Breastfeeding Initiation Among Women Who Have Experience with Incarceration

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Abstract

The psychological effects of breastfeeding may be especially beneficial to incarcerated mothers, who are an at-risk population. The current study examines factors impacting breastfeeding initiation among a sample of women who have experience with incarceration. In the first study, 117 incarcerated pregnant women participated in the William and Mary Healthy Beginnings Project, a research and intervention program that works with local correctional facilities to improve the birth outcomes of pregnant inmates. Results reveal that factors associated with incarceration, such as delivering in jail, longer duration of incarceration during pregnancy, and being shackled during delivery, significantly impacted decisions not to initiate breastfeeding. Mothers who received Medicaid and who maintained unhealthy diets were also less likely to initiate breastfeeding. In the second study, 18 of the Healthy Beginnings participants were recruited for the Healthy Beginnings Follow-Up Study, which provided a qualitative analysis of breastfeeding initiation. The Follow-Up Study suggests that jail protocol, lack of breastfeeding support and education, and certain beliefs about breastfeeding were associated with low breastfeeding initiation. This follow-up indicates that to increase rates of breastfeeding initiation among incarcerated mothers, jails should implement protocols that facilitate breastfeeding and provide comprehensive prenatal services that encourage breastfeeding.

Breastfeeding Initiation Among Women Who Have Experience with Incarceration

Little is known about current breastfeeding rates among incarcerated women. According the National Immunization Survey, the rate of breastfeeding initiation for the total US population is 75% (American Academy of Pediatrics, 2012). The American Academy of Pediatrics (2012) recommends that mothers exclusively breastfeed for about 6 months, and then continue to breastfeed while introducing supplemental foods for an additional 6 months or longer. Breastfeeding is associated with numerous health benefits for both infants and mothers. For infants, the positive outcomes of breastfeeding include reduced risks of hospitalization for lower respiratory tract infections, serious colds and ear and throat infections, and nonspecific gastrointestinal tract infections (American Academy of Pediatrics, 2012). Other infant benefits include reduced risks of acute lymphocytic leukemia, acute myeloid leukemia, and Sudden Infant Death Syndrome (SIDS). Breastfeeding is also associated with long-term benefits, such as reduction in adolescent and adult obesity. Mothers who breastfeed their infants experience physical benefits, such as decreased postpartum blood loss and more rapid involution of the uterus, as well as psychological benefits, such as decreased rates of postpartum depression. Women who breastfeed experience reduced risks of hypertension, cardiovascular disease, hyperlipidemia, diabetes and breast and ovarian cancer (American Academy of Pediatrics, 2012).

Incarcerated women are at risk for not initiating breastfeeding. These women often belong to racial and ethnic minorities, have low levels of education and low socioeconomic status, lack social support and receive limited prenatal care – factors that are associated with low breastfeeding initiation (Huang, Atlas, & Parvez, 2012). The following literature review examines risk factors of low breastfeeding initiation and discusses how incarcerated mothers and their children can benefit from breastfeeding. Although there is an abundant amount of research

on breastfeeding, literature on breastfeeding initiation among incarcerated women is limited. The objective of the current study is to provide quantitative and qualitative analyses of breastfeeding behaviors among a sample of women who have experience with incarceration.

Sociodemographic Factors Associated with Low Breastfeeding Initiation

Several studies have found lower rates of breastfeeding among African American and Hispanic women compared to white women (Dennis, 2002; Forste, Weiss, & Lippinncott, 2001; Li, Darling, Maurice, Barker, & Grummer-Strawn, 2005; Beal, Kuhlthau, & Perrin, 2003). However, immigrants, even those of lower socioeconomic status and who are less educated, have shown to breastfeed at considerably higher rates than some US-born women. Women with foreign-born parents were also more likely to breastfeed than women with US-born parents (Celi, Rich-Edwards, Richardson, Kleinman, & Gillman, 2005).

Among low-income ethnic groups, some studies have found no difference in breastfeeding rates, suggesting that socioeconomic status may be a stronger predictor of breastfeeding than ethnicity. In these studies, black mothers, compared to white women, were more likely to be younger, unemployed, have lower income and levels of education, lack insurance, live in central cities, report that they did not want any more children, and report that their recent birth was unwanted (Beal et al., 2003; Dennis, 2002; Forste et al., 2001). Women of all ethnicities who had a college education were almost two times more likely to breastfeed than women with a high school degree or less (Forste et al., 2001). Findings on the relation between occupational status and breastfeeding initiation are inconclusive.

Cohabitating mothers have shown to be more likely to breastfeed than women who did not live with their baby's father, with married women being twice as likely to breastfeed (Kimbro, 2006). Breastfeeding initiation was also positively associated with maternal age and

with primiparousness. Two U.S. national surveys from 1989 and 1995, which incorporated more than 900,000 women, indicated that older women were significantly more likely to breastfeed than younger women (Dennis, 2002). In addition, mothers who had more than one child were more likely to stop breastfeeding earlier than first-time mothers (Hurley, Black, Papas, & Quigg, 2008).

Breastfeeding Support: Hospitals and Other Organizations

Government organizations have proposed national hospital protocols to increase breastfeeding initiation among mothers – however, hospitals often fail to implement these policies. The World Health Organization (WHO) and the United Nations' Children's Fund (UNICEF) have published "Ten Steps to Successful Breastfeeding," which has shown to increase rates of breastfeeding initiation, duration and exclusivity. Nonetheless, according to the CDC National Survey of Maternity Practices and Care (2007), only 65% of U.S. hospitals implement the Ten Steps. In fact, 41% of U.S. hospitals give pacifiers to newborns, 30% give newborns supplementary commercial infant formula, and 66% give mothers discharge packs containing commercial infant formula. These practices have shown to lower breastfeeding rates and duration. According to the American Academy of Pediatrics (2012), there needs be major conceptual changes in hospital policies regarding newborn feeding practices.

In addition to hospital protocol, the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) has promoted practices that may discourage breastfeeding among low-income mothers. Li et al. (2005) found that mothers who were enrolled in WIC during the first 12 months postpartum were less likely to initiate or maintain breastfeeding than mothers who were not enrolled in WIC. Approximately 63.2% (n = 1078) of WIC-enrolled mothers initiated breastfeeding, whereas 86% (n = 142) of WIC-eligible mothers who were not enrolled

initiated breastfeeding (Li et al., 2005). Meanwhile, Beal et al. (2003) found that African American women, compared to white mothers, were less likely to report having received breastfeeding advice from WIC counselors. African American mothers were also more likely than white mothers to report having been advised to bottlefeed by their WIC counselors. African American women who participate in WIC are therefore at particular low risk for initiating breastfeeding (Beal et al., 2003).

Pediatricians, obstetricians, and family practitioners may lack knowledge and training on breastfeeding topics (Taveras, Capra, Braveman, Jensvold, Escobar, & Lieu, 2003). In addition, breastfeeding counseling by health professionals may not necessarily influence decisions to breastfeed. In a study conducted by Humphreys, Thompson, and Miner (1998), intentions to breastfeed were positively associated with breastfeeding support from social contacts and with the number of sources from whom mothers learned about the benefits of breastfeeding. Informal social supports, such as family members, friends, and the baby's father, were particularly influential in a woman's decision to breastfeed. However, breastfeeding counseling from health professionals was not correlated to intentions to breastfeed (Humphreys et al., 1998).

Beliefs and Attitudes Towards Breastfeeding

Research has shown that women who are more confident in their perceived ability to breastfeed are more likely to initiate breastfeeding than women who are not confident in their ability to breastfeed (Dennis, 2002; Ystrom, Niegel, Klepp, & Vollrath, 2008; O'Brien, Buikstra, & Hegney, 2008). In a study conducted by Libbus, Bush, and Hockman (1997) that examined mothers' beliefs about the advantages of breastfeeding, a large proportion of the women cited infant-centered reasons. More than one-half of the women indicated that breastfeeding was healthier for the baby, with many noting protective factors such as allergy prevention and

immunity to various illnesses. The women also reported that breastfeeding would enhance mother-infant bonding. Mother-centered advantages that the women indicated were centered on the woman's health, including weight loss and prevention of cancer (Libbus et al., 1997).

Meanwhile, in a study conducted by Hurley et al. (2008) that examined mothers' reported reasons for not initiating breastfeeding, the most common reasons included fear of difficulty or pain, poor maternal health at delivery, the need to return to work, infant breast rejection, and fear of embarrassment (Hurley et al., 2008). Dennis, Hodnett, Gallop, and Chambers (2002) found that the most common breastfeeding problems reported within the 1st month postpartum were leaking and engorged breasts, latching difficulties, infant spitting up, and finding breastfeeding too time-consuming. Other maternal issues associated with breastfeeding included sleep deprivation, finding time for self, feeling sad and crying, and feelings of isolation and being tied down. However, insufficient milk supply was the most commonly reported reason for discontinuing breastfeeding or supplementing infant formula (Dennis et al., 2002). Another reason why mothers may choose not to initiate breastfeeding is the belief that infant formula is an accepted form of nutrition for newborn infants. In a study conducted by Stuebe and Bonuck (2011), mothers who agreed with the statement "infant formula is as good as breastmilk" were 3.44 times more likely to intend to exclusively formula feed rather than exclusively breastfeed (Stuebe & Bonuck, 2011).

Studies have also suggested that beliefs about maternal diet influence decisions not to breastfeed. Hannon, Willis, Bishop-Townsend, Martinez, and Scrimshaw (2000) found that various myths deterred mothers from breastfeeding, the most common being that mothers had to avoid certain foods, such as chocolate, orange juice, and corn, while breastfeeding (Hannon et al., 2000). Other studies have shown that mothers often believe that they needed to have

nutritious diets in order to produce nutritious breastmilk (Corbett, 2000; Huang et al., 2012). In a study conducted by Gill, Reifsnider, Mann, Villarreal, and Tinkle (2004) that examined mothers' beliefs on breastfeeding, one participant stated, "You have to eat real good … Drink a lot of milk. Drink a lot of juice. If you do this, you can make twice as much milk" (Gill et al., 2004). Meanwhile, Schafer, Vogel, Viegas, and Hausafus (1998) attempted to increase breastfeeding initiation among a sample of mothers by providing nutrition lessons that emphasized a healthy diet for the mother's own benefit, not as a necessity for breastfeeding. The mothers learned that the quality of their breastmilk did not depend on eating a perfectly nutritious diet (Schafer et al., 1998).

