participants described their mental health status, which were then compared to prison and medical records. Thirty-five percent of the sample reported a history of psychiatric and personality disorders; 31% of participants were referred for additional psychiatry screenings and of those, 16% were diagnosed with depression. Researchers concluded that prison and healthcare officials who conduct screening are effective except in screening for depression. Further, researchers were concerned with the lack of complete medical records as they related to depression. A study strength was use of validity confirmation, and a weakness was the small sample size (Birmingham et al., 2006).

Freitas et al. (2016) conducted a qualitative study centered on motherhood and prison for 20 Portuguese women, for whom having their children cohabitate is an elective. The study aimed to detail benefits of women who choose this option and compare their experiences to a control group. Half the participants of the research (n=10) were raising infants in prison while the remaining participants (n=10) had children who

were being raised by caregivers outside of prison settings. While some mothers were grateful to cohabitate with their children, both groups described prison as being a suboptimal environment for child-raising. Some mothers indicated that the decision to cohabitate with their children was because they lacked external caregivers (Freitas et al., 2016).

Studies involving foreign prison nurseries have demonstrated that raising securely attached infants is possible but not without obstacles. These issues include low infant birthweight; inadequate diagnosis and treatment for maternal depression; and the inadequacy of prison environments for child wellbeing.

HEALTHCARE AND NEEDS AFTER INCARCERATION

A series of related studies have also explored health care needs that pregnant incarcerated women faced after discharge from prison. Clarke et al. (2006) investigated STD rates and reproductive health needs of 484 incarcerated women in a Rhode Island detention center. A large portion of the sample (42.8%) described engaging in sexual relationships after release, but only 27.9% reported consistent use of birth control. The coupling of high STD risk with a lack of consistent birth control use suggested a need for reproductive health services for incarcerated women prior to their release (Clarke et al., 2006).

Colbert et al. (2013) conducted a mixed method study to identify health needs and resources of 34 women who had been recently released from prison. Eleven of the thirty-four women participated in qualitative interviews and 94% of that group reported having one or more current medical issues and 64.7% reported a history of a psychological disorder including depression. Based on further analysis of interview data, the

researchers identified several key themes that respondents reported about their health care while in prison including limitations in resource acquisition such as scarcity of medications and lack of caring healthcare staff as well as negative health consequences including malnutrition. Importantly, some research participants noted that incarceration could provide a stable environment in which women prisoners could receive needed drug and alcohol rehabilitation (Colbert et al., 2013).

Ramaswamy et al. (2015) reviewed procreative and sexual health priorities for 28 women who were released from jail within six-month span. Only 14% of women indicated that health had been a priority prior to being released from jail, and they emphasized the benefit of having annual health exams. However, most of the recently released women did not place importance on health care due to lack of resources and access to care. Rather they identified their most immediate needs as securing housing, employment, and access to their children (Ramaswamy et al., 2015).

Ethical and Legal Issues in Prison Research

The conduct of research with prisoner populations presents unique ethical and legal challenges due to prisoners' designated status as a vulnerable and protected group which requires institutional scrutiny and oversight to ensure that their rights are protected. There is additional scrutiny when research involves women prisoners who are pregnant and give birth during incarceration as well as when research focuses on those women who have been previously incarcerated but now living in the community.

Some of the unique challenges researchers have encountered in prison studies have been described by Byrne (2005) and Eldridge (2012) and are noted in the following discussion. Byrne noted several issues in research involving women prisoners, including

being accepted and trusted as a researcher in the prison environment, accessing prisoners for time-limited interviews, and protecting privacy and confidentiality of prisoner interviewees. Additional issues include trying to adhere to accepted scientific standards of research in a restricted environment and the often limited ability to conduct longitudinal studies. One of the strategies that Byrne utilized to protect prisoner confidentiality was to apply for a Certificate of Confidentiality prior to conducting the study which shielded prisoner information from legal requests (Byrne, 2006). Such strategies may guide health professionals' future research with prisoners.

Ethical issues in prison research were also explored by Eldridge et al. (2012), who utilized qualitative methodology to examine challenges in conducting HIV/AIDS research in correctional facilities. The study sample of 92 participants included researchers, members of IRB teams, ethicists, and prison administrators who responded to inquiries about the most ethically challenging issues they had encountered in HIV research with prisoners. Data analysis indicated that core themes of concern included confidentiality and privacy (40.2%); consent, autonomy, coercion, and undue influence (35.8%); and justice and access (18.5%). Concerns related to confidentiality were closely related to the prison environment where privacy of those participating in studies was very limited due to security issues and could result in other correctional staff or inmates possibly learning of the research and inadvertently violating prisoners' confidentiality. Participants in this study also expressed concerns that prison supervisors could coerce inmates by emphasizing the importance of prison research, and potentially violate the principles of autonomy and informed consent. The study also raised issues about the use of incentives provided by the researcher as a means of coercing inmates' research

participation and also questioned whether prisoners actually received those incentives since there was not follow-up with the prisoners (Eldridge et al., 2012).

As reflected in the above discussion, it is clear that there are substantive ethical, legal and policy issues that must be addressed in prison-related research especially with pregnant women who give birth while in prison. While it is vitally important to continue to study their overall health care needs as well as pregnancy, childbirth experiences, and abilities to bond with and nurture their infants in prison environments, it is also critical to insure that their privacy, confidentiality, and human rights are protected in the process of conducting and reporting research.

SUMMARY

As reflected in the review of research and related literature, women of childbearing age are the largest growing segment of prison populations across the United States (Zust et al., 2013); an estimated 5% of those women are pregnant when they are incarcerated (Bureau of Justice Statistics, 2013). A series of studies have underscored that many of these pregnant women prisoners often have complex co-morbidities including a range of chronic illnesses; and frequently, mental health issues that may be related to past physical abuse and /or substance abuse (Aday & Farney, 2014; Harner & Riley, 2013; Maruschak et al., 2015).

A number of studies have found that prison environments may exacerbate pregnant women's physical and emotional illnesses due to limited access to good health care that addresses chronic health issues including mental health and substance abuse as well as specialized pre-natal health care, with well-defined procedures for treatment of women with high-risk pregnancies (Ferszt & Clarke, 2012; Harner & Riley, 2013). These

studies reinforced the critical need for expectant mothers and developing babies to have access to good quality pre-natal and post-natal care.

Several studies also noted the stark reality that many prisons continue to subject pregnant women to unsafe and inhumane policies such as shackling or restraining them during medical treatments, including labor and delivery (Griggs, 2011; Grubb & Carmen, 2016). These unsafe practices can clearly be harmful to both pregnant women and their unborn babies, but may also be a violation of the mothers' civil rights.

This review also explored research that examined the impact of separating mothers and infants at birth as well as the potential positive effects of prison nursery programs on maternal and infant attachment. Although this research has been limited in the past, there is currently an evolving body of research addressing these issues.

Chambers' (2009) seminal work called attention to the anguish felt by mothers who had limited contact with infants after birth and had expressed a desire to be more involved with their infants. Byrnes et al. (2009) extensive studies that examined existing prison nursery programs in New York, and found these programs can enhance maternal-infant attachment and help foster maternal nurturing and parenting skills that are sustained over time upon release (Byrne et al, 2009). Several studies have also found that mothers' involvement in prison nursery programs play a role in helping lower recidivism rates among formerly incarcerated women (Carlson, 1998; Goshin et al., 2013).

This body of related literature and research not only underscored the rationale for the current study on BAMBI mothers and infants, but also informed the investigator's overall research process and influenced the development of research questions, methods,

and analysis, including comparative analysis between the author's findings and other researchers.

Chapter 3: Research Design and Methods

The focus of Chapter Three is to describe the central research objectives, specific aims, and research questions pertaining to each specific aim. In addition, there is a comprehensive discussion of research methods including research design, population sample, instruments, as well as data collection methods and methods of analysis.

OBJECTIVE AND SPECIFIC AIMS

The overall objective of this research was to examine the impact of BAMBI, a prison nursery program, by assessing BAMBI graduates on maternal-infant attachment and nurturing competency. The rationale for this research was the need to do a systematic study to explore the impact of this unique program on mothers and infants since the BAMBI program had not engaged in formal research to assess various outcomes of the program since its inception in 2010. The goal of this pilot research was to explore whether this type of unique opportunity for incarcerated women and their newborns to have close contact and receive education on parenting could contribute to positive maternal-infant attachment after release from incarceration.

METHODS

Research Design

An exploratory, descriptive research design was used to evaluate characteristics related to maternal attachment, infant attachment, and nurturing competency of previously incarcerated women after successful completion of the BAMBI program.

Instruments

DEMOGRAPHIC DATA SHEET

The demographic data sheet was created specifically for this study. The data sheet collected information such as age grouping, ethnicity (e.g., American Indian, Hispanic, Black/African-American, White, Asian, other), marital status (e.g., single, married, separated or divorced, widowed), and highest level of education (e.g., graduate degree, bachelor's degree, associate degree, some college, high school graduate or GED, did not complete high school). In addition, information regarding whom the BAMBI baby resided, number of children born to the BAMBI graduate, time since BAMBI graduation (years), and length of time (months) as a BAMBI participant, and an open-ended question about experiences during BAMBI prison nursery stay were collected using the demographic data sheet.

MATERNAL ATTACHMENT INVENTORY (MAI)

The MAI consists of 26 self-report items rated on a 4-point Likert scale (e.g., 1=*almost never*, 2=*sometimes*, 3=*often*, 4=*almost always*). The questionnaire was developed as a means to evaluate maternal fondness in attachment. Attachment theory formed the conceptual framework for MAI; it was noted that affection for infants that developed during pregnancy extended beyond the postpartum period (Muller, 1994). The range of scores for the MAI is 26 to 104, with higher scores indicating higher levels of attachment (Muller, 1994).

Shin and Kim (2007) evaluated the psychometric properties of the MAI instrument in a Korean sample, after translation to Korean language, utilizing a factor analysis. In their study, 196 postpartum women were provided with the 26-item MAI

questionnaire six weeks after childbirth. Three factors were identified: the first factor dealt with the need for closeness, the second factor pertained to relaxed behavior during interactions with infants, and the final factor addressed mothers' understanding of their infants. Results indicated that Cronbach's alpha ranged from .65 to .94 for the identified factor structures; however, Cronbach's alpha for the total instrument was .94 (Shin & Kim, 2007).

ATTACHMENT Q-SORT QUESTIONNAIRE (AQSQ)

The AQSQ is a 12-item instrument with a set criterion point that defines secure and insecure attachment. A score of 72 or above denotes secure attachment. Items on the scale are measured on a 9-point Likert scale. Survey participants are asked to identify level of agreement for their children's behavior, which ranges from very unlike my child (1) to most like my child (9). The AQSQ was modified from the 90-item Q-sort instrument developed by Waters and Dean in 1985. The modification of the 90-item Attachment Q-sort instrument into the 12-item AQSQ was designed to focus on attachment (i.e., secure and insecure) alone. The rationale for this change was to reduce time obligations of completing the entire instrument for research participants (Robinson et al., 1995). In addition to the 12-items, AQSQ contained two open ended questions asking about relationship and feelings for the study child. Separately, a study evaluated the degree of attachment between mothers and children with developmental delays, and reported a Cronbach's alpha for the sample as .70 with the use of AQSQ (LaMont, 2010).

PARENTING DIMENSIONS INVENTORY—SHORT FORM (PDI-S)

The PDI-S is used to evaluate parenting as it relates to support, control, and structure. The subscales of the PDI-S consist of nurturance, consistency with discipline, organization, control, and tolerance (Hughes et al., 2005). For the purpose of this study, only the nurturing subscale of the PDI-S instrument was used. The PDI-S nurturing subscale consists of six items on a six-point Likert scale, ranging from not at all like me (1) to exactly like me (6) (Slade & Power, 1987). Raw scores for the nurturing subscale ranged from 6 to 36, with higher scores indicating increased level of nurturance. Cronbach's alpha for nurturance at development was reported as .76 (Slade & Power, 1987).

The PDI-S was used by Affrunti et al. (2013) in a study on peer victimization and nurturing parenting in relation to fear and anxiety of children. The sample size consisted of 124 parent and child groups. Cronbach's alpha for the nurturing subscale for the study sample was .73. Findings for the study supported the idea that nurturing parents have a significant indirect consequence on peer victimization pertaining to fear and child anxiety ($p = .042$) (Affrunti et al., 2013).

Setting, Population, and Data Collection

The current study included women who participated in the BAMBI prison nursery program, which is housed at the Santa Maria Hostel in Houston and under contract with the Texas Department of Criminal Justice. BAMBI prison nursery participants comprise of a total population of 215 graduates; however, the PI had access to a sample of 180 BAMBI graduates. Participants were recruited following their graduation from the BAMBI program and subsequent release from prison using mail, word of mouth (i.e.,

snowball sampling), and through the online BAMBI alumni Facebook page maintained by the BAMBI program manager. Online administration of the demographic data sheet, MAI, AQSQ, and PDI-S nurturance subscale were administered to evaluate links between study variables across BAMBI graduate characteristics (e.g., age groups, education, number of children, number of years since BAMBI graduation). A brief introduction to the Principal Investigator (PI) and the link to the survey was posted on the BAMBI Alumni Facebook page by the BAMBI program manager. In addition, 180 paper copies of study materials containing the exact information displayed online, and a self-addressed stamped envelope to send to all BAMBI graduates for return of the survey, were provided to the BAMBI care manager at the Santa Maria Hostel. This system was employed to preserve anonymity and confidentiality in this vulnerable population.

Inclusion and Exclusion Criteria

Previously incarcerated pregnant women (i.e., women who were no longer in prison) who had enrolled in and graduated from the BAMBI program were invited to participate via Facebook and mail. Exclusion criteria included incarcerated women who never enrolled or graduated from the BAMBI program and previously incarcerated women who could not read or write in English. Since participation was anonymous, completion of the survey implied consent.

Procedure

After acquiring approval for the study from the UTMB Health Institutional Review Board (IRB), the research protocol, IRB approval document, survey instruments, and letters of support from the Vice President of Corrections (i.e., prison health) and

BAMBI program manager were sent to the Texas Department of Criminal Justice for review and approval. Approval for the AQSQ and PDI-S nurturing subscale was provided by the primary instrument developers. Use of the MAI was negotiated with UTMB Health legal department due to PI's inability to locate the study author.