Studies have further examined potential facilitators to breastfeeding initiation. Mothers have reported that using breast pumps, being taught how to breastfeed, and receiving breastfeeding support from hospital staff were facilitating factors (Gill et al., 2004; Libbus et al., 1997). However, knowledge of the maternal and infant benefits of breastfeeding may not overcome the perceived problems that breastfeeding would create, such as embarrassment, pain and inconvenience (Gill et al., 2004).

Incarceration and Breastfeeding

As previously mentioned, incarcerated women are at risk for not initiating breastfeeding. These women often belong to racial and ethnic minorities, have low levels of education and low socioeconomic status, lack social support and receive limited prenatal care (Huang et al., 2012). Based on a survey conducted by the U.S. Bureau of Justice, the nation's state and federal prisons held approximately 65,600 mothers in 2007, and roughly 147,400 children in the U.S. had an incarcerated mother. Between 1991 and 2007, the number of mothers held in state and federal prisons increased by 122%, while the number of children with an incarcerated mother increased

by 131%. This finding reflects a faster rate of growth in the number of mothers held in state and federal prisons compared to the number of fathers (U.S. Department of Justice, 2010).

Of all mothers held in the nation's prisons, 48% identified as white, 28% as black and 17% as Hispanic. In 2004, 13% of the mothers held in the nation's prisons were under the age of 24, 82% had a high school degree or less, and only 16% were married. Mothers held in state prisons were three times more likely to report living in a single-parent household than in a two-parent household. In addition, more than a third of mothers in state prisons reported receiving government subsidies such as welfare, Social Security, or compensation payment as income (U.S. Department of Justice, 2010). Women who deliver while in jail generally are pregnant at the time of their incarceration. The median prison time served for women is one year – therefore, the majority of pregnant women will spend between 6 to 12 months in prison after delivery. These women, unless paroled, will return to prison within several days of giving birth (Wismont, 2000). Approximately 50-65% of children with incarcerated mothers live with grandparents, 20-28% live with fathers, 15-25% live with other relatives, and 10% are placed in foster care (Poehlmann, 2005).

Wismont (2000) conducted a qualitative analysis of women's pregnancy experiences while in prison. Women who delivered while incarcerated reported concern that, as a result of the separation, the child would either not know the mother upon her release or would form an attachment to someone else (Wismont, 2000). Studies have shown that infants and young children with incarcerated mothers are at risk for developing a disorganized attachment, which places children at especially high risk for social and emotional difficulties later in life (Dallaire, 2007; Parke & Clarke-Stewart, 2002; Shlafer & Poehlmann, 2009). Young children with disorganized attachments have shown to exhibit internalizing problems, such anxiety,

withdrawal, and depression, as well as externalizing problems, such as anger, aggression and hostility towards siblings and caregivers (Parke & Clarke-Stewart, 2002).

Breastfeeding has shown to enhance mother-infant bonding (Else-Quest, Hyde, & Clark, 2003; Britton, Britton, & Gronwaldt, 2006). *Bonding* refers to the emotional connection of the mother to her infant. Studies have found that mothers who breastfeed are more sensitive in responding to the cues of their infants (Else-Quest et al., 2003; Britton et al., 2006). Compared to mothers with low sensitivity, mothers with high sensitivity were more likely to breastfeed either exclusively or partially for a longer duration (Britton et al., 2006). During breastfeeding, the nipple stimulation triggers an increase of maternal oxytocin. Oxytocin secretion is often associated with increased parasympathetic activation (decreased blood pressure and heart rate) as well as with other sedative effects – a decrease in maternal anxiety may result in enhanced bonding. Breastfeeding further provides increased skin-to-skin contact, which can also reduce anxiety (Else-Quest et al., 2003).

However, researchers have supported Bowlby's attachment theory (1958), which states that attachment is fostered solely by the quality of the mother-infant interaction (Else-Quest et al., 2003; Britton et al., 2006). *Attachment* refers to the infant's emotional tie to the parent – a secure attachment is when the child perceives the parent as responsive and available (Britton et al, 2006). While breastfeeding may facilitate bonding, Bowlby's theory claims that infant feeding does not contribute to attachment quality. On the other hand, according to Belsky's process model (1984), when one element of the parental care system is lacking, other elements may compensate. Therefore, when certain aspects of the caregiving environment are insufficient, breastfeeding may enhance mother-infant attachment (Else-Quest et al., 2003). This effect of breastfeeding may be especially noticeable in mothers who are incarcerated.

Wismont (2000) further found that incarcerated mothers expressed profound sadness over the separation from their newborns. The women reported feelings of isolation and concerns regarding the physical separation from family and friends. They also expressed discomfort with the emotional isolation experienced within the prison itself (Wismont, 2000). According to Poehlmann (2005), 50-90% of incarcerated women experience depressive symptoms in the clinical range. Poehlmann found that mothers who experienced less face-to-face contact with their children during incarceration were more likely to display symptoms of depression. These mothers expressed profound distress over the separation from their children, and some women described suicidal thoughts or actions in response to their inability to contact their children. Although telephone contacts occurred more frequently, many mothers received few, if any, visits from their children. These mothers described how they missed hugging and touching their children, observing their developmental accomplishments, and perceiving their emerging personalities (Poehlmann, 2005).

Studies suggest that breastfeeding may decrease negative affectivity among mothers (Else-Quest et al., 2003; Ystrom et al., 2008; Ystrom, 2012). Negative affectivity (NA) is a broad trait construct describing the tendency to experience negative emotions, such as anxiety, depression, irritability and low self-esteem (Ystrom et al., 2008). Breastfeeding has shown to decrease mothers' negative affect, with bottlefeeding shown to decrease their positive affect (Else-Quest et al., 2003). Breastfeeding may therefore alleviate the effects of stress, but not elevate mood. As previously mentioned, these effects may be mediated by increased maternal oxytocin and skin-to-skin contact. In addition, Ystrom (2012) found that prenatal symptoms of depression and anxiety were linked with breastfeeding cessation. Women who had high levels of anxiety and depression before delivery were more susceptible to an increase in postnatal anxiety

and depression after breastfeeding cessation (Ystrom, 2012). The psychological effects of breastfeeding may therefore be especially beneficial to incarcerated mothers, who often experience high levels of negative affect.

The Current Study

The current study examines factors impacting breastfeeding initiation among a sample of women who have experience with incarceration. The first study provides a quantitative analysis of breastfeeding behaviors among these mothers. The primary research question addresses *what* factors are associated with low breastfeeding initiation. Several factors are accounted for in the analysis, including sociodemographic information, delivering while incarcerated and diet. The second study provides a qualitative analysis of breastfeeding behaviors among mothers who have experience with incarceration. The primary research question addresses *why* certain factors are associated with low breastfeeding initiation. The qualitative study further examines the women's beliefs and attitudes towards breastfeeding.

I hypothesize that factors associated with incarceration – such as jail protocol and lack of breastfeeding support – influenced breastfeeding initiation. Another hypothesis is that sociodemographic factors that are associated with incarcerated mothers and with low breastfeeding initiation – such as racial minority status and low socioeconomic status – were related to women's breastfeeding decisions. Finally, based on the common belief that healthy diets are necessary to produce nutritious breastmilk (Corbett, 2000; Huang et al., 2012), I hypothesize that women who had healthier diets were more likely to have initiated breastfeeding than women who did not maintain nutritious diets. By examining influences of breastfeeding decisions among these women, ways to increase breastfeeding initiation rates among this population can be determined.

Study 1: Method

Participants

Data was collected from the College of William and Mary's Healthy Beginnings Project. Healthy Beginnings is a research and intervention program that provides pregnancy tests, prenatal vitamins, and nutritional and behavioral counseling to incarcerated pregnant women in order to improve birth outcomes. Participants (N = 183) were recruited from 7 different county jails across the mid-atlantic region from June 2012 to June 2015. Of these women, 117 completed the post-partum interview and were included in the data analysis. The women ranged from 18 to 40 years of age (M = 25.25). Fifty percent of the women (n = 58) identified as African American, 44% (n = 51) identified as non-Hispanic white, 2% (n = 3) identified as Hispanic and 4% (n = 5) identified as other. The majority of women (72%, n = 84) reported being single, whereas 9% (n = 10) reported being married and 6% (n = 7) reported that they were cohabitating with their partners.

Only 26% (n = 30) of women had attended some college or had received a college degree. Seventeen percent (n = 20) had attended some high school, 19% (n = 22) had graduated from high school, 12% (n = 14) were working on their GED, 25% (n = 29) had completed their GED, and 1% (n = 2) had completed trade or vocational school. Over half of the participants (58%, n = 68) had been employed in the previous 12 months, while 42% (n = 49) had been unemployed. In addition, 67% (n = 78) had received food stamps in past 12 months, 30% (n = 35) had received WIC and 45% (n = 53) had received Medicaid (Table 1).

Procedure

Participants were interviewed in three stages: at intake, post-counseling and postpartum. Before each interview, each participant received and signed a consent form that explained the

nature of the study. The participants were informed that all questions were voluntary, that they could end participation at any point during the study, and that all responses would be held in confidentiality at the College of William and Mary. The women received a $25 gift card for their participation. Post-partum mothers also received diapers from the Healthy Beginnings diaper bank upon request. Participants could also request information about various local organizations, such as SouthEastern Family Project and WIC, to help them during the reentry process.

Intake interviews, which were conducted by faculty, project staff and graduate students, took place at the correctional facilities where the participants were recruited. After the intakes were conducted, a registered project nurse met with each participant and completed an individual counseling session. The counseling sessions emphasized the importance of nutritional and behavioral health during pregnancy. Topics included maternal nutrition; the effects of smoking, drugs and alcohol during pregnancy; infant care and nutrition; and pregnancy-related morbidity, including postpartum depression and gestational diabetes. Sessions also covered any topic that the participant wanted to address. Each session lasted approximately 1 hour and took place at jail or, if the participant had been released, at a mutually convenient location. Post-counseling and post-partum interviews were conducted by graduate and undergraduate students and took place at jail, over the phone or at a mutually convenient location.