Following approval, the study link was sent to the BAMBI program manager for posting on Facebook. In addition, study packets that included a self-addressed stamped envelope were sent to a staff member (i.e., care manager) of the BAMBI program located at the Santa Maria Hostel. The study packets were addressed with the last known physical addresses of BAMBI graduates and mailed by the care manager. After two weeks, the PI wrote thank you notes to participants who had completed the survey on the BAMBI Facebook page to revive interest in the study. The thank you notes included a statement that the study materials had no identifying data and that all responses were anonymous and could not be linked to any specific individual.

Because this population was likely to be very concerned about disclosing information that could reflect poorly upon them as parents, a statement was made that emphasized the study was focused on evaluating the impact of the BAMBI program, ways that BAMBI could be improved, and BAMBI's positive impact on the participants rather than evaluation of the participant themselves. In addition to the statement, the BAMBI program manager posted a periodic comment on the initial Facebook statement about the study, to ensure the study link remained current on the Facebook users' newsfeed.

For the mailed surveys, the PI tracked the number returned due to address errors, and that information was provided to the care manager in an attempt to locate an updated

address. Surveys were then re-mailed by the BAMBI care manager, when alternative mailing addresses were located. Instructions on how to retrieve a \$15 gift card and the study report were provided, as described in the IRB approved protocol. Instructions included participants providing a mailing address of their choice and their accurate birthdate within a gift card link in Survey Monkey (i.e., a secure online survey service) after completing the study questionnaires (i.e., also in Survey Monkey). Individuals who filled out the paper version of the survey received a paper version of the same instructions in order to receive gift cards.

The PI requested date of birth information from the BAMBI care manager for corroborative purposes. For gift card retrieval, the PI matched date of birth information provided by participants and the BAMBI care manager. This information was used to verify that the respondent was a BAMBI participant and graduate. The gift cards were addressed to “UTMB Survey Participant” to preserve confidentiality regarding participation in the BAMBI program. Data security was established through the use of a computer firewall and a password protected network for subject’s computer. All online survey data were collected through the PI’s private Survey Monkey account, the password of which was known only to the PI.

Data Analyses

Data were analyzed with the Statistical Package for Social Sciences (SPSS version 23). A statistical significance of $\alpha \leq .05$ was used as a standard for the research. Because the study was a pilot study of the BAMBI program, there was no need for a power analysis. All data were analyzed for normality and homogeneity. Descriptive information such as age groups, ethnicity, marital status, highest level of education, with

whom the BAMBI baby resided, number of children of the BAMBI graduate, time since BAMBI graduation (years), and length of time (months) as a BAMBI participant were requested from participants.

Due to small sample size, several demographic variables were collapsed into dichotomous variables for the Specific Aim 3, regression analyses. Specifically, marital status was collapsed into married/living with other vs. single/divorced/widowed and education recategorized as high school or less vs. high school and above.

The MAI instrument was designed to present item scale responses of 1 (*almost never*), 2 (*sometimes*), 3 (*often*), and 4 (*almost always*). However, due to an error with instrument transcription, study items for the MAI were presented as: 1 (almost never), 2 (never), 3 (always) and 4 (almost always). This transposition not only represented a slightly different scale but one in which the logical sequence was disrupted. In response to the coding error, the items on the MAI instrument were recoded as follows: 1 (*never*), 2 (*almost never*), 3 (*almost always*), 4 (*always*). A substitute approach was employed with items recoding as follows: Almost Never (original scale) = Never (presented scale); Sometimes (original) = Almost Never (presented); Often (original) = Almost Always (presented); Always (original) = Always (presented). Items were then summed to produce a total score (MAI New) with a possible range of 26 to 104. However, because there was no way to assure that respondents recognized the out-of-sequence order (i.e., “almost never” coming before “never,” “always” coming before “almost always”) in the presented scale responses, a more conservative approach was also utilized by collapsing all responses for each item into either negative response (i.e., *almost never, never – scored as 1 point*) and positive responses (i.e., *always, almost always scored as 4 points*).

Then items were summed to create a new total score (Total Collapsed MAI) with a possible range of 26 to 104.

Statistical analyses for each research question are described below.

Specific Aim 1

The first aim was to explore the relationships between demographic variables (i.e., length of time in BAMBI, the number of years following BAMBI participation, number of live births); maternal-infant attachment as measured by the MAI (i.e., mother's attachment) and AQSQ (i.e., infant's attachment); and nurturance in graduates of the BAMBI program.

AIM 1, RESEARCH QUESTION 1

What is the relationship between maternal attachment behavior (MAI), infant attachment (AQSQ), and nurturance with selected demographic variables (i.e., length of time in BAMBI, the number of years following BAMBI participation, number of live births)? To examine this question, Pearson correlation coefficients and Spearman's rank order correlations were completed to explore relationships between maternal attachment behavior (MAI New and MAI Collapsed), infant attachment (AQSQ), and nurturance. Subgroup analyses were evaluated across demographic variables.

AIM 1, RESEARCH QUESTION 2

What are the relationships between the MAI (New and Collapsed), AQSQ, and the nurturance subscale from the PDI-S when controlling for time since graduation from BAMBI and length of BAMBI stay? To evaluate this, partial correlation analyses were used to measure the relationship between MAI, AQSQ, and the nurturance subscale from

the PDI-S. Time since graduation from BAMBI and length of BAMBI stay were used as controls.

Specific Aim 2

The second aim was to explore differences in maternal-child attachment (MAI and AQSQ) and nurturing competency (PDI-S Nurturance) in different demographic subgroups of previously incarcerated BAMBI graduates.

AIM 2, RESEARCH QUESTION 1

Are there differences in maternal attachment behavior (MAI New and MAI Collapsed) or infant attachment (AQSQ) between demographic subgroups, i.e., age groups, marital groups, education, ethnic groups? Analysis of variance and analysis of covariance was utilized to assess differences across age groups, ethnicity, marital groups, education, and ethnic groups on maternal attachment behavior (MAI New and Collapsed) or infant attachment (AQSQ). Period of time since graduation from BAMBI and length of BAMBI stay were used as covariates.

AIM 2, RESEARCH QUESTION 2

Are there differences in maternal attachment behavior (i.e., dichotomized positive or negative scores) across demographic subgroups, i.e., marital groups, education, ethnic groups? Chi-Square test for independence was utilized to assess differences across age groups, ethnicity, marital groups, education, and ethnic groups on dichotomized maternal attachment behavior (MAI New and MAI Collapsed).

AIM 2, RESEARCH QUESTION 3

Are there differences on perceived nurturing competency among demographic subgroups, i.e., age groups, marital groups, education, ethnic groups? Analysis of variance and analysis of covariance were used to assess differences across age groups, ethnicity, marital groups, education, and ethnic groups on perceived nurturing competency with period of time since graduation from BAMBI and length of BAMBI stay used as covariates.

Specific Aim 3

The third aim was to assess the contribution of selected demographic and participation characteristics to outcomes on the MAI, the AQSQ, and the nurturance subscale from the PDI-S.

AIM 3, RESEARCH QUESTION 1

What are the best predictors of maternal attachment, infant attachment, and nurturance among marital status (i.e., married/living with other vs. single/divorced/widowed), education (i.e., high school or less vs. high school and above), length of time in BAMBI, time since graduation (i.e., months), and number of live births? A backward and forward stepwise multiple regression was employed to assess the best set of predictors of maternal attachment, infant attachment, and nurturance among age groups, marital status (i.e., married/living with other vs. single/divorced/widowed), education (i.e., high school or less vs. high school and above), length of time in BAMBI, time since BAMBI graduation (i.e., months), and number of live births.

AIM 3, RESEARCH QUESTION 2

What are the best predictors of insecure attachment ($AQSQ < 72$) among maternal attachment, nurturance, marital status (i.e., married/living with other vs. single/divorced/widowed), education (i.e., high school or less vs. high school and above), length of time in BAMBI, time since BAMBI graduation (i.e., months), and number of live births? To analyze this question, a backward and forward stepwise logistic regression was employed to assess the best set of predictors of insecure attachment among age groups, marital status (i.e., married/living with other vs. single/divorced/widowed), education (i.e., high school or less vs. high school and above), length of time in BAMBI, time since BAMBI graduation (i.e., months), and number of live births.

Chapter 4 provides an in-depth description and analysis of key study results related to each specific research aim and accompanying research questions.

Chapter 4: Results

This chapter provides an in-depth description of the study sample, summary of key descriptive statistics, and a detailed description and analysis of findings related to each specific study aim. The data analyses were focused specifically on maternal and infant attachments as well as maternal nurturance, in a sample of previously incarcerated pregnant women who participated in the BAMBI program during incarceration.

BAMBI GRADUATE SAMPLE CHARACTERISTICS

As discussed previously, this study drew from a population of 215 women who completed the BAMBI program between 2010-2016. The BAMBI program manager posted an invitation and survey link to participate in the study on the closed “members only” BAMBI alumni Facebook page during April 6, 2016 – July 6, 2016. This Facebook invitation was viewed a total of 67 times by 31 members of the BAMBI Alumni Facebook members’ only group. A total of 23 of those members (74%) completed the online survey—four individuals initiated the survey but did not complete it.

In addition to the online survey, 180 study packets including a self-addressed postage paid envelope were provided to the BAMBI care manager, to be mailed to the last known addresses of BAMBI graduates. Fifty-six (31%) of the mailed study packets were returned as address unknown or as unable to forward. The PI made additional attempts to find the correct addresses for those subjects and packets were re-mailed. Eighteen (14.5%) of the remaining 124 mailed packets were completed and returned.

The final number of BAMBI graduates who responded and completed the survey was 41, which represented 23% of the total number of BAMBI graduates for whom the researcher had contact information. One survey had 2 missing values, which were

completed using the mean score of the affected scale. In addition, two surveys arrived late and were not included in any study analyses. The sample characteristics are presented in Table 4.1 (see below).

Age, Ethnicity, Education, and Relationship Status

The age of the 41 participants in the study ranged from 18 – 44 years, and the largest percentage fell in the 25 – 34 range (see Table 4.1). The majority of the sample reported their ethnicity as White/Caucasian (46.3%) and the second highest group was Hispanic (29.3%). Most participants (46.3%) reported having a high school or equivalent degree, and the second highest educational category reported was some college education but no degree (34.1%). Only one person reported graduating from college with an associate's degree. The percent of individuals who identified themselves as single/never married was 51.2%, while 19.5% reported being single but living with a significant other. Thus, the study sample consisted mostly of women who were of childbearing age, Caucasian, single, and who had a high school education or equivalent. This description corresponds to existing data on incarcerated women reported by the United States Department of Health and Human Services (Parker et al., 2013).

Table 4.1: BAMBI Graduate Sample Characteristics

Characteristic	<i>N</i>	<i>m (sd)</i> or %
Age Subgroups		
18-24	7	17.1%
25-34	30	73.2%
35-44	4	9.8%
Ethnicity		
Black or African American	8	19.5%
Hispanic	12	29.3%
White/ Caucasian	19	46.3%
Multiple Ethnicity/ Other	2	4.9%
Current Relationship Status		
Married	7	17.1%
Divorced	1	2.4%
Separated	4	9.8%
Single, but living with a significant other	8	19.5%
Single, never married	21	51.2%
Level of education		
Less than high school	7	17.1%
High school degree or equivalent	19	46.3%
Some College, but no degree	14	34.1%
Associates degree	1	2.4%
Number of Children		
1	9	22%
2	7	17.1%
3	10	24.4%
4	11	26.8%
5	2	4.9%
6	2	4.9%
Average length of BAMBI stay in Months	41	5.28 (± 3.99)
Average time since BAMBI graduation in years	41	2.04 (± 1.8)

Months Participated in BAMBI and Years Elapsed Since BAMBI

The mean length of BAMBI stay for the study sample was reported as 5.28 months, and average years elapsed since BAMBI participation was two years. The majority of this sample had three (24.4%) or four (26.8%) children, which included

children born during participating in the BAMBI prison nursery program. Of the respondents, 95.1% stated that the BAMBI child lived in their household. Only two participants reported that BAMBI children lived with relatives other than themselves.

DESCRIPTIVE STATISTICS OF STUDY VARIABLES

Descriptive statistics for study instruments are reported in Table 4.2 below. The Attachment Q-Sort Questionnaire (AQSQ) had items rated from 1 (*very unlike my child*) to 9 (*most like my child*) with a possible range of 12 to 108. The subscale of Nurturance from the PDI-short form had items rated 1 (*not at all like me*) to 6 (*exactly like me*) with a possible range of 6 to 36. Both forms of the MAI revisions indicate mean scores that are notably skewed towards positive affirmations. Using a median split to dichotomize the group into positive and negative attachment would be a standard approach. Yet, the midpoint of the range would be a score of 65. Table 4.2 clearly shows the strong skew of MAI scores towards positive affirmations with the minimum value for respondents exceeding the midpoint criterion by a comfortable amount results in no participants who would be classified as having negative bonding with their child. These results make certain study questions unanalyzable (see Aim 2, RQ2) and, for the collapsed instrument which demonstrates significantly negatively skewed data, there was a necessity to employ nonparametric approaches for analyses to confirm results.

Table 4.2: Descriptive Statistics for Study Instruments

Instrument	Total Instrument Descriptive Statistics					
	<i>N</i>	Min	Max	<i>M</i>	<i>SD</i>	Skewness
Total AQSQ	41	30	99	67.51	18.10	-.282
Total NURTURANCE	41	17	36	30.76	4.88	-.944
Total New MAI*	41	78	104	99.17	8.31	-1.979
Total Collapsed MAI*	41	98	104	103.8	1.04	-5.047

Note. AQSQ = Attachment Q-Sort Questionnaire; Nurturance = Parenting Dimensions Inventory (Short Version) Nurturance subscale; *MAI = Maternal Attachment Inventory recoded for transcription error

Table 4.3: Instrument Reliabilities

Instrument	α	Number of items
AQSQ infant attachment	.83	12
Nurturance	.88	6

Note. AQSQ = Attachment Q-Sort Questionnaire; Nurturance = Parenting Dimensions Inventory (Short Version) Nurturance subscale

Total instrument correlation was conducted for AQSQ, Nurturance, and MAI New and Collapsed. Analysis indicated no statistically significant relationships among instruments, which reflected substantial independence between these specific domains.

AIM 1, RESEARCH QUESTION 1

Research question 1.1 investigated a possible relationship between demographic variables and maternal attachment behavior, infant attachment, and nurturance between BAMBI graduates and their children. The demographic variables were length of time in BAMBI (calculated in months), number of years elapsed following BAMBI participation, and number of live births. The assumption for parametric measurement was a normal distribution and continuous variables (Pallant, 2013, p. 214); however, the highly-skewed distribution of the new collapsed version of the MAI supported the need to utilize non-parametric Spearman's Rho. Significance was set at $p \leq .05$ (two-tailed). Relationship strength between variables with $r = .00 - .25$ would indicate small or no relationship

between variables, $r=.25 - .50$ a fair relationship between the variables, $r=.50 - .75$ a moderate to good relationship, and correlations greater than $.75$ would indicate a great relationship (Portney & Watkins, 2009, p. 525).

The comparison of demographic variables (i.e., length of BAMBI stay [in months], time since BAMBI [in years], and number of children) to study instruments yielded correlations ranging from small to fair relationships; however, there were no significant relationships detected between these variables and all effects sizes were very small (see Table 4.4).

Table 4.4: Instrument Demographic Correlation

$r(p)$	LOBS	Time in years	Number of children
Attachment Q-Sort	.099 (.539)	.085 (.596)	-.196 (.219)
Nurturance	-.250 (.115)	-.158 (.322)	-.239 (.132)
MAI New	-.232 (.144)	.070 (.662)	.105 (.514)
MAI Collapsed	.080 (.617)	-.159 (.320)	.234 (.142)

Note. AQSQ = Attachment Q-Sort Questionnaire; Nurturance = Parenting Dimensions Inventory (Short Version) Nurturance subscale; MAI = Maternal Attachment Inventory Rescored and Collapsed versions.
* $p \leq .05$, two-tailed.

AIM 1, RESEARCH QUESTION 2

Research question 1.2 investigated relationships between study instruments while controlling for the variables (i.e., time since graduation from BAMBI and length of BAMBI stay). Partial correlation analysis was conducted to identify any possible relationships. No statistically significant correlations were found with total instruments when controlling for time elapsed since graduation from BAMBI and length of BAMBI stay. Additionally, the relationships between the variables remained fairly constant (see Table 4.5).

Table 4.5: Maternal and Infant Attachment and Maternal Nurturance Controlling for Time since BAMBI Graduation and Length of BAMBI Stay.

<i>r</i> (<i>p</i>)	Scale	AQSQ	Nurturance	MAI New	MAI Collapsed
No covariates	AQSQ	—	.214 (.178)	-.182 (.26)	.154 (.337)
	Nurturance	.214 (.178)	—	-.078 (.63)	-.041 (.801)
	MAI New	-.182 (.256)	-.078 (.626)	—	.004 (.978)
	MAI Collapsed	.154 (.337)	-.041 (.801)	.004 (.978)	—
Controlled for time since graduation and length of BAMBI stay	AQSQ	—	.260 (.110)	-.22 (.180)	.169 (.303)
	Nurturance	.260 (.110)	—	-.11 (.502)	-.041 (.806)
	MAI New	-.219 (.180)	-.111 (.502)	—	.034 (.836)
	MAI Collapsed	.169 (.303)	-.041 (.806)	.034 (.836)	—

Note. AQSQ = Attachment Q-Sort Questionnaire; Nurturance = Parenting Dimensions Inventory (Short Version) Nurturance subscale; MAI = Maternal Attachment Inventory Rescored

AIM 2, RESEARCH QUESTION 1

Research question 2.1 explored differences in maternal attachment (MAI New, MAI Collapsed) and infant attachment (AQSQ) scores between various demographic subgroups. The comparative demographic subgroups included age (three groups), marital status, education, and ethnicity which were controlled for the length of time since participants had graduated from BAMBI (in years) and the overall length of BAMBI program stay (in months).

Non-parametric analyses (i.e., the Kruskal Wallis test) were performed on the data because of skewness, but no significant differences were found between Kruskal Wallis and analyses of covariance (ANCOVA) approaches. Because of this non-significance, ANOVA results alone are presented below (see Table 4.6, 4.7, 4.8). In addition, the Brown-Forsythe Robust test for means was utilized for recoded MAI New when compared to ethnicity because the Levene's test of homogeneity value was significant ($p = .043$) indicating heterogeneity between comparison groups. MAI Collapsed also demonstrated significant homogeneity ($p = .010$); however, Brown-Forsythe was not calculated because there was not a variance with two of the subgroupings (Pallant, 2013, p.262). Analyses indicated no significant differences between any of the demographic subgroups on any specific study measure. There were also no significance effects for the covariates.

Table 4.6: Summary ANOVA for Attachment Q-Sort Questionnaire

<i>AQSQ</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Age group (<i>n</i>)			0.503	.609
18-24 (7)	70.43	10.628		
25-34 (30)	67.93	18.092		
35-44 (4)	59.25	29.432		
Relationship status (<i>n</i>)			0.770	.518
Married (7)	60.57	18.365		
Separated (4)	60.25	21.793		
Living with significant other (8)	71.50	16.622		
Single (22)	69.59	18.196		
Education (<i>n</i>)			0.245	.784
Less than high school (7)	68.00	19.748		
High school or equivalent (19)	69.37	17.221		
More than high school (15)	64.93	19.385		
Ethnic group (<i>n</i>)			1.458	.246
Black or African American (8)	58.75	20.645		
Hispanic/Multi ethnic (14)	72.29	17.635		
Caucasian (19)	67.68	16.908		

Table 4.7: Summary ANOVA for Recoded MAI New

<i>MAI New</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Age group (<i>n</i>)			0.281	.756
18-24 (7)	98.14	9.907		
25-34 (30)	99.73	7.575		
35-44 (4)	96.75	12.527		
Relationship status (<i>n</i>)			0.394	.758
Married (7)	102.14	3.625		
Separated (4)	97.00	11.402		
Living with significant other (8)	98.75	8.730		
Single (22)	98.77	8.933		
Education (<i>n</i>)			0.703	.502
Less than high school (7)	101.14	4.413		
High school or equivalent (19)	100.00	8.179		
More than high school (15)	97.20	9.799		
Ethnic group (<i>n</i>)			1.099	.343
Black or African American (8)	103.00	1.604		
Hispanic/Multi ethnic (14)	98.71	8.965		
Caucasian (19)	97.89	9.279		

Table 4.8: Summary ANOVA for Recoded MAI Collapsed

<i>MAI New Collapsed</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>P</i>
Age group (<i>n</i>)			.325	.724
18-24 (7)	104.00	.000		
25-34 (30)	103.70	1.208		
35-44 (4)	104.00	.000		
Relationship status (<i>n</i>)			.902	.449
Married (7)	104.00	.000		
Separated (4)	104.00	.000		
Living with significant other (8)	103.25	2.121		
Single (22)	103.86	.640		
Education (<i>n</i>)			.232	.794
Less than high school (7)	104.00	.000		
High school or equivalent (19)	103.68	1.376		
More than high school (15)	103.8	.775		
Ethnic group (<i>n</i>)			.473	.627
Black or African American (8)	103.63	1.061		
Hispanic/Multi ethnic (14)	104.00	.000		
Caucasian (19)	103.68	1.376		

AIM 2 RESEARCH QUESTION 2

Research question 2.2 proposed to examine differences across demographic subgroups (i.e., age, marital status, education, ethnic groups) and maternal attachment behavior dichotomized into positive or negative groups. However, maternal attachment behavior scores for this sample were all positively affirmed with no participants categorized with negative scores; thus, no analysis could be performed. The lack of variability on this measure highlights the difficulty in gathering evaluative data from vulnerable populations on resources they are highly motivated to protect and affirm. Using a different data collection approach, such as with trained research observers may help mitigate this concern in the future.

AIM 2 RESEARCH QUESTION 3

Research question 2.3 explored differences among study participants in perceived nurturing competencies across demographic variables. As previously discussed, the demographic variables of interest were participant age groups, ethnicity, marital groups, education, and ethnic groups. Covariates included length of time elapsed since BAMBI program graduation (in years) and overall participant length of stay in the BAMBI program (in months).

As stated, the range for nurturance subscale was from 6 – 36. Higher scores indicated higher nurturance levels perceived by participants. While no significance differences were found for any demographic variable nor were any noted with covariates, it is worthwhile to note where differences lay for future studies. For instance, older women had higher self-perceptions of nurturance while married reported lower levels. The Kruskal-Wallis test was also conducted to verify results due to skewness concerns; however, there were no difference in results noted and, therefore, results for ANCOVA are presented in Table 4.9.

Table 4.9: Summary ANCOVA for Nurturance Subscale

<i>Nurturance</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Age group (<i>n</i>)			.441	.647
18-24 (7)	30.71	5.992		
25-34 (30)	30.57	4.673		
35-44 (4)	32.25	5.560		
Relationship status (<i>n</i>)			.559	.646
Married (7)	28.86	5.757		
Separated (4)	31.75	5.315		
Living with significant other (8)	31.63	5.069		
Single (22)	30.86	4.642		
Education (<i>n</i>)			.568	.572
Less than high school (7)	31.00	4.967		
High school or equivalent (19)	29.74	5.152		
More than high school (15)	31.93	4.511		
Ethnic group (<i>n</i>)			.745	.482
Black or African American (8)	31.00	5.182		
Hispanic/Multi ethnic (14)	29.50	5.971		
Caucasian (19)	31.58	3.834		

AIM 3 RESEARCH QUESTION 1

Research question 3.1 explored the extent to which study variables served as best predictors of maternal attachment, infant attachment, and nurturance across participants' marital status, education, length of time in BAMBI, time elapsed since BAMBI graduation, and number of live births. Backward and forward stepwise multiple regression was used to analyze independent variables to identify key predictors. The results from stepwise regression were depicted in Table 4.10. Only number of children was retained and explain 12.4% of variance in total nurturance scores ($F(1, 39) = 5.528$, $p = .024$). No variables reached statistical significance with other instruments (AQSQ and Total MAI rescored and collapsed) during evaluation.

Table 4.10: Stepwise Multiple Regression for Nurturance Subscale of PDI (Short Form)

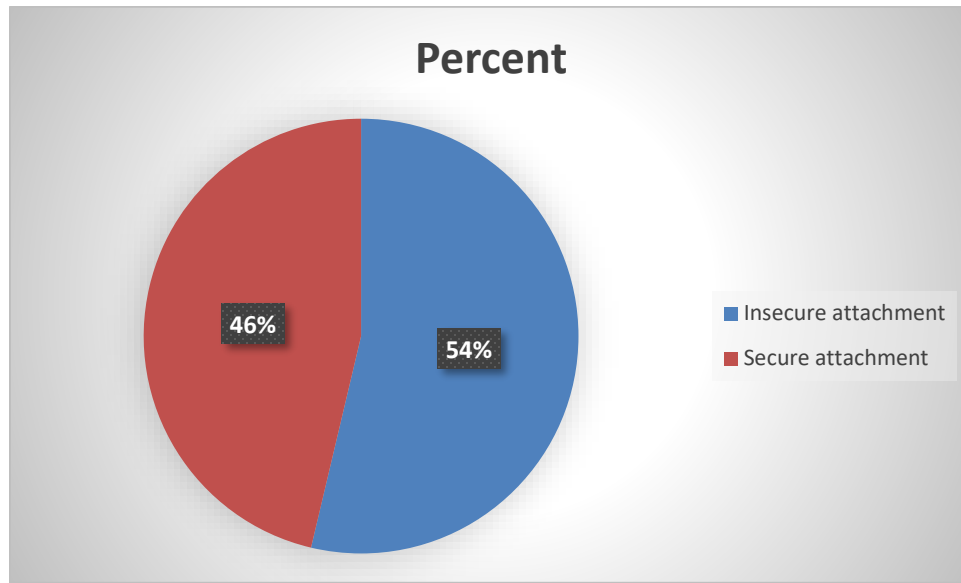
Stepwise multiple regression	Predictor(s)		
	(Demographic variables)	Cumulative R^2	Model p
AQSQ			
Nurturance	Number of children	.124	.024
Total MAI New			
Total MAI Collapsed			

Note. AQSQ = Attachment Q-Sort Questionnaire; Nurturance = Parenting Dimensions Inventory (Short Version) Nurturance subscale; MAI = Maternal Attachment Inventory Rescored and Collapsed versions

AIM 3 RESEARCH QUESTION 2

Research question 3.2 explored which study variables were the best predictors of insecure attachment (AQSQ<72) among participants' maternal attachment, nurturance, marital status, education, length of stay in the BAMBI program, time elapsed since BAMBI graduation, and number of reported live births. The study participants rated their children's attachment using questions from the AQSQ instrument and scores were tallied for child attachment results. It is interesting to note that 22 mothers perceived their children as insecurely attached as reflected by scores which fell below the cutoff for secure attachment. Based on these participant responses, data analysis showed 53.7% of children with AQSQ scores less than 72 and 46.3% of children with scores equal to or greater than 72, which was the cutoff for secure attachment (see Figure 4.1). This is somewhat discrepant with the high endorsement of maternal attachment and raises the possibility that this subscale may not actually be reflecting infant attachment as much as parental stress in coping with raising a child(ren). Therefore, interpretation will be cautiously made.

Figure 4.1: AQSQ Total Score



Participant self-reports on number of children included children delivered during incarceration and enrollment in the BAMBI program. To assess risk for perceived insecure attachment with children of BAMBI graduates, both forward and backward logistic regressions were conducted (Table 4.11). Both of these approaches produced a model which indicated that only number of children was a significant predictor ($X^2 = 5.502$, $df=1$, $p=.019$, $n=41$), representing a 77.5% increase in risk of insecure attachment for each additional child ($\text{Exp (B)}=1.775$, 95% CI [1.057 – 2.980]). The number of children explained between 12.6% (Cox and Snell R squared) and 16.8% (Nagelkerke R squared) of variance in predicting participants' ratings of insecure attachment of their children. The number of cases of insecure attachment that were correctly classified were 58.5%, which represents only a slight improvement (53.7%) for the model without any predictors (Pallant, 2013, p.186).