Measures

Participants completed sections of the PRAMS Questionnaire (Pregnancy Risk Assessment Monitoring System) at all three time points. PRAMS is a national survey conducted by the Centers for Disease Control and Prevention (CDC) to analyze maternal experiences and attitudes before, during, and shortly after pregnancy. Topics addressed in the questionnaire

include feelings about the most recent pregnancy, content and source of prenatal care, obstetric history, physical abuse before and during pregnancy, contraceptive use, pregnancy-related morbidity, and infant development and health care. Other topics include maternal use of alcohol and tobacco, maternal stress, and mother's knowledge of pregnancy-related health issues (adverse effects of tobacco and alcohol, benefits of folic acid) (Centers for Disease Control and Prevention, 2016).

Sociodemographic Information: During the intake interviews, the women were asked about their sociodemographic backgrounds. Questions that addressed sociodemographic information were taken from the Child and Family Demographic Interview. Participants gave information about their age, ethnicity, level of education, income, and marital status. The women were also asked to report whether they had received government assistance, such as food stamps or Medicaid, within the past year.

Dates of Incarceration and Release: The intake interviews asked women about their incarceration dates and whether they had found out about their pregnancy while in jail. Vinelink, an online notification network for all inmates in the state of Virginia, was used to inform the researchers of the participants' release dates.

Past Breastfeeding Experiences and Intentions to Breastfeed: During the intake interviews, the women were asked whether they had breastfed their previous children. The women were asked to report whether they intended to breastfeed their infants during the post-counseling interviews.

Delivery and Breastfeeding Initiation: The post-partum interviews asked the women about their delivery. Participants gave information about their delivery dates and whether they had delivered while incarcerated. The mothers also gave information about their infant's care

and nutrition, indicating whether or not they had attempted to breastfeed.

Food Frequency: During the post-partum interviews, eating behaviors were collected using the Fruit & Vegetable Intake Questionnaire (Mullen, Krantzer, Grivetti, Schultz, & Meiselman, 1984). This questionnaire was used to determine the frequency of which the participants had eaten various fruits, vegetables, meats, dairy products, sweets and processed foods within the previous month. The women were asked to estimate the number of times per day, week, or month each item was consumed. This study specifically looked at the consumption frequency of sweets, soda, processed meats and fast food.

Study 1: Results

Hypothesis 1: Factors Associated with Incarceration

The first hypothesis stated that factors associated with incarceration influenced breastfeeding initiation. Chi-square and independent t-test analyses reveal that several factors associated with incarceration significantly impacted the mothers' decisions not to initiate breastfeeding. Women who delivered while incarcerated were significantly less likely to initiate breastfeeding, $\chi^2 = (1, N = 105) = 9.229$, $p = 0.002$, than women who delivered after their release (Figure 1). In addition, mothers who did not initiate breastfeeding were incarcerated for a significantly longer duration during pregnancy than women who initiated breastfeeding, $t(84) = 2.418$, $p = 0.018$. The mean duration of incarceration during pregnancy was 10 weeks for mothers who initiated breastfeeding, whereas the mean duration was 15 weeks for mothers who did not initiate breastfeeding (Figure 2).

Women who found out about their pregnancy while incarcerated were also less likely to initiate breastfeeding, $\chi^2 = (1, N = 110) = 2.750$, $p = 0.097$, than women who found out about their pregnancy outside of jail, though this finding did not reach significance. Mothers who were

incarcerated for a longer duration during pregnancy were significantly more likely to find out about their pregnancy while incarcerated, $t(89) = -3.459$, $p = 0.001$, and to deliver while incarcerated, $t(88) = -4.739$, $p = 0.000$. The results further demonstrated that women who were shackled during delivery were significantly less likely to initiate breastfeeding, $\chi^2 = (1, N = 21) = 5.966$, $p = 0.015$ (Figure 3).

Hypothesis 2: Sociodemographic Factors

The second hypothesis stated that sociodemographic factors associated with both incarcerated mothers and with low breastfeeding initiation were related to women's breastfeeding decisions. A chi-square analysis reveals that low socioeconomic status was associated with mothers' decisions not to breastfeed. Women who received Medicaid were significantly less likely to initiate breastfeeding, $\chi^2 = (1, N = 111) = 7.758$, $p = 0.005$ (Figure 4). However, race and ethnicity were not related to breastfeeding initiation, $\chi^2 = (3, N = 111) = 5.287$, $p = 0.152$.

Hypothesis 3: Maternal Diet

The final hypothesis stated that women who had healthier diets were more likely to have initiated breastfeeding than women who did not maintain nutritious diets. Independent t-test analyses reveal that women who consumed more sweets, soda, processed meats and fast food per month were less likely to initiate breastfeeding. These findings only reached significance with the consumption of fast food, $t(59) = 2.380$, $p = 0.021$. Women who initiated breastfeeding ate fast food an average of 3 times per month, whereas women who did not initiate breastfeeding ate fast food an average of 7 times per month. Meanwhile, mothers who initiated breastfeeding consumed sweets an average of 20 times per month, while mothers who did not initiate breastfeeding consumed sweets an average of 26 times per month. Soda was consumed an

average of 16 times per month among mothers who initiated breastfeeding and an average of 25 times per month among mothers who did not initiate breastfeeding. Lastly, women who initiated breastfeeding ate processed meats an average of 3 times per month, whereas women who did not initiate breastfeeding ate processed meats an average of 5 times per month (Figure 5).

Other Findings

Chi-square analyses revealed that intentions to breastfeed and past breastfeeding experiences influenced women's decisions to initiate breastfeeding. Mothers who intended to breastfeed, $\chi^2 = (1, N = 99) = 24.739$, $p = 0.000$, were significantly more likely to initiate breastfeeding than women who did not intend to do so (Figure 6), and mothers who had breastfed their previous baby, $\chi^2 = (1, N = 82) = 7.546$, $p = 0.006$, were significantly more likely to initiate breastfeeding than mothers who had not done so (Figure 7).

Study 1: Discussion

These results indicate that several factors associated with incarceration were related to low breastfeeding initiation, supporting the first hypothesis. Women who delivered while incarcerated, who found out about their pregnancy while incarcerated, and who were incarcerated for a longer duration during their pregnancy were less likely to initiate breastfeeding. These factors seem to be interconnected – mothers who were incarcerated for a longer duration during their pregnancy were significantly more likely to find out about their pregnancy while incarcerated and to deliver while incarcerated.

Jail protocol and lack of breastfeeding support may account for these findings. Pregnant women may not receive sufficient breastfeeding support, both social and educational, while in jail. The longer women are incarcerated during their pregnancy, the less accessibility they have to breastfeeding support and education. Breastfeeding interventions that begin early during

pregnancy and continue until delivery may be especially effective in promoting breastfeeding initiation.

Jail protocol may also affect breastfeeding decisions among incarcerated mothers. The inability to pump and provide breastmilk and the inability to have contact visitations makes breastfeeding impossible for incarcerated mothers. Mothers who know that they will be unable to breastfeed while incarcerated may choose not to initiate breastfeeding at all. These mothers may not want to create an intimate bond with their infants that will be severed days later. In addition, the findings show that women who were shackled during delivery were significantly less likely to initiate breastfeeding. The use of leg and abdomen restraints after delivery prevents mothers from initiating breastfeeding (American Civil Liberties Union, 2012). Links between jail protocol and breastfeeding initiation are further explored in Study 2.

Women who received Medicaid were significantly less likely to initiate breastfeeding. This finding supports literature indicating that socioeconomic status is positively associated with breastfeeding initiation. In the current study, race and ethnicity were not correlated to breastfeeding initiation, supporting Dennis' (2002) suggestion that socioeconomic status may be a stronger predictor of breastfeeding than ethnicity (Dennis, 2002). The second hypothesis is therefore partially supported.

Finally, mothers who consumed more sweets, soda, processed meats and fast food per month were less likely to initiate breastfeeding. This finding supports the third hypothesis. Women who did not have nutritious diets may not have possessed an interest in healthy behaviors, which may explain their low rates of breastfeeding initiation. Another possible explanation is the common belief that mothers need to have nutritious diets in order to produce nutritious breastmilk (Corbett, 2000; Huang et al., 2012). Women who consumed more sweets,

soda, processed meats and fast food may have chosen not to breastfeed because they did not want to change their diets. If these mothers had learned that a healthy diet is not a necessity for breastfeeding, the rates of breastfeeding initiation may have been higher, as in the study conducted by Schafer et al. (1998). The association between beliefs about diet and breastfeeding initiation is further examined in Study 2.

Study 2: Method

Participants

Of the 117 women who participated in Study 1, 103 had been released from jail and were eligible for the Follow-Up study. These women were contacted between September 2015 and March 2016. Nineteen participants were recruited for the Follow-Up interview – however, one interview was discarded due to incompletion. Therefore, only 18 interviews were included in the analysis. The women ranged from 19 to 40 years of age (M = 26.22). The majority of women (61%, *n* = 11) identified as African American, whereas 33% (*n* = 6) identified as non-Hispanic white and 6% (*n* = 1) identified as Asian. Most of the women (77%, *n* = 14) reported being single, while 6% (*n* = 1) reported being married and 17% (*n* = 3) reported cohabitating with their partners.

None of the participants had received a college degree, but 17% (*n* = 3) had attended some college. Meanwhile, 28% (*n* = 5) had graduated high school, 33% (*n* = 6) had attended some high school, and 22% (*n* = 4) had completed their GED. Over half of the participants (67%, *n* = 12) were unemployed, while 33% (*n* = 6) were employed. In addition, 61% (n = 11) were receiving food stamps, 39% (*n* = 7) were receiving Medicaid, and 17% (*n* = 3) were receiving WIC (Table 2). Moreover, 33% (*n* = 6) of women had been incarcerated since participating in the Healthy Beginnings Project.

Procedure

As in Study 1, each participant received and signed a consent form that explained the nature of the study. The participants were informed that all questions were voluntary, that they could end participation at any point during the study, and that all responses would be held in confidentiality at the College of William and Mary. If the interview was conducted over the phone, the researcher noted the participant's verbal consent and then mailed her the consent form. The participant was asked to sign the consent form and mail it back to the Healthy Beginnings lab. The women received a $10 gift card for their participation.