Table 4.11: Logistic Regression Predicting Likelihood of Insecure Attachment

Measurement	B	S.E	Wald	df	P*	Odds Ratio	95% C.I for Odds Ratio	
							Lower	Upper
Total Nurturance	-.03	.084	.138	1	.710	.97	.822	1.143
MAI New [†]	.017	.043	.152	1	.696	1.017	.934	1.107
MAI Collapsed [†]	-.33	.358	.836	1	.361	.721	.357	1.454
Marital Status	.465	.732	.403	1	.525	1.591	.379	6.676
Education	.048	.739	.004	1	.949	1.049	.246	4.467
LOBS	-.08	.094	.808	1	.369	.919	.765	1.104
Time since BAMBI	-.01	.017	.251	1	.617	.992	.959	1.025
# of Children	.574	.264	4.707	1	.030	1.8	1.057	2.980
Constant	-1.5	.814	3.350	1	.067	.23		

Note. AQSQ = Attachment Q-Sort Questionnaire; Nurturance = Parenting Dimensions Inventory (Short Version) Nurturance subscale; MAI = Maternal Attachment Inventory Rescored and Collapsed versions; LOBS= Length of BAMBI stay. * $p \leq .05$, two-tailed; [†]included in separate analyses to avoid multicollinearity.

SUMMARY OF RESULTS

The study purpose was to evaluate the effects of the BAMBI prison nursery program by assessing previous BAMBI participants on measures such as maternal and infant attachment and maternal nurturing competencies. The study sample consisted of 41 women previously incarcerated in Texas Department of Criminal Justice who were graduates of the BAMBI prison nursery program. Most participants were in the 25 – 34 age group and had an average length of stay in the BAMBI program of 5.28 months. The majority of the participants were single, had never been married, and self-identified as White/Caucasian. Also, most of the participants reported that they possessed a high school or equivalent degree and had between three to four children. In addition, 46.3% reported secure attachment of their child as measured by AQSQ.

Specific Aim 1 examined the relationships between selected demographic variables and the degree of maternal attachment behavior, infant attachment behavior,

and nurturance. The length of time since participants graduated from the BAMBI program and length of stay in the BAMBI program were used as covariates. Data analysis indicated that there were no significance relationships noted between demographic variables and attachment outcomes.

Specific Aim 2 examined the differences in maternal-child attachment and nurturing competencies across specific demographic variables. Data analysis reflected no significant differences related to demographic variables and levels of attachment and nurturance.

Finally, Specific Aim 3 investigated predictors among selected demographic variables and maternal and child attachment and nurturance. Backward and forward multiple regression and logistic regression were conducted. Importantly, number of children was a significant predictor of nurturance, with presence of more children predictive of higher nurturance scores. However, it is important to note that the number of children was also a risk factor for participants' insecure attachment to their infants, with an increasing risk of 77.5% for each additional child raising concerns about construct validity for attachment ratings for this population.

Chapter 5: Conclusions, Discussion, and Recommendations

INTRODUCTION

This chapter provides an overview of the study's purpose and rationale, analysis of key findings, synthesis of results in relation to research literature, and discussion of potential application of findings to contemporary prison nursery practices. The study's strengths and limitations are described, including ethical and procedural challenges to the study of formerly incarcerated women as well as recommendations for future studies on the effectiveness of prison nursery programs.

This exploratory pilot study examined the potential impact of BAMBI, a unique prison nursery program designed to enhance maternal infant attachment and nurturing competencies among women who give birth while incarcerated in the Texas prison system. The relevance of the BAMBI program and the significance of this current study are underscored by the increasingly high rate of women admitted to the Texas prison system. Texas currently leads the nation in the total number of women incarcerated with an estimated population of 22,300 female prisoners (Kaeble & Glaze, 2016). Consequently, Texas may also have one of the highest rates of women who are pregnant when entering the prison system and giving birth during their prison stay.

BAMBI, which is sponsored by the Texas Department of Criminal Justice (TDCJ), allows selected mothers and infants to live together for up to one year in a non-prison residential environment. Although the BAMBI program was established in 2010, no formal, systematic evaluation had been performed of its overall effectiveness in fostering maternal-infant attachment and maternal nurturing capabilities. The current study provided an initial assessment of maternal-infant attachment and mothers'

nurturing abilities among 41 women who graduated from the BAMBI program since 2010. This study did not, however, provide a systematic review or evaluation of the overall BAMBI program.

METHODOLOGY

The study sample consisted of 41 women who gave birth while incarcerated in TDCJ and subsequently were accepted into and graduated from the BAMBI program. This group was drawn from an existing total population of 215 women who graduated from the BAMBI program between 2010-2016. Participants were initially recruited through a closed, “members only” BAMBI Alumni Facebook page that provided a link to the online survey and used non-probability snowball sampling. Additional recruiting was done through a mailed study packet sent to BAMBI graduates by a staff member of the BAMBI program.

Participants responded to three instruments—the MAI, AQSQ and PDI-S Nurturing Subscale—which were designed to measure mothers’ assessment of nurturing and attachment to their infants, as well as assessment of infants’ attachment to mothers. None of these instruments have been validated in prison populations which are subjected to extraordinary and unique circumstances regarding mother-infant relationships. Participants also completed a demographic questionnaire which included an open-ended question about experiences with the BAMBI program to provide qualitative, anecdotal enrichment to quantitative methods. Data were analyzed using descriptive statistics, covariance analysis, correlation coefficients, multiple regression, and logistic regression.

SAMPLE AND DEMOGRAPHIC CHARACTERISTICS

The overall participant response rate of 41 women was somewhat lower than the original pilot study projection of 50 women, which was due in part to difficulties in locating current addresses or other contact information for many BAMBI graduates who move frequently. The researcher made efforts to locate participants with repeated postal mailing and postings on the Facebook BAMBI Alumni page. Because the study was associated with TDCJ and the PI was a staff member at a TDCJ hospital, some former prisoners may have not have participated due to concerns about privacy and confidentiality. Some participants may also have been concerned that responses to survey questions about maternal and infant behaviors could reflect on parenting skills or infant care resources, in turn leading to greater personal scrutiny. The PI attempted to mitigate any privacy concerns in the invitation letter, by emphasizing that survey participants' responses were anonymous and by limiting discussion and consultation about the study to immediate BAMBI staff. However, the influence of such concerns by participants cannot be ruled out.

DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

Age

Most BAMBI graduates in this study (73.2%) ranged in age from 25-34, which is consistent with other studies that found females of reproductive age were the fastest growing segment of the prison population in the United States (Chambers, 2009; Goshin et al., 2013; Zust et al., 2013). The Bureau of Justice Statistics (2016) estimates that 5% of the incoming prison population of women in the United States are pregnant upon incarceration, which represents an estimated 1,115 pregnant women among the total

22,300 women incarcerated in the state of Texas. Unfortunately, the BAMBI prison nursery program has been available for only a small percentage of incarcerated pregnant women in Texas. This limited access highlights the lack of resources available to pregnant incarcerated women as well as the areas of current and future needs for programs similar to BAMBI that support mothers and babies in prison.

Ethnicity

While the previously incarcerated sample of women in the BAMBI study was diverse overall, nearly half of this group reported their ethnicity as Caucasian (46.3%), followed by Hispanic (29.3%), Black/African American (19.5%), and Other (4.9%). This potentially unexpected finding may be related, in part, to the overall larger number of Caucasian women prisoners who were accepted into the BAMBI program based on inclusion criteria. The finding may also reflect the increased rates of Caucasian women admitted to prison in Texas and across the United States during recent years. The Bureau of Justice Statistics (2016) reported on this national trend among women sentenced in years 2014 and 2015. The data also reflect a similar trend among incarcerated women in Texas Department of Criminal Justice and the BAMBI program from 2010 to 2014 (TDCJ Executive Services, 2014). The higher rates of Caucasian women admitted to prison seems to conflict with a widely-held public perception that Black women are sent to prison at higher rates than other groups of women. That perception may be related to reports of high rates of Black men who are currently incarcerated in United States prisons (Carson & Anderson, 2016). Aday and Farney's (2014) research on women prisoners aligns with the higher number of Caucasian women respondents in this study.

Hispanic women were somewhat more highly represented in the current study than Black/African American women, which is consistent with results reported by Goshin and Byrne (2012) in a longitudinal study of women in a New York prisoner nursery program. Goshin and Byrne (2012), who have been seminal researchers in the field of women prisoner studies, cited marginalization as a possible rationale for the overall decrease in the number of previously incarcerated female Black/African American who have participated in their series of studies during the past decade. Although the current BAMBI study does not clarify what factors may have contributed to the smaller numbers of Black/African American women participants, one explanation is that some of these BAMBI graduates may be less involved with the BAMBI alumni community and may not have received the invitation to participate in the study. It is also possible that some of the BAMBI mothers may have had concerns about participating in a study directed by someone affiliated with Texas Department of Criminal Justice due to a mistrust of law enforcement entities.

Marital Status

In addition to gathering informative demographic data regarding ethnicity and age, this study also yielded important findings about the marital status of these BAMBI program graduates. More than half of the sample (51.2%) reported their marital status as single and never having been married, while 9.8% reported being separated from their spouse and 2.4% reported being divorced. Also, 17.1% reported being married and 19.5% reported being single but living with a significant other. This finding that predominantly single women gave birth in prison is consistent with other studies (Chambers, 2009; Goshen et al., 2013) and significant because the BAMBI study group who were classified

as single were found to have the highest rates of insecure mother-child attachment. The single mother BAMBI graduates' assessment of their infants' having insecure attachment may be affected by the lack of partner support in their households to assist with childcare or other external factors such as the demands for housing, income, and food upon discharge from prison. Although the present study did not collect data on income levels or housing due to privacy concerns, a series of research studies have examined the substantial socioeconomic issues that women and their children face upon discharge from prison (Colbert et al., 2013; Stanley et al., 2015).

Education Level

Another relevant demographic finding in this study was that the majority of participants reported only having graduated from high school or received a GED; one participant reported obtaining an Associate's degree. Such an educational profile is consistent with research about imprisoned women (Colbert et al., 2013; Stanley et al., 2015). Although the education variable was not found to be statistically significant when analyzed in relation to attachment and nurturance variables, it does raise questions about the extent to which these BAMBI mothers' limited education can challenge their abilities to find adequate and meaningful employment to help support their children and families.

Length of Stay in the BAMBI Program and Time Since Graduation

The average length of the participants' stay in the BAMBI program was 5.28 months. This timeframe is consistent with other reports showing average prison nursery stays of 12 months or less, and the length of stay in these nursery programs are often linked to prison sentence lengths, date of discharge, or conditions of parole (Pollock,

2002). When the current study was conducted, the average time since the participants had graduated from the BAMBI program was 2.04 years.

Number of Children Living in the Household

There were several notable demographic findings related to number of children living in the participants' households. A very high percentage of participants (95.1%) reported the BAMBI child resided in their household at the time of the survey, with only two mothers reporting that their BAMBI children lived with other relatives (e.g., biological father, cousin). A majority of participants (51.2%) reported that they had two or three other children living with them in addition to the BAMBI child born in prison, and 22% of participants reported having one child in addition to the BAMBI baby residing with them.

In addition to the number of children living in the household, one other striking finding was that a large percentage (95.1%) of the BAMBI prison nursery mothers maintained custody of their children after graduation from the prison nursery programs, which is consistent with longitudinal research of mothers who were enrolled in a prison nursery program (Kubiak et al., 2010). This current study finding is important because it may reflect the mother's intention to keep the family intact, in spite of the many challenges she may face in preserving the family unit. Secondly, the presence of children living in the same household as their formerly incarcerated mothers has been linked to a decrease in recidivism rates (Goshin et al., 2013; Stanley, 2015).

In summary, the demographic profile of mothers who participated in the BAMBI study reflects a group of relatively young women of child-bearing age who are mostly single, have a high school education, have three or four children living with them in their

household, and have custody of their children despite having a history of incarceration. It is possible that the opportunity for these women to participate in the BAMBI prison nursery program, which placed an emphasis on enhancing parenting skills, increasing nurturing behaviors, furthering self-esteem, and encouraging self-sufficiency, may have contributed to these BAMBI mothers' desires and abilities to retain custody of their children and a decreased rate of recidivism.

DISCUSSION OF STUDY VARIABLES

The primary objective of this study was to examine the extent to which the BAMBI program may have impacted maternal nurturance and mother-infant attachment. The study explored whether there were relationships between study variables and selected demographic data and used three instruments to examine the mothers' perception of attachment and nurturance and infant attachment. As reflected in Chapter Four, the responses for maternal attachment and nurturance and infant attachment were negatively skewed on a non-normal distribution. Since the majority of study responses were grouped together at the more positive (higher) end of the scales, the mean scores for maternal and infant attachment and maternal nurturance subscales were consistently higher than the mean scores for the instruments. This finding could reflect self-reporting bias since participants may have chosen not to divulge any information that reflected negatively on themselves as a parent or on the BAMBI program. This finding of socially desirable responses or the potential for participants to respond to questionnaires based on a desire to please is common with self-reporting instruments for any research and has been described by LoBiondo-Wood and Haber (2014). This highlights the very real challenges of accurately gathering data from vulnerable populations that may have very little

motivation to self-disclose very personal information as well as a lack of sensitive instruments that can accurately capture their perspectives and experiences.

The concern regarding potential socially desired response bias in this study is due to the nature of the positive responses derived from the survey as well as that a majority of study participants remained active members of the BAMBI Alumni Facebook group. The BAMBI Alumni Facebook group has become a type of support group and forum for these women in which they share aspects of their lives with each other. Further explanation and discussion of research responses by research questions are addressed below.

AIM 1, RESEARCH QUESTION 1: MATERNAL ATTACHMENT, INFANT ATTACHMENT, AND NURTURANCE CORRELATIONS

Research question 1.1 investigated a possible relationship between maternal attachment and nurturing behavior and infant attachment on demographic data of BAMBI graduates and their children. Respondents' responses on the maternal attachment, infant attachment, and maternal nurturance when correlated with length of BAMBI stay, time in years after BAMBI graduation, and number of children had a small to fair relationship with no significant correlations. A possible explanation for this finding could be the small sample size. This lack of significant relationship between the demographic variables could also be due to the highly positive scores on maternal attachment and maternal nurturance from almost all participants.

AIM 1, RESEARCH QUESTION 2: PARTIAL CORRELATIONS OF CONTROLLING FOR TIME SINCE BAMBI AND LENGTH OF STAY

Research question 1.2 examined relationships between study instruments while controlling for time since graduation from BAMBI and length of BAMBI stay.

Participants' responses produced small to fair correlations with the study instruments when controlling for the time since graduation from the BAMBI program as well as the length of BAMBI stay. Maternal attachment (MAI New) was negatively correlated with nurturance and infant attachment (AQSQ) and MAI Collapsed was negatively correlated with nurturance. The difference in correlation with MAI New and MAI Collapsed could be the result of the more conservative approach used for recoding the MAI Collapsed instrument. The absence of significant relationship for the total instrument scores with or without controls and consistency among specific study variables could be attributed to the small sample size or the lack of variability between scores.