The Healthy Beginnings Follow-Up Questionnaire was conducted by undergraduate students and project staff. Three of the participants were incarcerated while data was being collected – they were therefore interviewed at the jail where they were being held. However, the majority of the interviews were conducted over the phone.

Measures

The Follow-Up Questionnaire was developed using current literature on breastfeeding initiation and duration (Hannon et al., 2000; Huang et al, 2012; Stuebe & Bonuck, 2011; Beal et al., 2003; O'Brien et al., 2008; Kimbro, 2006; Libbus et al., 1997). The interview was divided into four sections.

Past Experiences with Breastfeeding: The first section of the questionnaire addressed the women's past experiences with breastfeeding. These questions were based on an interview conducted by Hannon et al. (2000). Questions included "Did you breastfeed your previous children?" and "Have you had any personal contacts with breastfeeding?" Forms of contact with breastfeeding included having been breastfed as an infant, having family members or friends who breastfed, or watching a class demonstration or video on breastfeeding.

Breastfeeding Support: The second section addressed breastfeeding advice or support that the women may have received. Questions included "Did a healthcare worker speak to you about breastfeeding after delivery?" and "Who was involved in the infant feeding decision?" These questions were based on the 1988 National Maternal and Infant Health Survey, the only national survey collecting data on breastfeeding behaviors and prenatal breastfeeding advice (Beal et al., 2003).

Ability to Breastfeed: The third section addressed the women's ability to breastfeed. If the women delivered while incarcerated, they were asked "Were you able to pump and provide breastmilk to your baby?" If they delivered after being released, they were asked "How long after delivery did you intend to return to work/school?" The questions addressing mothers' intentions to return to work/school were taken from the Fragile Families and Child Wellbeing Study, a national study from 1998 to 2005 that followed a birth cohort of new parents and their children over a 5-year period (Kimbro, 2006).

Beliefs and Attitudes Towards Breastfeeding: The final section of the questionnaire addressed women's beliefs and attitudes towards breastfeeding. These questions were based on the Theory of Planned Behavior (Ajzen, 1985). According to the Theory of Planned Behavior, there are three independent constructs that can predict intentional human behavior: (1) attitudes toward the behavior, (2) perceived social pressure, and (3) perceived behavioral control (Libbus et al., 1997). The women were asked information about the following topics: (1) beliefs about performing the action – "Can you tell me any advantages of breastfeeding?" and "Can you tell me any disadvantages of breastfeeding?" (2) normative beliefs – "Did anyone try to convince you to breastfeed?" and "Did anyone try to convince you not to breastfeed?" (3) barriers/facilitators to the behavior – "Were there any factors that made breastfeeding easy?" and

"Were there any factors that made breastfeeding hard?" These questions were taken from an interview conducted by Libbus et al. (1997), which also used The Theory of Planned Behavior as a framework to determine predictors of breastfeeding intentions.

The women were also asked to what extent they agreed or disagreed with a series of statements about breastfeeding and child health, using a 5-point Likert scale (*1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree*). These statements were based on an interview conducted by Stuebe and Bonuck (2011). Items included perceived advantages of breastfeeding, such as "Breastfeeding is important for the health of my baby," as well as perceived disadvantages of breastfeeding, such as "Breastfeeding is too painful." Items also addressed feelings about breastfeeding among others, such as "I feel comfortable breastfeeding among close friends and family" and "Breastfeeding should not be performed in public."

The series of statements also included items that addressed beliefs about maternal diet and self-efficacy. Items about maternal diet, such as "I need to maintain a nutritious diet in order to produce nutritious breastmilk," were based on a study conducted by Huang et al. (2012). Items about self-efficacy, such as "I am confident in my ability to breastfeed or to have breastfed" and "I am knowledgeable about the benefits of breastfeeding," were based on a study conducted by O'Brien et al. (2008).

Study 2: Results

Chi-square analyses reveal that mothers who did not initiate breastfeeding were significantly more likely to agree with 3 items that were listed in the series of statements. Women who initiated breastfeeding were significantly more likely to disagree with the statements "Breastfeeding is too painful," $\chi^2 = (2, N = 18) = 6.019$, $p = 0.049$, "I find

breastfeeding too time consuming," $\chi^2 = (2, N = 18) = 9.000$, $p = 0.011$, and "Breastfeeding will cause my baby to become too attached," $\chi^2 = (2, N = 18) = 6.120$, $p = 0.047$ (Figure 8). Women who did not initiate breastfeeding were also more likely to agree with these statements.

Almost all of the participants ($n = 16$) agreed with the statement "I need to eat a nutritious diet in order to produce nutritious breastmilk." Of the 8 women who did not initiate breastfeeding, six agreed with the statement "If I wanted to have breastfed, I would have had to change my diet." All 18 participants reported that a healthcare worker spoke to them about breastfeeding after delivery. Ten of the 18 women initiated breastfeeding – healthcare counseling therefore did not influence breastfeeding initiation. Furthermore, only 7 women reported receiving breastfeeding support and encouragement from family and friends.

Reasons for initiating breastfeeding included infant and maternal health, convenience, and wanting to try something different. One mother reported "The doctors recommended it. It's easier – I didn't have to get out of bed to fix a bottle." Mothers had both positive and negative feelings about their past breastfeeding experiences. One mother reported "They weren't good – it never worked out. My oldest daughter didn't even like it in the bottle;" while another reported "The first was good. I breastfed my son with the heart condition, it made him stronger." When asked to describe their most recent breastfeeding experience, mothers also had contrasting responses. One mother described the experience as "worthwhile," whereas another stated "It was stressful and ticklish. I breastfed for two weeks, I didn't like it. It was uncomfortable, the baby didn't latch, and I got a milk clot."

None of the mothers breastfed for the recommended full 12 months. Reasons for discontinuing breastfeeding included insufficient milk supply, returning to work, baby not gaining enough weight, and difficulty latching. One mother reported "It wasn't working out, I

wasn't good at it." Two mothers were unable to breastfeed due to incarceration – one mother delivered while incarcerated and another became incarcerated shortly after delivery. Although these mothers intended to continue breastfeeding, they were unable to either pump and provide breastmilk or receive contact visitations with their babies. They were forced to discontinue breastfeeding due to these jail protocols. One of the women reported "The jail was an asshole about breastfeeding – wouldn't let me do it unless I was in the hospital…I was treated like trash, an inmate." The woman who delivered while in jail was not shackled during delivery.

Of the women who did not initiate breastfeeding, all 8 claimed that they were uncomfortable with breastfeeding or simply did not want to breastfeed. Responses included "There was nothing I wanted to do with it" and "I didn't approve of it – it's uncomfortable, leaking, and feels weird." Six of the 8 women who did not initiate breastfeeding agreed with the statement "I am knowledgeable about the benefits of breastfeeding." When asked about the perceived advantages of breastfeeding, one of these mothers stated that breastfeeding "makes the baby smarter, healthier, and is less expensive" and another stated that breastfeeding is important for "the health of the baby and a better immune system." However, these benefits did not outweigh the mothers' discomfort with breastfeeding. When asked what factors they thought would make breastfeeding hard, only 2 women provided responses – one was concerned about pumping and the time required to breastfeed, and another claimed "I didn't want to hurt my child with nicotine and spicy foods." The other women stated that they simply were not interested in breastfeeding. One mother reported "I know nothing about it, I don't listen about it, and I never looked into it."

Study 2: Discussion

These findings suggest that certain beliefs and assumptions may discourage mothers from initiating breastfeeding. Concerns about the pain of breastfeeding, the time required to breastfeed, and the physical attachment of breastfeeding were associated with low breastfeeding initiation in the current sample. A possible way to alleviate these concerns is through educational programs and support services. Women may be more encouraged to breastfeed by learning about common problems of breastfeeding and solutions to these problems.

The present results also suggest that beliefs about maternal diet were associated with low breastfeeding initiation. Almost all of the participants reported that a healthy diet was necessary to produce nutritious breastmilk. The majority of the women who did not initiate breastfeeding reported that they would have had to change their diet if they had wanted to breastfeed. These mothers may have chosen not to initiate breastfeeding because they did not want to change their diets. As shown by Schafer et al. (1998), mothers may be more inclined to breastfeed by learning that the quality of their breastmilk does not depend on eating a perfectly nutritious diet (Schafer et al., 1998).

These results further indicate that professional support may not be a strong predictor of breastfeeding initiation. All of the participants reported that a healthcare worker spoke to them about breastfeeding after delivery, but healthcare counseling did not increase breastfeeding initiation. In addition, the majority of women who did not initiate breastfeeding reported that they were knowledgeable about the benefits of breastfeeding. Knowledge of the benefits of breastfeeding may not overcome barriers to breastfeeding, such as lack of social support. Only 7 women in the study reported receiving breastfeeding support from family and friends.

One woman in the present sample delivered while incarcerated and another became incarcerated shortly after delivery. Their inability to pump and provide breastmilk and to receive

contact visitations with their babies made breastfeeding impossible. Although the woman who delivered while incarcerated was not shackled during delivery, the results of Study 1 revealed that being shackled during delivery was associated with low breastfeeding initiation. Jail protocols that facilitate breastfeeding may improve breastfeeding initiation among incarcerated mothers.

Discussion

The current study examines predictors of breastfeeding initiation among a sample of women who have experience with incarceration. The findings support my first hypothesis that factors associated with incarceration – such as jail protocol and lack of breastfeeding support – influenced breastfeeding initiation. In Study 1, women who delivered while incarcerated were significantly less likely to initiate breastfeeding. In Study 2, women who delivered while incarcerated were unable to pump and provide breastmilk to their infants once they returned to jail. These mothers were also unable to have contact visitations with their infants. Since women who deliver while incarcerated are frequently prohibited from breastfeeding when they return to jail, they may choose not to initiate breastfeeding at all. These women may not want to create an intimate bond with their infants that will be severed days later. Women who are shackled during delivery are further at risk for not initiating breastfeeding. This is likely because the use of leg and abdomen restraints after delivery inhibits breastfeeding initiation (American Civil Liberties Union, 2012).

In order to increase breastfeeding initiation among incarcerated mothers, changes in jail protocol are necessary. Legislative actions should allow incarcerated mothers to pump and provide breastmilk to their infants and to receive contact visitations. The practice of shackling inmates before, during, and after delivery should also be prohibited. The U.S. government

adopted an anti-shackling policy in 2008 – however, the policy is only implemented in prisons and correctional facilities that are operated by the federal government (International Human Rights Clinic, Chicago Legal Advocacy for Incarcerated Mothers, & American Civil Liberties Union, 2013). In 2011, state legislatures began to introduce laws and policies that prohibit the practice of shackling pregnant inmates, especially during labor. As of August 2013, 18 states had adopted laws that restrict the use of shackles on pregnant inmates, while 24 states had adopted anti-shackling policies. Despite the enactment of these laws and policies, the practice of shackling often persists (International Human Rights Clinic et al., 2013).

The United States should adopt federal legislation that facilitates incarcerated mothers' ability to breastfeed their children. The federal government should also instruct states to enact similar comprehensive laws (International Human Rights Clinic et al., 2013). The Rose M. Singer Center in New York City – a jail that holds females who are sentenced for one year or less – contains a prenatal clinic where pregnant inmates can receive breastfeeding education and other comprehensive prenatal services. In a sample of 20 inmates who were being held in the facility, 13 reported intentions to breastfeed, while 3 reported that they would have chosen to breastfeed if they were not HIV-positive. One woman reported, "I see posters on every door about breastfeeding … Well, for me, every time I came to the clinic I thought about breastfeeding" (Huang et al., 2012). Jail protocols that facilitate breastfeeding may therefore increase rates of breastfeeding initiation among incarcerated mothers.

The results of the current study further suggest that support services and educational programs may influence breastfeeding initiation. In Study 2, women who reported concerns about the pain of breastfeeding, the time required to breastfeed, and the physical attachment of breastfeeding were significantly less likely to breastfeed. Through breastfeeding education and

support, mothers may be able to find solutions to these common problems. The majority of women in Study 2 also believed that they needed to have a nutritious diet in order to produce nutritious breastmilk. Educational programs that emphasize a healthy diet for the mother's own benefit, not as a necessity for breastfeeding, may improve breastfeeding initiation.

Previous literature has demonstrated that support and educational interventions can increase breastfeeding initiation (Humphreys et al., 1998; Guise, Palda, Westhoff, Chan, Helfand, & Lieu, 2003). Humphreys et al. (1998) found that intentions to breastfeed were positively associated with breastfeeding support from social contacts and with the number of sources from whom mothers learned about the benefits of breastfeeding (Humphreys et al., 1998). Guise et al. (2003) found that educational programs that addressed the benefits of breastfeeding, principles of lactation, myths, common problems, solutions, and skills training had the greatest single effect of increasing breastfeeding initiation (Guise et al., 2003). Studies have also shown that early breastfeeding support provided during prenatal care can increase rates of breastfeeding initiation (Dennis, 2002; Corbett, 2000). The importance of early and continual breastfeeding interventions was supported by the results of Study 2 – post-delivery counseling by healthcare professionals was not associated with breastfeeding initiation.

In Study 2, only 7 women reported receiving breastfeeding support and encouragement from family and friends. The influence of informal social supports on breastfeeding initiation is supported by previous literature (Dennis, 2002; Humphreys et al., 1998; Arlotti, Cottrell, Lee, & Curtin, 1998). Giugliani et al. (1994) found that women whose partners preferred breastfeeding were significantly more likely to initiate breastfeeding. Women who received support from non-health professionals other than their partner were three times more likely to breastfeed than were women who did not have additional support (Dennis, 2002). Informal support has shown to be

particularly important among low-income women (Humphreys et al., 1998; Arlotti et al., 1998). In a study of low-income mothers, Arlotti et al. (1998) found that women who breastfed were significantly more likely to report receiving support from their mothers (Arlotti et al., 1998). Breastfeeding interventions should therefore encourage support from partners, family and friends.

The present results partially support my second hypothesis that sociodemographic factors that are associated with incarcerated mothers and with low breastfeeding initiation – such as racial minority status and low socioeconomic status – were related to women's breastfeeding decisions. In Study 1, women who received Medicaid were significantly less likely to breastfeed, indicating that low socioeconomic status was associated with low breastfeeding initiation. However, race and ethnicity were not correlated to breastfeeding initiation. This finding supports Dennis' (2002) suggestion that socioeconomic status may be a stronger predictor of breastfeeding than ethnicity (Dennis, 2002).

Additional research is necessary to examine why low socioeconomic status is associated with low breastfeeding initiation. Although breastfeeding is more cost-effective than bottle-feeding, all of the women in Study 2 who did not initiate breastfeeding claimed that they were uncomfortable with breastfeeding or did not want to breastfeed. However, the majority of these women reported that they were knowledgeable about the benefits of breastfeeding. These benefits did not overcome barriers to breastfeeding, such as the women's discomfort with breastfeeding. Breastfeeding may be stigmatized among mothers of lower socioeconomic status.

The results of this study support my final hypothesis that women who had healthier diets were more likely to have initiated breastfeeding than women who did not maintain nutritious diets. In Study 1, women who consumed more sweets, soda, processed meats and fast food per

month were less likely to initiate breastfeeding. Women who did not have nutritious diets may not have possessed an interest in healthy behaviors, which may explain their low rates of breastfeeding initiation. The findings of Study 2 further show that beliefs about maternal diet influenced breastfeeding initiation. Almost all of the participants reported that a healthy diet was necessary to produce nutritious breastmilk. The majority of the women who did not initiate breastfeeding reported that they would have had to change their diet if they had wanted to breastfeed. These mothers may have chosen not to initiate breastfeeding because they did not want to change their diets. As shown by Schafer et al. (1998), mothers may be more inclined to breastfeed by learning that the quality of their breastmilk does not depend on eating a perfectly nutritious diet (Schafer et al., 1998). The importance of healthy diet for the mother's own benefit, not as a necessity for breastfeeding, should be emphasized by breastfeeding education programs.

There were some limitations to the current study. In both studies, the participants were recruited from jails throughout the same mid-atlantic region. Attitudes towards breastfeeding may vary across different geographic areas, and breastfeeding may be practiced more or less frequently in certain regions. For example, Li et al. (2005) found that rates of breastfeeding initiation were generally higher among mothers who lived in the Pacific, Mountain and New England regions of the U.S. compared to mothers who lived elsewhere. Mothers who lived in the east south-central region of the U.S. (Alabama, Kentucky, Mississippi and Tennessee) had the lowest rates of breastfeeding initiation (Li et al., 2005). Future studies should include women who have experience with incarceration from various geographic regions.

Another limitation was the lack of distribution in age among the participants. The mean age of the participants in Study 1 was 25.25, and there were only 33 (out of 117) women over the

age of 30. The mean age of the participants in Study 2 was 26.22, and there were only 3 (out of 18) women over the age of 30. Therefore, few older mothers were represented. Studies have shown that older women are more likely to initiate breastfeeding than younger women (Dennis, 2002; Humphreys et al., 1998; Hurley et al., 2008; Stuebe & Bonuck, 2011). Additional studies may determine whether age is a predictor of breastfeeding initiation among women who have experience with incarceration.

The results of this study have several implications. Incarceration may remove pregnant women from high-risk lifestyles and provide them with the opportunity to have healthier pregnancies. Breastfeeding programs in jail may allow pregnant women to receive breastfeeding education and support that they otherwise may not receive. Breastfeeding may also encourage women to abstain from smoking and using illicit substances after they are released. In the study conducted by Huang et al. (2012), one woman reported, "I don't want to consume none of those drugs, no alcohol beverages, no cancer smokes or nothing like that because when my baby comes out I want healthy milk … I have to keep those things out of my system" (Huang et al., 2012).

In order to increase breastfeeding initiation rates among incarcerated mothers, both federal and state legislatures need to enact laws that promote breastfeeding in correctional facilities. Not only should jail protocols facilitate breastfeeding for incarcerated women with infants, but they should also provide comprehensive prenatal services to pregnant inmates. These services should provide information about the benefits of breastfeeding, principles of lactation, myths, common problems, solutions and skills training (Guise et al., 2003). Breastfeeding education and support should begin early during prenatal care, continue throughout pregnancy, and include partners, family, and friends. Overall, breastfeeding will

decrease negative affect among incarcerated mothers, allow them to bond with their infants, and encourage them to make positive life changes.

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Table 1

Participant Characteristics in Study 1

Variable	N (%)
Race / Ethnicity	
African American	58 (50)
Non-Hispanic White	51 (44)
Hispanic	3 (2)
Other	5(4)
Marital Status	
Single	84 (72)
Married	10 (9)
Cohabitating	7 (6)
Other	16 (13)
Education	
Some College or College Graduate	30 (26)
High School Graduate	22 (19)
Some High School	20 (17)
Working on GED	14 (12)
Completed GED	29 (25)
Trade or Vocational School	2 (1)
Employment in past 12 months	
Employed	68 (58)
Unemployed	49 (42)
Government assistance in past 12 months	
Food Stamps	78 (67)
WIC	35 (30)
Medicaid	53 (45)

Table 2

Participant Characteristics in Study 2

Variable	N (%)
Race / Ethnicity	
African American	11 (61)
Non-Hispanic White	6 (33)
Asian	1 (6)
Marital Status	
Single	14 (77)
Married	1 (6)
Cohabitating	3 (17)
Education	
Some College	3 (17)
High School Graduate	5 (28)
Some High School	6 (33)
Completed GED	4 (22)
Employment in past 12 months	
Employed	6 (33)
Unemployed	12 (67)
Government assistance in past 12 months	
Food Stamps	11 (61)
WIC	3 (17)
Medicaid	7 (39)

Figure 1. Delivering in Jail and Breastfeeding Initiation

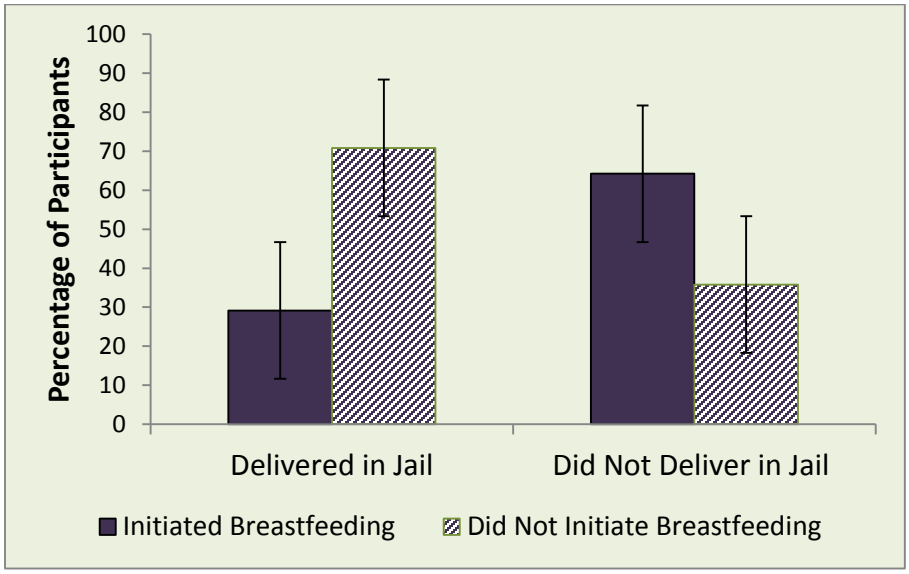

Figure 1. Women who delivered while incarcerated were significantly less likely to initiate breastfeeding, $\chi^2 = (1, N = 105) = 9.229$, $p = 0.002$, than women who delivered after their release.