AIM 2, RESEARCH QUESTION 1: MATERNAL AND INFANT ATTACHMENT AND ANOVA

Research question 2.1 explored differences in maternal or infant attachment (AQSQ) scores between different demographic subgroups. When reviewing infant attachment as reported by BAMBI graduates, participants aged 35 – 44 years (N=4) and participants who identified as African American (N=8) had a slightly lower mean infant attachment score on the AQSQ scale than those in other demographic categories. This finding could be a result of those two categories having fewer participants within the groups. Even with this slight difference, there was no significance noted with ANCOVA and Kruskal-Wallis across demographic variables (i.e., age group, relationship status, education, ethnic groupings). In addition, mean scores for MAI New and MAI Collapsed

were all above average, indicating perceived positive maternal attachment with children; however, no scores reached significance. This lack of significance could be related to the instrument recoding error or providing socially desirable responses.

Increase in attachment may also be a result of participation in BAMBI program, for which an increase in attachment is one of its goals (TDCJ, 2014). Other studies have described increases in secure attachment associated with prison nurseries (Byrne et al., 2009; Carlson, 1998). Conversely, Borrelli et al. (2010) reported on a sample of insecure attachment mothers when the prison nursery group was compared to a community sample, although attachment scores for incarcerated women who participated in the prison nursery program were similar to low socioeconomic status individuals. Another rationale for the BAMBI graduates' perception of being more attached to their children may be related to the type of questions on the instrument—participants may have attempted to respond in ways that did not reflect poorly on themselves or on the BAMBI program.

AIM 2, RESEARCH QUESTION 2: MATERNAL ATTACHMENT CATEGORIZED BY POSITIVE AND NEGATIVE GROUPS

Question 2.2 examined differences across age, marital status, education, and ethnic groups across dichotomized positive or negative maternal attachment groups. BAMBI graduates rated themselves as having higher levels of attachment with their children. Because scores were mostly positive, Chi-Square analyses were not completed. Although mothers' attachment scores could be related to instrument error, the most likely explanation of the mostly positive scores yielded by BAMBI mothers may be attributed to providing responses they deemed more socially desirable.

AIM 2, RESEARCH QUESTION 3: NURTURING COMPETENCIES ANOVA

Research question 2.3 explored differences among study participants perceived nurturing competencies across certain demographic variables. ANCOVA did not produce significant differences for any demographic variables or covariates. As with maternal attachment (MAI New and MAI Collapsed), maternal nurturance was also well above mean scores of the instrument for all groups. In fact, most scores were closer to the maximum score for the instrument. This finding may be due to BAMBI participants answering questionnaires based on perceived socially desirable responses or it may be a result of an appreciation for the BAMBI program, to which most participants attributed a highly supportive function during their incarceration.

AIM 3, RESEARCH QUESTION 1: PREDICTORS OF MATERNAL ATTACHMENT, INFANT ATTACHMENT, AND NURTURANCE

Research question 3.1 explored the extent to which study variables served as the best predictors of maternal attachment, infant attachment, and maternal nurturance across participants' marital status, education, length of time in BAMBI, time since BAMBI graduation, and number of live childbirths. Participants' number of children reached statistical significance as the best predictor for maternal nurturance accounting for 12.4% of the variance related to maternal nurturing, indicating that higher numbers of children were predictive of higher nurturance scores.

The rationale for nurturing improvement being associated with a higher number of children could be related to the BAMBI graduates' desire for motherhood, which increased their nurturing skills. This desire could manifest itself through having additional children, and devoting increased levels of attention to their children to yield an

increase in nurturing levels. Also, the repetitive nature of childbirth and child dependence could potentially positively impact nurturing. It may be that BAMBI graduates view their child as a second chance at life outside of prison. Finally, improvement in nurturing skills was one of the goals of the BAMBI prison nursery program (TDCJ, n.d.). Therefore, an increase in nurturing skills could be related to parenting classes provided during the BAMBI program.

AIM 3, RESEARCH QUESTION 2: BEST PREDICTORS OF INSECURE ATTACHMENT

Research question 3.2 explored which study variables served as the best predictors of insecure attachment among participants' maternal attachment, nurturance, marital status, education, length of stay in the BAMBI program, time since BAMBI graduation, and number of reported live childbirths. Although BAMBI graduates reported their own attachment and nurturance behaviors as being mostly positive, BAMBI graduates may have felt more comfortable when assessing the behaviors of their BAMBI child. This was supported by the fact that over half of the BAMBI mothers (53.7%) evaluated their BAMBI children as insecurely attached. Similarly, as the average length of BAMBI stay was 5.28 months, this finding mirrors that of Byrne et al. (2009) who classified 57% of infants who resided in a prison nursery program for less than one year as being insecurely attached. Byrne et al. (2009) reported an increase in levels of infant attachment with longer lengths of stay in prison nurseries. However, the two participants in this study who had the longest BAMBI stays (i.e., greater than 12 months) reported their children as being insecurely attached. These discrepancies suggest that attention should be given to the measurement of attachment by women who are coping with extraordinary circumstances upon release from incarceration. The current instrument may

have been assessing parental stress in integrating their BAMBI child into a household with other children rather than measuring mothers' perceptions of their infants' insecure attachment.

There could be inadequate balance with each additional child, resulting in difficulties in forming secure mother-infant attachments. Also, a resultant increase in responsibilities (e.g., adequate job, living expenses, child care, medical bills) could increase the risk of insecure attachment with each additional child due to a decrease in individualized time spent with each child. Other researchers reported that additional responsibilities caused barriers in secure attachment (Byrne et al., 2009; Hayes, 2008; Stanley et al., 2008). Ramaswamy et al. (2015) also indicated that a lack of resources for previously incarcerated mothers was a constraint. Because BAMBI graduates may be of low socioeconomic status, sharing the moderate resources they have with each additional child could increase the risk for insecure attachment. In addition, a BAMBI child living without the protective environment of the BAMBI prison nursery or without the sole attention of a parent after prison release may be factors related to the infant's insecure attachment. need attention to the utilization of valid instruments specific to this population is a critical need for future research.

Comparison with Leading Research related to Prison Nursery Programs

This study drew on a series of both qualitative and quantitative research studies that examined experiences of incarcerated women who gave birth in prison but did not have access to prison nursery programs, as well as women who had the opportunity to participate with their infants in a prison nursery program. Chambers' (2009) seminal research examined the responses of women who had been separated from their infants

shortly after birth through extensive interviews. These women lacked access to a prison nursery program and study results demonstrated the emotional distress and sorrow faced by incarcerated mothers following infant separation within hours of birth. Chambers' (2009) study was instrumental in pointing to the need for prison nursery programs and helped shape this author's desire to conduct research related to prison nursery program. Separately, Byrne et al. (2009) conducted longitudinal research that evaluated improvement of infant attachment in their study sample. Their research differed from this cross-sectional pilot study in which participants indirectly evaluated the BAMBI prison nursery program on maternal and child attachment and maternal nurturance after graduating from the BAMBI program.

Byrne et al. (2009) used the Strange Situation Procedure, which was administered by trained research assistants in a laboratory setting, to evaluate attachment in infants in an objective fashion. This methodology differed from the current study in which child attachment was assessed using the BAMBI graduates' self-reports. Utilization of objective assessment represents a highly desirable methodological approach and would mitigate many of the caveats and potential confounds that self-reported assessment represent. An additional important difference was that the BAMBI program moved children from a prison setting into a community location for live-in nursery, whereas Byrne et al.'s (2009) study location remained within the prison grounds. Having a prison nursery inside the prison provides more of a controlled environment for both infants and mothers. The increase freedom of a community setting introduces an additional benefit of the BAMBI program that are not present with in-prison nursery programs.

THEORETICAL FRAMEWORK: ATTACHMENT THEORY

Bowlby's Attachment Theory (1988) was the underlying theoretical framework that guided this research exploring maternal–infant attachment among previously incarcerated mothers. His premises about the impact of early contact between mothers and infants provided a foundation for analyzing this study's findings among a very unique population of women and infants. Study results reflected that 46.3% of BAMBI graduates perceived their children to be securely attached and 53.7% perceived their BAMBI child to be insecurely attached. Increased level of insecure attachment reported by the BAMBI graduate on the BAMBI child may be due to the change in environment from the individualized attention during prison nursery to mother having to give attention to other children, family members, work or other priorities. Attachment theory relates to the forming of close emotional relationship with particular individuals and stresses the influence of parents in child development (Bowlby, 1988). Bowlby's theory helped guide this study with its measurable predictors of attachment and was used to establish study parameters through use of questionnaires to measure attachment. Because the BAMBI prison nursery program allowed incarcerated mothers and infants to live together and potentially form close relationships between each other, the use of attachment theory was applicable to and beneficial to the overall conduct of this study.

Responses to Discussion of Open-ended Question

This section briefly discusses additional qualitative, anecdotal data gathered from an open-ended question on the demographic data sheet which asked participants to comment on their feelings about the BAMBI program and the attachment Q-Sort questionnaire, which asked about their feeling and relationship with the BAMBI child.

These comments may illuminate why mostly positive responses were recorded on the survey instruments provided by the BAMBI graduate. Comments from the BAMBI graduates could be categorized as perceptions about attachment and relationships with the infant, and the importance of the BAMBI program to new mothers' self-being and self-esteem.

Perception of Attachment and Relationships with the Child

Some of the comments related to perception of attachment and relationships with the child includes a participant statement of having a "very close relationship . . . He will cry like he's missed me all day." Two mothers discussed the relationship with their children and commented about how wonderful that relationship was. Likewise, one mother discussed her perceived tie with her child as "We have a special bond." Another statement that related to the close relationship of the BAMBI child and mother was "[Child's name] and I have a very close relationship and she is very well adapted."

Evidence that seemed to support possible insecure attachment in BAMBI children included "My child is attached to my hip – where ever I go he goes – he wants to be with me." Another BAMBI graduate stated: "I will say that the first few months that she began daycare, there was some severe separation crying." These statements provided by the BAMBI graduates describe the BAMBI child as insecurely attached due to a lack of separation between mother and child. Insecure attachment may manifest as children's inability to function without their BAMBI parent. Thus, the nature of the BAMBI prison nursery program in which mothers and infants are together for a majority of the time may cause insecure attachment for some children. BAMBI officials may benefit from this

information by providing some caregiver relief for the BAMBI mothers as a way to create secure attachments.

Importance of BAMBI Program to Mothers' Self-being and Self-esteem

As reflected on the BAMBI Alumni Facebook page and in study responses, participants felt strongly that BAMBI was supportive of them as mothers. Statements on the demographic questions included: "I got a lot out of BAMBI program. I learned the responsibilities of having a child . . ." and " . . . this was a great experience to me." These women appear to remember their stay with fondness and feel that BAMBI contributed to self-growth. One individual said: "Being at BAMBI helped me become the mother/woman I am today . . . I've learned to live again."

In addition, some participants appeared to consider the BAMBI program to be virtually life-saving: "BAMBI was the best thing that happened to me;" and, "I just wanna say that I'm actually glad that I ended up getting incarcerated while being pregnant, because it most likely saved my baby's life and mine." Another mother indicated that no one outside of prison could have cared for her child, so her acceptance into the BAMBI program was fortuitous. Notably, only one negative comment was offered, and it concerned the organizational structure of BAMBI. In summary, these responses affirm the overall very positive experiences that this program offered incarcerated mothers and added to the richness of the study. The open questions provided the opportunity for these mothers to express some of their feelings about the program, which seemed to be overwhelmingly positive and added another dimension to this study.

STRENGTHS OF THE STUDY

This pilot study is the first study in the United States to explore the potential impact of a prison nursery program located in a community setting that provides for extended close contact between mothers and infants. The study examined maternal-infant attachment and maternal nurturance in a population that is vulnerable and often difficult to access and accurately assess. The study also provided an opportunity for participants to provide feedback about a program that they are very fond of and that deeply affected their lives. It highlights the need to expand ways to continue to solicit former BAMBI graduates' feedback and involvement in program improvement. Although the results of this pilot program were exploratory, study data can be used as a baseline to give feedback to the BAMBI program staff and design future evaluation studies to measure the effectiveness of this unique program.

LIMITATIONS

Since this study involved a sample of previously incarcerated women, both sample limitations and ethical limitations to the research findings existed. This section discusses these study limitations, especially as they relate to study size, socially desirable responses, instrument limitations, privacy concerns, and institutional barriers.

Sample Limitations

There were a number of limitations related to both the nature of the population and the size of the sample. Study participants were difficult to locate which caused the sample size to be small. The sample consisted of primarily low socioeconomic individuals who may not have had access to Facebook to participate. Additionally,

participants may not have felt comfortable disclosing information that could reflect poorly on their parenting abilities or the BAMBI program, which was a possible source of study bias. Thus, self-reported responses may have reflected socially desirable outcomes rather than unbiased descriptions. This phenomenon could be observed in the highly positive nature of BAMBI graduates' questionnaire responses.

The instruments themselves presented some problems, as they were not normalized to prison populations and also abbreviated. The use of more appropriate instruments or trained observers could better depict mother-infant attachment levels and nurturing skills. Another limitation was the transcription error on the MAI; although there was a re-coding of the MAI New and MAI Collapsed, it is impossible to determine how much the error impacted responses. Thus, results cannot be generalized to other studies.

Since the overall BAMBI program itself was not directly evaluated in this study, but rather its impact was indirectly explored via measurements of maternal attachment and nurturance, the study findings cannot be wholly attributed to the BAMBI program and cannot be generalized to other prison nursery programs.

Ethical Limitations

There were several ethics-related limitations or constraints in the recruitment of the sample for this study, largely due to the need to protect the privacy and confidentiality of these women who were formerly prison inmates, but also because the investigator was an employee of TDCJ at the time of the study. Participants were contacted by trusted confidants of the BAMBI program, which may have affected response autonomy and perceived confidentiality for BAMBI graduates. BAMBI workers' relationships with BAMBI participants could have affected assessment outcomes. Because this sample was

composed of former prisoners and the PI could not contact BAMBI graduates directly, there was not an opportunity to develop interviewer-interviewee rapport and that may have affected the lower survey response rates. In addition, since potential participants were contacted after release rather than during an ongoing assessment of the program may have increased concerns.

There were also several limitations regarding personal data that could not be collected about these research participants based on both IRB and TDCJ executive services feedback. To protect participants' anonymity, personal demographic data such as age, occupation, and history of incarceration were not collected and this lack of data may have limited the range of statistical analysis.

CONCLUSIONS AND IMPLICATIONS

This study was one of the first research efforts in the United States to explore the impact of a very unique community-based prison nursery program, BAMBI, on maternal-infant attachment and nurturance among previously incarcerated mothers who had given birth in prison. Although there are nine other prison nursery programs in the country, they are all located within prisons. BAMBI is the first ground-breaking program that allows mothers to live with their newborn infants for an extended period of time in a non-prison, community-based setting.

As a group, this study sample mirrored the majority of women who have been incarcerated in prisons around the country in the past decade. These BAMBI mothers consisted of women who had been sentenced to prison for non-violent offenses, were of childbearing age ranging from 25-34 years with the majority reporting that they were single, had a high school education or GED and had two to three other children residing

in their households besides the BAMBI program child. It's informative that almost all of these women in the study reported that they had been able to maintain custody of their children after they were incarcerated.

Several significant findings emerged from this pilot study, including the impact of participants' number of children on mothers' abilities to nurture infants as well as a potential risk that more children in the household may be predictive of insecure infant attachment to mothers. Participants with more children reported increased abilities or competencies to nurture their infants or children and may be related to their experience and comfort with parenting. It is notable however, that these same mothers who believed they were doing well in nurturing their infants also reported on the survey instruments that their infants appeared to have insecure attachment to them.

This finding of the significant relationship between infants' insecure attachment to the mother with greater numbers of children in the household could be potentially related to the decreased amount of time that mothers had to spend with each child or limited resources to provide for each additional child. Implications may be that that prison administrators and BAMBI officials need to create parent education classes related to enhancing attachment particularly in households with multiple children. Also, the quality of maternal nurturing should be assessed to ensure that it does not increase the risk for insecure attachment in children. It is also possible, however, that this finding of insecure attachment to mothers with more children, may be reflective of mothers' stress and challenges in integrating the BAMBI child into the household and a lack of instrument sensitivity to this issue.

Another notable finding was that all BAMBI graduates perceived themselves as very attached to their children as evidenced by high Maternal Attachment Inventory (MAI) scores. These high scores could be related to socially acceptable response bias or the instrument was assessing a broader domain of positive affirmation based on BAMBI participation other than purely maternal attachment. Moreover, the expected relationships were not observed between study instruments. This could have been due to the small sample size or the same issue with construct validity. Alternatively, the lack of significance in relationships could be due to the mostly positive scores by all participants or the lack of sensitivity with the instruments. It is also possible that since survey questions asked the participants to respond about their own perceptions and behavior, they may have tried to respond so that the overall BAMBI program as well as the BAMBI graduate or the BAMBI graduates' children would not be viewed in a negative light.

Implications

This pilot study has contributed to the growing body of research literature that addresses the need for incarcerated women to have opportunities to have close and sustained interaction with their newborn infants. While the results of this initial study cannot be generalized to other populations of women enrolled in prison nursery programs, due to the small sample size and non-prison location of the program, it provides important preliminary data that suggests that community-based prison nursery programs can potentially play a positive role in fostering maternal-infant attachment and nurturance. The study results, when viewed in relation to other similar studies of nursery programs that have demonstrated impact on attachment and nurturance, help reinforce the

critical need for more prison nursery programs to be developed across the country. The ten nursery programs currently in existence can only reach a very small percentage of the hundreds of incarcerated women and their infants who could benefit from the program. The study results also have implications for nurses, physicians, and administrators who work in prison settings as well as professional health associations, legislators, and the public at large to help encourage and support efforts to eliminate inhumane policies that force mothers and infants to be separated at birth.

Recommendations for Future Research

Future research should replicate this study with a larger sample of BAMBI program graduates using a longitudinal design. This approach would allow for the examination of the extent and nature of the BAMBI program's long-term impact on maternal attachment and nurturance and infant attachment to mothers. Additionally, it would be helpful to examine baseline data from mothers and infants as they first enter the BAMBI program as a frame of reference for analyzing pre-program and post-program outcomes. The integration of assessment from the beginning of participation in BAMBI would provide for the enrollment of participants as partners and collaborators in program assessment and improvement and create stronger commitment to participation post-release. In addition, there is a need for comparative outcomes research that evaluates BAMBI participants and other offender mothers who do not participate in the BAMBI program, as well as comparative studies of mothers and infants in BAMBI with participants in other prison nursery programs located within prisons. These research initiatives could potentially add to knowledge about differential impacts of community – based nursery programs and prison-based programs.

Finally, there is a need for future research that utilizes more robust, valid and sensitive instruments that can measure actual maternal actions, behaviors, and outcomes indicative of attachment and nurturance as well as measurement of child outcomes. These types of quantitative measures would provide more conclusive data to help assess the impact of the BAMBI program.

Appendix A: Study Recruitment Letter

Recruitment Letter

Dear Bambi Graduate:

My name is Veronica Kwarteng-Amaning. I am a registered nurse who works at TDCJ Hospital-Galveston and a graduate student in the nursing PhD program at the University of Texas Medical Branch in Galveston, TX. I am currently conducting a research study which is looking at the benefits of the BAMBI prison nursery program for women and infants who participated in the program. I want to personally invite you to participate in this study and share your important ideas and views about the program. As you know, the purpose of BAMBI was to provide an opportunity for mothers and babies to spend time together and bond. Although the program has existed for about 5 years, there has not been a formal assessment to show that it is a benefit to mothers and babies. My study will help gather important information about the program.

I am asking BAMBI graduates to fill out several short sets of questions on nurturing and attachment to evaluate whether the program accomplished what it set out to do. An evaluation such as this will provide important feedback about the BAMBI program and help identify ways we can make BAMBI better. Please consider participating in this voluntary nursing research study. Your participation will be confidential and anonymous. There is no information asked on the questionnaires which identifies you in any way. The demographic information requested will help us figure out if there are some groups that benefited more than others and how we can improve the program overall. Please remember, there is no right or wrong answer. Because the only contact information we have is your last known mailing address, this invitation to be included in the study may be passed along to you by a family member or someone else in the Bambi program.

There is a \$15 gift card that compensates you for taking time to participate in this study which you will receive after you fill out the survey and send it back to me. I will be very happy to provide a brief summary of the study results once the study is completed. To receive the \$15 gift card and copy of the study results, at the end of the online survey you will be able to click on a link that leads to a separate gift card mailing list where you will be asked to provide your date of birth and an identification number that you create consisting of three letters and three numbers (e.g. VKA 123), and an address to mail the gift card.

If you are filling out a paper copy of the survey, you will need to return a completed survey to me, and fill out the separate last page with your date of birth, the created identification number consisting of three letters and three numbers (e.g. VKA 123), and an address to mail the gift card. The gift card information will only be used to verify that you are a former graduate of BAMBI and to make sure that the gift card is sent to where you want it to be sent. It is not part of the study data and will not be connected to a survey at any point in time. These steps are necessary to verify your status as a BAMBI graduate and to receive the gift card.

To participate, please fill out enclosed surveys either by paper or electronically and return to me electronically or by mail in postage paid envelope if using the paper version. Since we want to keep your answers anonymous, there is no consent form to sign. Filling out and returning the questionnaire is considered consent. Please contact me if you have any questions. Feel free to share study packet, study link, or information about the study and my address with other BAMBI

graduates you may know. They can either go to the study link and fill out the questionnaires there or contact me and I will be more than happy to send them a study packet as well. Thank you so much for your time.

Sincerely,

Veronica Kwarteng-Amaning, RN MHA
PhD Student
Graduate School of Biomedical Sciences
University of Texas Medical Branch
Galveston, Texas

Contact information: vekwarte@utmb.edu; phone 409 256-1839
IRB #160005

Appendix B: Demographic Data Sheet

Demographic Information
<p>* 1. What is your age?</p> <p><input type="radio"/> 18 to 24</p> <p><input type="radio"/> 25 to 34</p> <p><input type="radio"/> 35 to 44</p> <p><input type="radio"/> 45 to 54</p> <p><input type="radio"/> 55 to 64</p>
<p>* 2. Which race/ethnicity best describes you? (Please choose only one.)</p> <p><input type="radio"/> American Indian or Alaskan Native</p> <p><input type="radio"/> Asian / Pacific Islander</p> <p><input type="radio"/> Black or African American</p> <p><input type="radio"/> Hispanic</p> <p><input type="radio"/> White / Caucasian</p> <p><input type="radio"/> Multiple ethnicity / Other (please specify)</p> <div></div>
<p>* 3. Which of the following best describes your current relationship status?</p> <p><input type="radio"/> Married</p> <p><input type="radio"/> Widowed</p> <p><input type="radio"/> Divorced</p> <p><input type="radio"/> Separated</p> <p><input type="radio"/> Single, but living with a significant other</p> <p><input type="radio"/> Single, never married</p>

* 4. What is the highest level of school you have completed or the highest degree you have received?

- ☐ Less than high school degree
- ☐ High school degree or equivalent (e.g., GED)
- ☐ Some college but no degree
- ☐ Associate degree
- ☐ Bachelor degree
- ☐ Graduate degree

* 5. How many children do you have (Including BAMBI child)

* 6. Who does the BAMBI child currently live with

Other (please specify)

* 7. What was your week of pregnancy upon entry into TDCJ (in weeks)

* 8. What is your length of BAMBI stay (in months)

* 9. Date of exit from BAMBI

Date MM DD YYYY

* 10. If you would like to share anything with me about your experiences with the BAMBI program, please feel free to write a note in the space below



Appendix C: Maternal Attachment Inventory (MAI)

Maternal Attachment Inventory

I feel love for my baby

- Almost Never
- Never
- Always
- Almost always

I feel warm and happy with my baby

I want to spend special time with my baby

I look forward to being with my baby

Just seeing my baby makes me feel good

I know my baby needs me

I think my baby is cute

I'm glad this baby is mine

I feel special when my baby smiles

I like to look into my baby's eyes

I enjoy holding my baby

I watch my baby sleep

I want my baby near me

I tell others about my baby

It's fun being with my baby

I enjoy having my baby cuddle with me

I'm proud of my baby

I like to see my baby do new things

My thoughts are full of my baby

I know my baby's personality

I want my baby to trust me

I know I am important to my baby

I understand my baby's signals

I give my baby special attention

I comfort my baby when he/she is crying

Loving my baby is easy

Appendix D: Attachment Q-Sort Questionnaire (AQSQ)

Attachment Q-Sort Questionnaire

The following questions have to do with your child's behavior. You are to consider your child's behavior during a 7 day period when he or she was not ill. Please read all parts of the question. Circle the number that best represents your child.

- 1) When my child is upset or injured, he/she will accept comforting from adults other than me.
(Low score: you are the only one he/she allows to comfort him/her.)

1	2	3	4	5	6	7	8	9
Very Unlike My child		Unlike My Child		Neither Like Nor Unlike		Like My Child		Most Like My Child

- 2) My child acts like he/she expects me to interfere with his/her activities when I am simply trying to help him/her with something. (Low score: Accepts your help readily, unless you are in fact interfering.)

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- 3) My child is light-hearted and playful most of the time.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- 4) When given a choice, my child would rather play with toys than adults. (Low score: Would rather play with adults than toys.)

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- 5) If held in my arms, my child stops crying and quickly recovers after being frightened or upset. (Low score: Not easily comforted.)

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- 6) My child copies behaviours or ways of doing things from watching my behaviour. (Low score: Doesn't noticeably copy your behavior.)

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- 7) When I don't do what my child wants right away, he/she behaves as if I were not going to do it at all (fusses, gets angry, walks off to other activities, etc.).) Low score: Wait's a reasonable time, as if he expects I will shortly do what he asked.)

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- 8) My child readily lets new adults hold or share things he/she has, if they ask to.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- 9) My child keeps track of my location when he/she plays around the house (calls to me now and then, notices me go from room to room, notices if I change activities). (Low score: Doesn't keep track).

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- 10) My child tries to get me to imitate him/her, or quickly notices and enjoys it when I imitate him/her on my own.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- 11) I laugh at or approve of something my child has done, he/she repeats it again and again.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- 12) If I move very far, my child follows along and continues his/her play in the area I have moved to. (Doesn't have to be called or carried along; doesn't stop play or get upset.)

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

Please comment on other things that have to do with your relationship with your child

Please comment on other things that have to do with your feelings for your child.

Appendix E: Parenting Dimensions Inventory (Short Version)

THE PARENTING DIMENSIONS INVENTORY (SHORT VERSION)

For the questions that follow, you will be asked about your attitudes and behavior toward

one of your children. This child must be the child who is participating in this study. Please answer all questions in regard to this child.

I. The following statements represent matters of interest and concern to some parents.

Not all parents feel the same way about them. Circle the number which most closely applies to you and your child.

Not at all like me	Not much like me	Somewhat like me	Pretty much like me	Very much like me	Exactly like me
1	2	3	4	5	6

1. I encourage my child to talk about his or her troubles 1 2 3 4 5 6
2. My child and I have warm intimate moments together. 1 2 3 4 5 6
3. I encourage my child to be curious, to explore, and to question things. 1 2 3 4 5 6
4. I find it interesting and educational to be with my child for long periods. 1 2 3 4 5 6
5. I make sure my child knows that I appreciate what he or she tries to accomplish. 1 2 3 4 5 6
6. I respect my child's opinion and encourage him/her to express it. 1 2 3 4 5 6

Appendix F: Participant Incentives

Gift Card Instructions

To qualify for the gift card, you must provide your date of birth and create an individualized Gift Card ID number using any three letters and three numbers (e.g., VKA123). Please WRITE DOWN the combination you choose and provide the combination and date of birth to me for your gift card. Also include the address of where you would like the gift card to be sent. Again thank you for your participation.

1. Accurate date of birth (for verification of your previous BAMBI status and receipt of the gift card).

Date

MM	DD	YYYY
<input type="text"/>	<input type="text"/>	<input type="text"/>

2. Gift Card ID Number -- Combination of 3 letters and 3 numbers (e.g. VKA123)

3. Please provide an address where you would like the gift card to be sent (it does not have to be your personal address)

Appendix G: Vice President Offender Services Support Letter



December 28, 2015

Veronica Kwarteng-Amaning
UTMB- Hospital Galveston
UTMB Health
Galveston, TX 77555

Dear Veronica

This letter confirms support of your dissertation studies outlined in your research proposal on previously incarcerated mothers. The dissertation you propose uses quantitative instruments to establish baseline information on the impact of the BAMBI prison program and the educational intervention provided in relation to maternal-child attachment and nurturing competencies. Establishing baseline information helps ensure pregnant incarcerated mothers are being provided with the needed educational resources to better assimilate into society and care for their child.