Figure 2. Length of Incarceration During Pregnancy and Breastfeeding Initiation

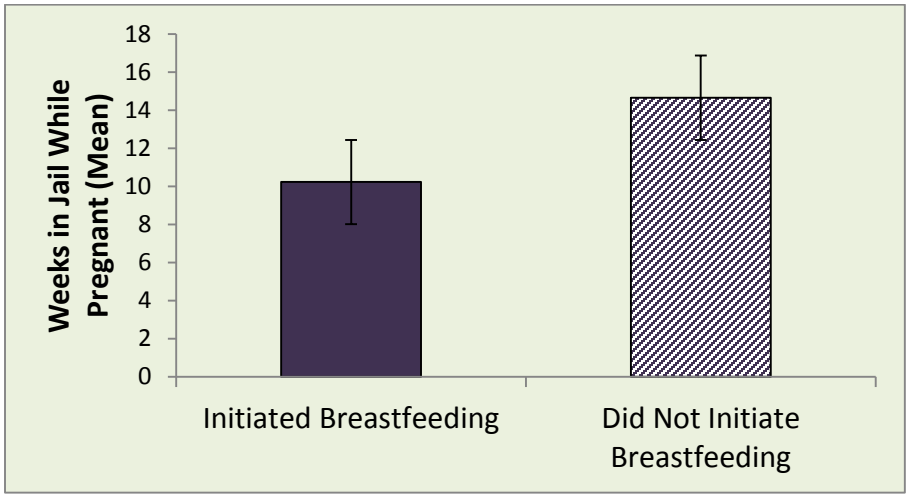

Figure 2. Women who did not initiate breastfeeding were incarcerated for a significantly longer duration during pregnancy than women who initiated breastfeeding, $t(84) = 2.418$, $p = 0.018$.

Figure 3. Shackling During Delivery and Breastfeeding Initiation

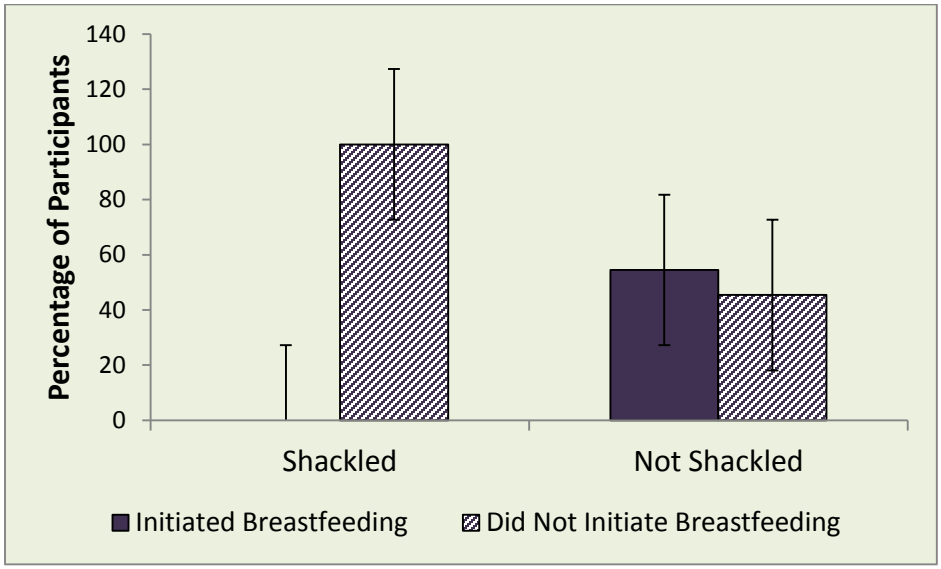

Figure 3. Women who were shackled during delivery were significantly less likely to initiate breastfeeding, $\chi^2 = (1, N = 21) = 5.966$, $p = 0.015$, than women who were not shackled.

Figure 4. Medicaid and Breastfeeding Initiation

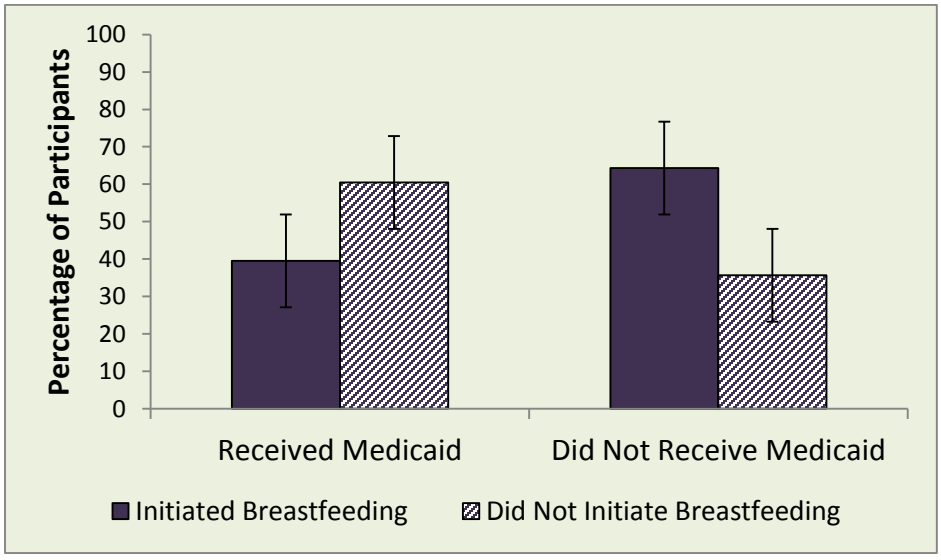

Figure 4. Women who received Medicaid within the past year were significantly less likely to initiate breastfeeding, $\chi^2 = (1, N = 111) = 7.758$, $p = 0.005$, than women who did not receive Medicaid.

Figure 5. Food Frequency and Breastfeeding Initiation

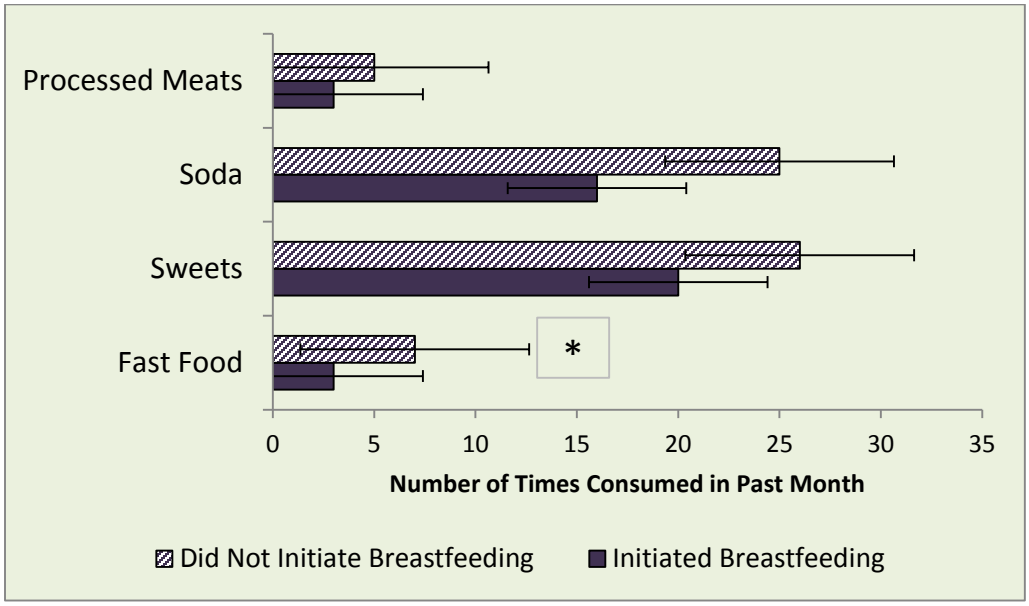

Figure 5. Women who did not initiate breastfeeding consumed significantly more fast food, $t(59) = 2.380$, $p = 0.021$, per month. There were no significant differences in the consumption of processed meats, sweets or soda.