As you know, BAMBI enables incarcerated mothers to bond with their infants outside the prison environment and is the only program of its kind in the United States. This BAMBI program is very important to the correctional team and to our healthcare institution. Ensuring the success of the BAMBI program is imperative. Obtaining rigorous outcome measures could also help refine the BAMBI program and obtain additional legislative and policy approval.

I respectfully request that you consult with me on the interpretation of the data obtained prior to publication.

I look forward to collaborating with you on the proposed research and wish you the best with respect to your project. I am looking forward to seeing your results.

Sincerely,

A handwritten signature in black ink, appearing to read "Owen J. Murray", is written over the typed name and title.

Owen J. Murray, DO, MBA
Vice President Offender Care Services
UTMB- Correctional Managed Care

Appendix H: IRB Approval



Institutional Review Board
301 University Blvd.
Galveston, TX 77550-0158
409.266.9475

10-Feb-2016

MEMORANDUM

TO: Veronica Kwarteng-Amaning, PhD, MHA/Darlene Martin, PhD
Nursing Administration TDCJ

Andrea McKing

FROM: Michael Loeffelholz, PhD
Institutional Review Board, Chairman

RE: Initial Study Approval

IRB #: IRB # 16-0005

TITLE: An Exploratory Study of the Impact of the Baby and Mother Bonding Initiative (BAMBI) in Previously Incarcerated Mothers

DOCUMENTS: Protocol, BAMBI Invitation Letter, Gift Card Retrieval Information and Instrument (Survey)

The UTMB Institutional Review Board (IRB) reviewed the above-referenced research protocol via an expedited review procedure on 09-Feb-2016 in accordance with 45 CFR 46.110(a)-b(1). Having met all applicable requirements, the research protocol is approved for a period of 12 months. The approval period for this research protocol begins on 10-Feb-2016 and lasts until 09-Feb-2017.

Written documentation of consent is waived in accordance with 45 CFR 46.117(c).

The research protocol cannot continue beyond the approval period without continuing review and approval by the IRB. In order to avoid a lapse in IRB approval, the Principal Investigator must apply for continuing review of the protocol and related documents before the expiration date. A reminder will be sent to you approximately 90 days prior to the expiration date.

The approved number of subjects/specimens to be enrolled/utilized for this project is 156. If, the approved number needs to be increased, you first must obtain permission from the IRB to increase the approved sample size.

If you have any questions related to this approval letter or about IRB policies and procedures, please telephone the IRB Office at 409-266-9475.

Appendix I: TDCJ Research Application

Texas Department of Criminal Justice <u>Application to Conduct Research</u>			TDCJ Project _____	
Principal Investigator <u> x </u>			Secondary Researcher _____	
Name: <u>Miss</u>	<u>Kwarteng-Amaning</u>	<u>Veronica</u>	<u>MI</u>	
<i>Title</i>	<i>Last</i>	<i>First</i>	<i>MI</i>	
List any other names used if different from name on this application: _____				
Home Address: <u>428 Drake Lane</u> <u>League City</u> <u>TX</u> <u>77573</u>				
<i>Street City State Zip</i>				
Business Address: <u>301 University BLVD</u> <u>Galveston</u> <u>TX</u> <u>77555</u>				
<i>Street City State Zip</i>				
Phone: <u>409-256-1839</u> <u>409-256-1839</u>				
<i>(Area Code) Home Phone (Area Code) Work Phone and Ext.</i>				
Social Security Number: <u>645-46-3100</u> Email: <u>vekware@utmb.edu</u>				
Driver's License Number: <u>17343152</u> State: <u>TX</u>				
<i>Attach a copy of driver license. If you do not have a driver license, submit a government-issued photo ID or passport.</i>				
Gender: <u>Male</u> <input type="checkbox"/> <u>Female</u> <input checked="" type="checkbox"/> Date of Birth: <u>6/11/1979</u>				
Do you have any affiliation with an offender who is currently incarcerated or has been previously incarcerated?				
Yes _____ No <u> x </u>				
If Yes, please list the offender's name and current status: _____				
Have you ever been convicted of a crime (misdemeanor or felony)? Yes _____ No <u> x </u>				
If yes, provide dates/details: _____				

<div style="display: flex; justify-content: space-between;"> <div>Research Project Title: _____</div> <div>An Exploratory Study of the Impact of the Baby and Mother Bonding Initiative (BAMBI) in Previously Incarcerated Mothers</div> </div>				
Applicant Affiliation: Government Agency _____ Business _____ University <u> x </u> Other _____				
Affiliation Name: <u>University of Texas Medical Branch</u>				
Affiliation Address: <u>301 University BLVD</u> <u>Galveston</u> <u>TX</u> <u>###</u>				
<i>Street City State Zip</i>				
Project Chair (University Students Only): <u>Dr. Martin</u> Phone: <u>409-392-5595</u>				
Are you receiving any project-specific funding for this research? Yes _____ No <u> x </u>				
If Yes, please list your funding source(s) and their contact information: _____				
Please attach a copy of your research proposal (see "Guidelines for Writing a Proposal" for what to include).				
Submit your application and research proposal to: Texas Department of Criminal Justice Karen Hall, Executive Services P.O. Box 99 Huntsville, Texas 77342-0099 (936) 437-8972 (936) 437-2125 - fax karen.hall@tdcj.texas.gov				

Each secondary researcher must complete and submit an application.

Appendix J: TDCJ Research Data Request Form

Texas Department of Criminal Justice
Research Coordination – Executive Administrative Services

TDCJ Project
#:

Research Data Request Form

Instructions: Complete the following information for the data you are requesting from the Texas Department of Criminal Justice. Please be as specific as possible, and include a detailed definition or explanation of the variables you are requesting. Submit this form with your Research Application and Proposal/Protocol.

Name / Affiliation:	Veronica Kwarteng-Amaning/ UTMB School of Nursing
Project Title:	An Exploratory Study of the Impact of the Baby and Mother Bonding Initiative (BAMBI) in Previously Incarcerated Mothers
Sampling Methodology:	
Target Population:	Previously incarcerated women who participated in BAMBI program
Quantity:	156
Year(s) Requested:	up to 5 years
Variable(s) Requested:	Addresses to mail initial surveys and Date of birth to ensure BAMBI participation prior to gift card mailing after survey completion
Comparison Group(s) (if applicable):	
Format Requested:	Excel

Internal Use Only

Instructions: Please identify any limitations to the request and provide alternative suggestions.

Appendix K: TDCJ Letter of Approval



Texas Department of Criminal Justice

Brad Livingston
Executive Director

March 28, 2016

Veronica Kwarteng-Amaning
428 Drake Lane
League City, Texas 77573

Dear Ms. Kwarteng-Amaning:

TDCJ - Executive Services has completed its final review of your research project and has concluded your research project has met all the necessary requirements for approval. You may officially start your data collection process once you have signed and returned the "Research Agreement" enclosed in this packet. Also enclosed is a copy of the "Accessing Premises: Compliance with Agency Policies and Procedures." The Texas Department of Criminal Justice project number for your research application titled "An Exploratory Study of the Impact of the Baby and Mother Bonding Initiative (BAMBI) in Previously Incarcerated Mothers" is "740-AR16". Please use this project number when referring to your TDCJ project in the future.

As stated in the "Research Agreement," please remember our office requests:

- A progress report after the first three months, and every six months thereafter. Your first progress report is due **July 11, 2016**. You are responsible for reporting on time.
- A copy of the IRB approval (and yearly renewed approval) letter, proposal, and any information submitted to the IRB for proposal revisions, unanticipated risk or adverse drug reactions, renewal etc.
- All publications, presentations, and posters (dissertation, thesis, academic article, report, etc.) shall be approved by TDCJ prior to submission for presentation and/or publication. Please allow thirty working days for this process. All publications, presentations, and posters produced from TDCJ research projects **must** contain the following disclaimer:

"The research contained in this document was coordinated in part by the Texas Department of Criminal Justice (740-AR16). The contents of this document reflect the views of the author(s) and do not necessarily reflect the views or policies of the Texas Department of Criminal Justice."

I advise that you carefully review the "Texas Department of Criminal Justice's Research Agreement" and "Accessing Premises: Compliance with Agency Policies and Procedures". If you have questions, please contact Alexis Smith at (936) 437-8972.

Sincerely,

A handwritten signature in black ink, appearing to read "Karen Hall", is written over a horizontal line.

Karen Hall, Manager IV
TDCJ – Executive Support

Enclosure: "Research Agreement" to be signed and returned
"Accessing Premises: Compliance with Agency Policies and Procedures"

Our mission is to provide public safety, promote positive change in offender behavior, reintegrate offenders into society, and assist victims of crime.

P.O. Box 99
Huntsville, Texas 77342-0099
(936) 437-2101
www.tdcj.state.tx.us

**Texas Department of Criminal Justice
Executive Services**

**TDCJ Project #:
740-AR16**

Research Agreement – Academic

This document serves as a research agreement between the below listed sponsoring University/Institution and the Texas Department of Criminal Justice (TDCJ). Failure to comply with this agreement may result in termination of the research project as well as future applications to conduct research. Upon approval of the proposed research, TDCJ - Executive Services will complete this agreement and forward it to the Principal Investigator.

Check one: The sponsoring University/Institution ☒ is ☐ is not an agency of the State of Texas.

Sponsoring University/Institution		Principal Investigator	
Name:	University of Texas Medical Branch	Name:	Veronica Kwarteng-Amaning
Address:	301 University Blvd.	Address:	428 Drake Lane
Address:	Galveston, Texas 77555	Address:	League City, Texas 77573
Phone:	409-392-5595	Phone:	409-256-1839
Fax:		Fax:	
Email:		Email:	vekwarte@utmb.edu

Secondary Researchers (list):	
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Project Title:	An Exploratory Study of the Impact of the Baby and Mother Bonding Initiative (BAMBI) in Previously Incarcerated Mothers		
Projected Start Date:	4/1/2016	Projected End Date:	2/1/2017
Project Description:	Five percent of incarcerated females report being pregnant prior to admission into U.S. prisons (Bureau of Justice Statistics, 2013) thus supporting the need for prison nurseries. A unique prison nursery program, the Baby and Mother Bonding Initiative (BAMBI), provides an opportunity for mothers and infants to live together in a non-prison residential environment for up to one year and is sponsored by the Texas Department of Criminal Justice. The objective of the proposed study is to evaluate the impact of the BAMBI program on maternal infant attachment and nurturing competencies by assessing women who graduated from the program. An exploratory, descriptive research design will be utilized. The sample will include a minimum of 50 graduates of the BAMBI program drawn from a population of 156 graduates. Recruitment will be through mail and Facebook using non-probability snowball sampling. Data will be analyzed using descriptive statistics, analysis of covariance, correlation coefficients and multiple regression. A statistical significance of $\alpha \leq .05$ will be the standard.		
Location (facility/dept.):			
Offender Enrollment:			
Special Conditions:			

Agency Protocol

TDCJ Point of Contact: During the terms of this contract, the TDCJ point of contact shall be TDCJ - Executive Services Research Coordinator.

University/Institution Point of Contact: During the term of this contract, the University/ Institution point of contact shall be the Principal Investigator, unless otherwise noted.

Confidentiality Agreement

The parties hereto acknowledge and agree that in order for Ms. Kwarteng-Amaning to perform the services contemplated herein, TDCJ may have to provide Ms. Kwarteng-Amaning with certain information regarding offenders and former offenders known as "criminal history information," which means information collected about a person by a criminal justice agency that consists of identifiable descriptions and notations of arrests, detentions, indictments, information, and other formal criminal charges and their dispositions. The term does not include information as to convictions, finger print information, and driving records.

In the event TDCJ provides Ms. Kwarteng-Amaning with personal health information or criminal history information, Ms. Kwarteng-Amaning agrees to comply with the following confidentiality requirements:

- For personal health information, 45 CFR 164.501, 164.508, 164.512(i), 164.514(e), 164.528, 164.532.
- For criminal history information, 28 CFR 20, Part 20, Subpart B, Section 20.21; Section 524 (a) of the "Act", and Government Code Chapter 411, Section 411.083.

More specifically Ms. Kwarteng-Amaning agrees and acknowledges as follows:

- A. TDCJ hereby specifically authorizes that Ms. Kwarteng-Amaning may have access to personal health information or criminal justice history to the extent such access is necessary or appropriate to enable Ms. Kwarteng-Amaning to perform the services contemplated herein.
- B. Ms. Kwarteng-Amaning agrees to limit the use of such personal health information or criminal justice information for the purposes set forth herein.
- C. Ms. Kwarteng-Amaning agrees to maintain the confidentiality and security of the personal health information or criminal justice history information in compliance with federal and state statutes, rules, and regulations, and to return or destroy such information when it is no longer needed to perform the services contemplated herein.
- D. In the event that Ms. Kwarteng-Amaning fails to comply with the terms hereof, TDCJ may terminate this Agreement. An intentional or knowing violation on the part of Ms. Kwarteng-Amaning may result in criminal prosecution under federal and state laws.

Offender Enrollment

You are required to provide TDCJ with the names of offenders enrolled in academic research along with copies of the informed consent signed by each offender participant. This information should be mailed to:

TDCJ - Executive Services
Attn: Research Coordinator
P.O. Box 99
Huntsville, TX 77342

If the Principal Investigator seeks approval from his or her IRB to modify the consent form, then copies of the approved modified form and the letter of approval from the IRB must be forwarded to TDCJ – Executive Services at the address above.

Project Extensions

All research requiring IRB approval for extensions must have an extension approval letter on file with TDCJ - Executive Services **prior to the expiration of the current IRB on file**. For projects not requiring IRB approval, extension requests addressed to TDCJ must be received by TDCJ - Executive Services prior to the expiration of the current IRB on file. Authorization for extensions must be granted by the appropriate TDCJ Division Director or designee.

Institutional Review Board (IRB) Approval

Research projects requiring IRB approval must have a current approval letter on file. The Principal Investigator must submit to TDCJ - Executive Services a renewed IRB approval by the current IRB expiration date. Without current IRB approval, TDCJ will deem the project Inactive and researchers will be denied access to TDCJ resources until a current IRB approval is on file. The Principal Investigator is also required to notify TDCJ if an amendment to the originally approved project is sought from the IRB by providing a copy of the approved IRB and a copy of documents submitted for the proposed changes.