Figure 6. Intention to Breastfeed and Breastfeeding Initiation

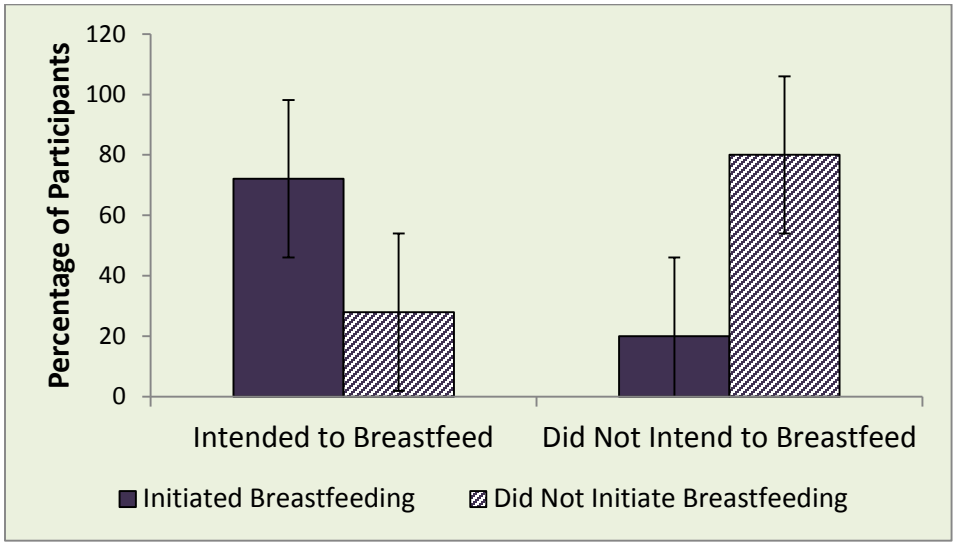

Figure 6. Women who intended to breastfeed, χ^2 = (1, N = 99) = 24.739, p = 0.000, were significantly more likely to initiate breastfeeding than women who did not intend to breastfeed.

Figure 7. Past Breastfeeding and Breastfeeding Initiation

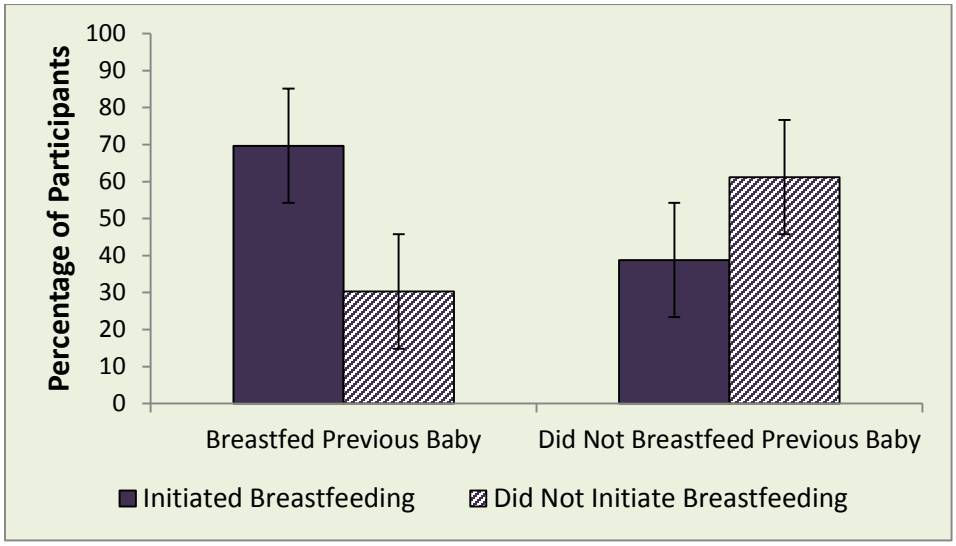

Figure 7. Women who had breastfed their previous baby, χ^2 = (1, N = 82) = 7.546, p = 0.006, were significantly more likely to initiate breastfeeding than women who had not breastfed their previous baby.

Figure 8. Percentage of Women Who Disagreed with Statements About Breastfeeding

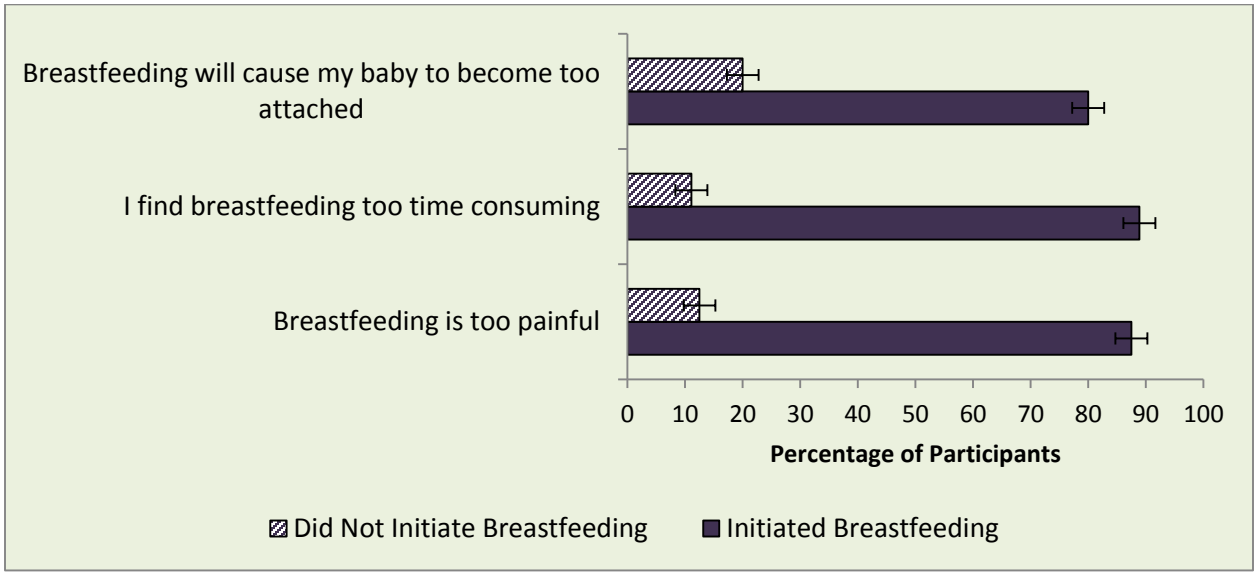

Figure 8. Women who initiated breastfeeding were significantly more likely to disagree with the statements "Breastfeeding is too painful," $\chi^2 = (2, N = 18) = 6.019$, $p = 0.049$, "I find breastfeeding too time consuming," $\chi^2 = (2, N = 18) = 9.000$, $p = 0.011$, and "Breastfeeding will cause my baby to become too attached," $\chi^2 = (2, N = 18) = 6.120$, $p = 0.047$. Women who did not initiate breastfeeding were also more likely to agree with these statements.

Appendix A

Healthy Beginnings Expectant Mother Intake Interview

To begin, we'd like to learn a little more about you and the child's father.

1. What is your age (in years): _____

2. What is your date of birth ____/____/____

3. What best describes your marital status:

SINGLE, never been married MARRIED DIVORCED WIDOWED

LEGALLY SEPERATED COHABITATING

OTHER (please describe): _____

4. What is your race:

White Black Asian Native American

Other (please describe): _____

5. Are you Hispanic:

YES NO

6. What is your biological father's ethnicity?

_____

7. What is your biological mother's ethnicity?

_____

8. Which of these best describes your current level of education?

8th grade or less Some High School High School Graduate

Working on GED Completed my GED Some College College Graduate

Completed Trade or Technical School Some education after College

Masters Degree Doctorate Degree (e.g., MD, Ph.D., JD) Still Attending_____

What is the last grade level you have completed in a school setting?

_____

9. How far along in this pregnancy are you?

_____

10. When was the first day of your last menstrual cycle or period?

_____/_____/_____ (m/d/y)

11. Did you find out you were pregnant when you were in jail? YES NO

12. How did you feel when you found out you were pregnant?

13. Not including this pregnancy, how many times have you been pregnant?

_____

14. Not including this pregnancy, how many biological children/live births have you had? _____

15. Please list their first name, age (**from youngest to oldest**), gender, and if in school, their grade (e.g., 5th):

Name: _____ DOB: _____ Gender: _____ Grade in School: _____

Name: _____ DOB: _____ Gender: _____ Grade in School: _____

Name: _____ DOB: _____ Gender: _____ Grade in School: _____

Name: _____ DOB: _____ Gender: _____ Grade in School: _____

Name: _____ DOB: _____ Gender: _____ Grade in School: _____

Name: _____ DOB: _____ Gender: _____ Grade in School: _____

16. Please describe your living situation both before coming to jail (or if released, please describe your current living situation):

17. Will you be returning to that living situation upon release? YES NO N/A
If no, where will you be going to live upon release?

18. Please list all the people in your household and their relationship to you.

19. In total, how many children (that is, people under the age of 18) live in this home: _____

20. What are the approximate dates of your current (or most recent) incarceration?

This sentence began: ____ / _____ / ____ This sentence is expected to end: ____/ ____/ ____
Month Day Year Month Day Year

If you don't know your release date, when is your next court date?

What is the reason for your current (or most recent) incarceration (e.g., charge) _____

21. Including this most recent time, how many times have you been incarcerated: _____

Now I have some questions about this child's biological <u>father</u>:

22. For the child you are currently carrying, do you know the biological father? YES NO

23. Does the biological father know about the pregnancy? YES NO

24. Before becoming incarcerated did you have contact with the biological father? YES NO

25. How old is this child's father? _____

26. Which of the following best describes this child's biological father's highest level of education:

8th grade or less	Some High School	High School Graduate
Working on GED*	Completed GED	Some College
College Graduate	Completed Trade or Technical School	

Some education after College Masters Degree Doctorate Degree (e.g., MD, Ph.D., JD)

Still Attending_____

How far did the child's father go in school (last grade level completed)? _____

27. Has the child's father ever been incarcerated? YES NO

If YES, how many times? _____

28. As far as you know, has your biological mother ever been incarcerated? YES NO

29. As far as you know, has your biological father ever been incarcerated? YES NO

Now we'd like to figure out your family's income from the last year (previous 12 months).

30. Were you employed at all over the last year? YES NO

31. IF YES, what did you do, and about how much did you make? *(List each job individually)*

Job title(s)/type of income:

Approximate Wage:

32. Did you receive any money from any of the following sources in the last year? If so, please indicate which source and about how much you received and for how long.

Source	Amount	Frequency of Payment (e.g., monthly)
1. Alimony		
2. Unemployment		
3. Disability benefits		
4. Child Support		
5. TAMF (cash assistance)		

33. Did you participate in any of the following programs in the last year? If so, please indicate which program(s) you participated in and about how much you received and for how long.

Program	Amount or Yes/No	Time Frame (per week/month/year?)
1. Food Stamps/SNAP		
2. Energy Assistance		

3. Public Housing		
4. Head Start		
5. School Lunches		
6. Families First		
7. WIC (Women, Infant, Children Program)		
8. Other (Medicaid or Medicare)		

34. Thinking of the people who live in your household, not including yourself, how many of them brought in money to your home over the last year?