The IRB for this project will expire on **02/09/2017**

Progress Reports

TDCJ requires periodic progress reports for all active research projects. A progress report form is available on the TDCJ website (<http://www.tdcj.state.tx.us/faq/faq-external-research.htm#DOCUMENTS>).

The first progress report is due three (3) months after the Project Start Date listed on page 1 of this Agreement. All subsequent progress reports are due every six (6) months thereafter for the duration of the project. **Exceptions:** The Principal Investigator must notify TDCJ within 24 hours in the event of serious adverse effect of target population (e.g., serious illness or death).

Your first progress report is due on **07/11/2016**.


Final Reports

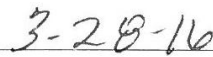
Prior to publication or presentation, the results of your studies should be submitted for review and comment. Please allow thirty (30) working days for this process. In addition, two final copies of any reports generated from the research project shall be provided to TDCJ - Executive Services (dissertation, thesis, academic article, report, etc.). All publications produced from TDCJ research projects **must** contain the following disclaimer:

"The research contained in this document was coordinated in part by the Texas Department of Criminal Justice (**Research Agreement #740-AR16**). The contents of this document reflect the views of the author(s) and do not necessarily reflect the views or policies of the Texas Department of Criminal Justice."

By signing below, you indicate that you have read, understand, and agree to abide by all requirements as stipulated in this Research Agreement and in TDCJ Administrative Directive (AD) 02.28. You agree not to deviate from approved methodology without first obtaining written permission from the TDCJ – Executive Services and/or approval from your IRB. You also agree to make a "good-faith" effort to abide by all rules, regulations, and policies applicable to the Texas Department of Criminal Justice.

This Agreement shall remain in force for the duration of the project, but is subject to revocation by either party at any time for any or no reason.


(Signature)


(Date)

Karen Hall, Manager IV
TDCJ - Executive Support


(Signature)


(Date)

Principal Investigator

Texas Department of Criminal Justice
Accessing Premises: Compliance with Agency Policies and Procedures

TDCJ Project #:
740-AR16

Print Name: Veronica Kwarteng-Amaning

Project Title: "An Exploratory Study of the Impact of the Baby and Mother Bonding Initiative (BAMBI) in Previously Incarcerated Mothers"

Persons wishing to gain access to Texas Department of Criminal Justice (TDCJ) premises must comply with rules detailed in this document. Prior to admission onto a secured facility, individuals will be required to read, initial, and comply with one or all of the following Agency procedures, depending on the nature of the visit. Failure to comply may result in being escorted from the unit, suspension of projects, and/or criminal prosecution, if applicable. These guidelines do not override rules contained in the *TDCJ Visitation Plan* or Board Policy 03.81, *Offender Access to the Courts, Counsel, and Public Officials Rules*. **Please read and initial in the space to the left of the text.**

VLA	1.	General Access on a secured unit is based on the safety and security requirements of the unit. Unit access of any kind, including but not limited to offender visits, interviews, and data collection, may be cancelled or rescheduled. Access is generally granted for persons age 18 and above. Exceptions are at the discretion of the Unit Warden. All persons entering a secured facility must submit to a criminal history background check. If access is granted, all persons must have government-issued photo identification for entry. Relatives or close friends of offenders will not be able to access the unit under any circumstances without prior approval of the Warden.
VLA	2.	Tours Tours on secured facilities are permitted for individuals or groups. Persons seeking access on secured facilities must also comply with all rules specified in other sections of this document. Tour requests should be made at least 30 days in advance. A tour cancellation should be made at least 24 hours prior to the tour date. Other criteria for tours include: <ul style="list-style-type: none"> ▪ Tours are generally two (2) hours in length and occur during normal business hours (8 a.m. – 5 p.m.). Tour time may be shortened or lengthened at the Warden's discretion. ▪ Tour groups will normally be restricted to a maximum of 25 participants unless otherwise authorized by the Warden. ▪ Tour groups should assemble at the unit at least 30 minutes before the scheduled tour time. Tour participants who arrive late will be permitted to join the tour in progress only at the Warden's discretion. ▪ Tour group participants are requested to remain together in a group and follow the instructions of the TDCJ staff.
VLA	3.	Access by Writers and Researchers Editorial researchers, independent filmmakers, writers for non-news magazines, and other non-news media representatives may be permitted to access units and offenders by special advance arrangement and approval of the Warden in coordination with the Public Information Office. Death row offender interviews and access to death row housing areas are not permitted during the week prior to a scheduled execution. Scholastic research requests should be made to TDCJ - Executive Services.
VLA	4.	Dress Code Persons shall dress in a conservative and responsible manner that is appropriate for the job being performed and shall adhere to the grooming standards herein. Regardless of the job assignment, any attire that is of an extreme design or revealing in nature, or any attire or haircut style that conveys messages of a derogatory or offensive nature through language, logos, or symbols, is prohibited. Persons shall not wear shorts, tank tops, sandals, see-through clothing, midriff-baring tops, skintight clothing, or expensive jewelry. Skirts shall cover the thighs. Jewelry should be kept to a minimum, avoiding dangling, over-sized earrings and bracelets. Authorized visitors should avoid wearing all gray or all white attire, as it may create confusion in identifying visitors from correctional officers and offenders.
VLA	5.	Hostage Policy Employees will not permit offenders or others to use hostages to escape from custody or otherwise interfere with orderly institutional operations. Hostages will not be recognized for bargaining purposes. All offenders, visitors, staff, and volunteers will be informed of this regulation.
VLA	6.	Sexual Harassment Policy Sexual harassment and discourteous conduct of a sexual nature will not be tolerated at this Agency. Discourteous conduct of a sexual nature is any conduct (words or actions) of a sexual nature toward an Agency employee or other individual that: (a) a reasonable person would find offensive or (b) is unwelcome to the person to whom such conduct is directed and that person has communicated (by words or actions) to the other person that the conduct is unwelcome.
VLA	7.	Tobacco Policy In an effort to provide a safe and healthy work environment for employees and offenders, employees and persons on TDCJ property conducting official business are permitted to carry and store tobacco products while at the administrative offices. The use of tobacco products is only allowed outdoors in approved, designated areas. A list of these areas is posted on the employee bulletin board and can be obtained through the Warden.
VLA	8.	Drug-Free Workplace TDCJ is a drug-free workplace. Possession, use, sale, or delivery of illicit drugs and drug paraphernalia is strictly prohibited and is subject to prosecution.

Texas Department of Criminal Justice
Accessing Premises: Compliance with Agency Policies and Procedures (Cont.)

VLA	9.	Contraband Without a specific order or authorization to do so, persons on TDCJ property shall neither deliver into nor remove from the grounds of a facility under the jurisdiction of the Agency any item of contraband and shall not exercise possession or control of any item of contraband while on such grounds. Contraband is defined as any item: 1) not issued to employees (or persons on TDCJ property) for the performance of their duties and which employees have not obtained their supervisor's permission to possess (other than those items which an employee is normally in possession of, such as car keys); 2) for which possession of is not permitted by Agency policy, procedure, or practice; 3) prohibited by law; or 4) given to an offender by an employee that the offender is not authorized to possess or use. Specific items of contraband include, but are not limited to, firearms, knives, ammunition, drugs, intoxicants, or unauthorized written or verbal communication brought into or taken from a facility for an offender, former offender, or associates or family members of offenders.
VLA	10.	Badges/Cell Phones/Pagers/Personal Computers/Cameras All persons shall be required to wear appropriate identification badges and follow all division or local identification requirements. All persons shall sign in and out at the designated location. ID cards may not be used for any purpose other than those purposes specifically defined in Agency policy. Persons cannot loan an ID card to another individual for any reason. Lost or stolen ID cards must be reported immediately to the Human Resources representative or appointed TDCJ personnel. Unless previously authorized by the Warden or facility administrator, persons may not carry into the facility cameras, purses, briefcases, cellular phones, personal computers, magazines, packages, or similar items.
VLA	11.	Personal Phone Calls Persons shall limit personal phone calls to brief local calls. Unless previously authorized by TDCJ officials, long distance and collect calls are prohibited. Persons are prohibited from making or accepting personal calls for or from offenders. Please note that all incoming and outgoing calls are subject to monitoring for security purposes.
VLA	12.	Interaction with Offenders Persons shall not establish personal relationships with offenders (or relatives of offenders), mail any items of correspondence for offenders, or make or accept personal calls for or from offenders. Persons shall not carry firearms of any kind or other contraband onto TDCJ premises. They shall not carry out contraband or accept gifts from offenders. Persons are not allowed to transport offenders.
VLA	13.	Operation and Parking of Vehicles on TDCJ-CID Property All vehicles will be parked in designated parking areas only. All parked vehicles will be locked and the ignition key removed. No drugs, intoxicating beverages, or other contraband articles are to be left in any vehicle parked on TDCJ-CID property. All vehicles are subject to search. Vehicular traffic entering and leaving TDCJ-CID grounds will be maintained to a minimum. All vehicles entering or leaving the unit will be searched in accordance with the post orders for the back gate officer. The vehicle operator will remain with the vehicle at all times while the vehicle is within the facility. If a vehicle is to remain within the grounds for an extended period of time, the vehicle will be disabled and the key will be placed in a secure area that is staffed full time.
VLA	14.	Property and Vehicle Searches Persons accessing TDCJ premises are subject to searches of their property and/or vehicle at any time. All searches shall be conducted in a courteous and professional manner with concern for dignity, safety, and privacy of all individuals. An official of the same sex will conduct all authorized searches in private areas. Hand-carried personal containers subject to searches include, but are not limited to, briefcases, thermoses, jugs, bottles, lunch/snack bags, and sealed packages and parcels. Refusal to voluntarily submit to a search as directed by TDCJ personnel may result in suspension of a person's access privileges.
VLA	15.	Compensation to Offenders for Participating in Research Incentives and/or compensation of any kind may not be offered to incarcerated offenders as a form of persuasion to participate in any research project. However, this does not apply to parolees, who may be compensated at the researcher's discretion. Also, TDCJ staff may not receive incentives and/or compensation of any kind for participating in any research project while on duty.
VLA	16.	Criminal History Record Information Information about a person by a criminal justice agency that consists of identifiable descriptions and notations of arrests, detentions, indictments, information, and other formal criminal charges and their dispositions will not be documented by the researcher on offenders or agency staff and shall not be communicated to any unauthorized person when prohibited by law. However, criminal history record information that is a court record of a public judicial proceeding and that relates to the conviction of a person for any criminal offense or a grant of deferred adjudication to a person charged with a felony offense may be used for any purpose or released to any other person. The disclosure of criminal history record information to unauthorized persons is a criminal offense under Texas Govt. Code §411.085.

Appendix L: BAMBI Program Manager Recruitment Statement

Hey guys, check out this flier and link for a survey on BAMBI by Veronica Kwarteng-Amaning. I have known Veronica for about 5 years now and have been working with her in her current role as a PhD student since 2014. Please consider helping her complete her education by answering the questions on the survey. Your responses will be completely anonymous; no information asked on the questionnaires will identify you in any way. Also, we can use the information you provide to improve BAMBI for other mothers who need it. Her contact information is on the flier. Also you can contact me if you have any questions.

If you want to take the survey online, here is the link:
<https://www.surveymonkey.com/r/BAMBISTUDY>

Thank you so much

Liz

Liz Moore

UTMB/CMC

BAMBI Program Manager

ellmoore@utmb.edu

Appendix M: TDCJ Progress Report: February 2017

Texas Department of Criminal Justice			TDCJ Project #:
Research Coordination – Executive Administrative Services			740-AR16
Progress Report			
Instructions: Please check the appropriate box or complete requested information in all sections.			
Date Sent to Researcher:		Due Date:	
Research Title:	An Exploratory Study of the Impact of the Baby and Mother Bonding Initiative (BAMBI) in Previously Incarcerated Mothers		
Principal Investigator:	Veronica Kwarteng-Amaning RN		
Reporting Areas	Yes	No	Comments
Administrative			
IRB Modifications	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If Yes, attach revised IRB and supporting documentation
Principal Investigator Change	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If Yes, submit IRB approval letter
Secondary Researcher(s) Add / Remove	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If added, complete appropriate forms. If removed, indicate name and removal date:
Other (explain):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Adverse Event	<input type="checkbox"/>	<input checked="" type="checkbox"/>	If Yes, complete box below
Data Collection Start Date:	4/6/2016		Data Collection End Date: 7/6/2016
Number of Offenders Enrolled During Report Period:		0, participants of this research were previously incarcerated.	
List of Units Accessed During Report Period:		0	
Total Number of TDCJ Offenders Currently Enrolled in Study:		0	
Data Analysis (Select one)	<input checked="" type="checkbox"/>	Currently Analyzing	
	<input type="checkbox"/>	Analysis Complete	
	<input type="checkbox"/>	Not Applicable	
Projected Project Completion Date:		Tentatively 5/1/2017	
Adverse Event (An undesirable and unintended, although not necessarily unexpected, result arising during the course of a research protocol). Use this section to provide a brief description of the event and the number of individuals affected. If no adverse events occurred, enter N/A.			
N/A			

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Vita

Veronica Kwarteng-Amaning was born in Ghana, West Africa. She is one of five children born to Tom and Elizabeth Kwarteng-Amaning. Veronica attended Achimota, a prestigious secondary and junior high school in Accra, Ghana until relocating with her parents to the United States in 1995. After immigrating to the United States, she was enrolled and graduated high school from Living Stones Christian school in 1998. Prior to graduation from high school, Veronica began taking courses at College of the Mainland (COM) and continued to do so after high school graduation. Veronica then transferred to The University of Texas Medical Branch (UTMB) after completion of her prerequisites for bachelors in nursing at COM. She graduated UTMB in 2002 and began working in the surgical intensive care unit at UTMB. After two years of working at the bedside, Veronica enrolled and completed a degree in Masters of Healthcare Administration at University of Houston, Clear Lake in 2007. After completion of her master's degree, she accepted the role of Clinical Operations Administrator (COA). In 2009, she accepted a role as an assistant Nurse Manager at the Texas Department of Criminal Justice (TDCJ) of UTMB. She was promoted to a nurse manager of a women's and oncology unit within months and finally, in 2011, advanced to the director of patient care services and assistant chief nursing officer for TDCJ Hospital.

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