0 1* 2* 3*

NOTE: If you circled 1, 2, or 3 above, please complete the appropriate information below regarding what they did and about how much money they earned.

35a. Person 1 first name: _____

Job title(s)/type of income:

Approximate Wage:

35b. Person 2 first name: _____

Job title(s)/type of income:

Approximate Wage:

35c. Person 3 name: _____

Job title(s)/type of income:

Approximate Wage:

BEFORE PREGNANCY

Now we would like to ask a few questions about you and the time before you got pregnant with your new baby, that is, this current pregnancy.

1. At any time during the 12 months before you got pregnant with your new baby, did you do any of the following things? For each item, circle Y (Yes) if you did it or circle N (No) if you did not.

a. I was dieting (changing my eating habits) to lose weight . . . . . .N Y
b. I was exercising 3 or more days of the week. . . . . .N Y
c. I was regularly taking prescription medicines other than birth control . . . . . N Y
d. I visited a health care worker to be checked or treated for diabetes. . . . . N Y
e. I visited a health care worker to be checked or treated for high blood pressure . . . . . N Y
f. I visited a health care worker to be checked or treated for depression or anxiety . . . . . N Y
g. I talked to a health care worker about my family medical history . . . . . N Y
h. I had my teeth cleaned by a dentist or dental hygienist. . . . . .N Y

2. During the month before you got pregnant with your new baby, were you covered by any of these health insurance plans?

- ☐ Health insurance from your job or the job of your husband, partner, or parents
- ☐ Health insurance that you or someone else paid for (not from a job)
- ☐ Medicaid
- ☐ TRICARE or other military health care
- ☐ FAMIS
- ☐ Other source(s) Please tell us:
  _____
- ☐ I did not have any health insurance before I got pregnant

3. During the month before you got pregnant with your new baby, how many times a week did you take a multivitamin, a prenatal vitamin, or a folic acid vitamin?

- ☐ I didn't take a multivitamin, prenatal vitamin, or folic acid vitamin at all
- ☐ 1 to 3 times a week
- ☐ 4 to 6 times a week
- ☐ Every day of the week
  Do you know the brand name? _____

4. Just before you got pregnant with your new baby, how much did you weigh?
Pounds: _____

How much do you weigh now (or at your last doctor's appointment): _____

5. How tall are you without shoes?

Feet:_____ and Inches:_____

6. Before you got pregnant with your new baby, did a doctor, nurse, or other health care worker talk with you about how to prepare for a healthy pregnancy and baby?

- ☐ No
- ☐ Yes

7. Before you got pregnant with your new baby, were you ever told by a doctor, nurse, or other health care worker that you had Type 1 or Type 2 diabetes? This is not the same as gestational diabetes or diabetes that starts during pregnancy.

- ☐ No
- ☐ Yes
  If yes, please specify which type_____

8. Before you got pregnant with your new baby, did you ever have any other babies who were born alive?

- ☐ No (If no, move onto to questions that begin on page 13)
- ☐ Yes

9. Did the baby born just before your new one weigh less than 5 pounds, 8 ounces (2.5 kilos) at birth?

- ☐ No
- ☐ Yes

10. Was the baby just before your new one born more than 3 weeks before his or her due date?

- ☐ No
- ☐ Yes

11. During the pregnancy prior to this, were you told by a doctor, nurse, or other health care worker that you had gestational diabetes (diabetes that started during this pregnancy)?

- ☐ No
- ☐ Yes
- ☐ Other (e.g., had Type 1 or 2 diabetes before, during and after previous pregnancy)

12. Did you have any of the following problems during your most recent pregnancy? For each item, circle Y (Yes) if you had the problem or circle N (No) if you did not.

a. Vaginal bleeding . . . . . N Y
b. Kidney or bladder (urinary tract) infection. . . . . N Y
c. Severe nausea, vomiting, or dehydration . . . . . N Y
d. Cervix had to be sewn shut (cerclage for incompetent cervix) . . . . . N Y
e. High blood pressure, hypertension (including pregnancy-induced hypertension [PIH]), preeclampsia, or toxemia. . . . . N Y
f. Problems with the placenta (such as abruptio placentae or placenta previa) . . . . . N Y
g. Labor pains more than 3 weeks before my baby was due (preterm or early labor) . . . . . N Y
h. Water broke more than 3 weeks before my baby was due (premature rupture of membranes [PROM]). . . . . .N Y
i. I had to have a blood transfusion . . . . . N Y
j. I was hurt in a car accident . . . . . .N Y

13. Did you breast feed any of your other children? YES NO

14. Did you get consultation about family planning during previous pregnancies? YES NO

15. This question is about the care of your teeth during your most recent previous pregnancy. For each item, circle Y (Yes) if it is true or circle and N (No) if it is not true.

a. I needed to see a dentist for a problem. . . . . N Y
b. I went to a dentist or dental clinic. . . . . N Y
c. A dental or other health care worker talked with me about how to care for my teeth and gums. . . . . N Y

16. During your most recent pervious pregnancy, did you get any of these services? For each one, circle Y (Yes) if you got the service or circle N (No) if you did not get it.

a. Childbirth classes. . . . . .N Y
b. Parenting classes . . . . . N Y
c. Visits to your home by a nurse or other health care worker . . . . . N Y
d. Counseling for depression or anxiety . . . . . .N Y
e. Counseling on how to stop smoking . . . . . .N Y

Appendix B

Healthy Beginnings
Nutritional Counseling

NUTRITION DURING PREGNANCY

I would like to avoid excess weight gain during pregnancy. yes no

I would like to limit the number of soft drinks and juices I drink each week. yes no

I would like to limit or avoid alcohol during my pregnancy yes no

I would like to ensure adequate intake of vitamins and minerals during my pregnancy. yes no

I would like to maintain regular, low-to-moderate intensity physical activity during my pregnancy. yes no

I would like to increase my fruit and vegetable intake during my pregnancy. yes no

I would like to increase my low-fat dairy consumption during my pregnancy. yes no

I would like to increase my fiber intake during my pregnancy. yes no

I would like information on diabetes and/or gestational diabetes. yes no

I would like information on pregnancy and vegetarianism. yes no

INFANT FEEDING

I intend to breastfeed. yes no

If yes, the length of time I intend to breastfeed is _____

If no, I plan to use formula with iron. yes no

I plan to feed juice or other drinks with added sugar to my infant before six months of age. yes no

POST-DELIVERY

I have a plan on how to get back in shape after my baby is born. yes no

I would like information on losing weight after delivery. yes no

I have a plan to cope with possibly being separated from my baby following delivery. yes no

FIRST-TIME MOMS

I would like to know more about well-baby visits following delivery. yes no

I would like to learn how to change a diaper. yes no

I would like information on Sudden Infant Death Syndrome and/or co-sleeping. yes no

I would like information on Shaken Baby Syndrome. yes no

I would like to know more about what resources are available to me to support my new baby. yes no

I would like to have a pregnancy tracker with pictures and information about my pregnancy at different stages. yes no

I would like to make a birth plan for the delivery of my baby. yes no

I am not interested in making any of these changes at this time. yes no

I am interested in making some of these changes, but not at this time. yes no

I am ready to make these lifestyle changes for my pregnancy now. yes no

Appendix C

Healthy Beginnings Post-Partum Interview

1. Did you have a baby boy or a girl? BOY GIRL

2. What was your baby's weight at birth? _____ lbs./oz.

3. What was your baby's length at birth? _____INCHES

4. When was your baby due?

Month___ Day___ Year_20___

5. When did you go into the hospital to have your baby?

Month___ Day___ Year_20___

☐ I didn't have my baby in a hospital (if you didn't have your baby in a hospital, where was the baby delivered?)

6. When was your baby born?

Month___ Day___ Year_20___

7. When were you discharged from the hospital after your baby was born?

Month___ Day___ Year_20___

☐ I didn't have my baby in a hospital

8. Did any of these health insurance plans help you pay for the delivery of your new baby? [Check All that Apply]

☐ Health insurance from your job or the job of your husband, partner, or parents
☐ Health insurance that you or someone else paid for (not from a job)
☐ Medicaid
☐ TRICARE or other military health care
☐ FAMIS
☐ Other source(s) Please tell us:
_____
☐ I did not have health insurance to help pay for my delivery

9. Which type of health professional was your birth attendant? (Please "X" all that apply)
An obstetrician . . . . . □

A family doctor, general practitioner, internist, or other physician . . . . . □
A midwife or nurse midwife . . . . . □
Another type of health care provider . . . . . □
No health professional was present . . . . . □

10. Other than the medical staff, who was with you during your labor? (Please "X" all that apply)
The baby's father . . . . . □
Relatives or friends . . . . . □
A professional labor support person, such as a doula . . . . . □
No one other than medical staff . . . . . □
Correctional Officer . . . . . □
Other . . . . . □

11. How was your baby delivered? (Please "X" all that apply)
Vaginally and not induced . . . . . □
Vaginally and induced . . . . . .□
A planned cesarean . . . . . .□
An unplanned or emergency cesarean . . . . . □

12. Which of the following medications did you have during labor or delivery? (Please "X" all that apply)
General anesthesia (you were put to sleep)..... . . .□
A spinal or epidural . . . . . .□
Demerol or Stadol . . . . . .□
Nitrous oxide (gas breathed through a mask of mouthpiece while remaining conscious) . .□
Pudendal block or other local blocks (injections into the vagina or cevix before the birth) .□
Other pain medication of don't know which pain medication . . . . . □
No pain medication . . . . . .□

13. How much did you weigh before becoming pregnant? _____ lbs.
What was your weight at the time of birth?_____lbs.
Total Weight Change_____ lbs.

The next questions are about the time since your new baby was born.

14. After your baby was born, was he or she put in an intensive care unit?

☐ No
☐ Yes
☐ I don't know

15. After your baby was born, how long did he or she stay in the hospital?

☐ Less than 24 hours (less than 1 day)
☐ 24 to 48 hours (1 to 2 days)
☐ 3 to 5 days
☐ 6 to 14 days
☐ More than 14 days
☐ My baby was not born in a hospital
☐ My baby is still in the hospital

16. Did you ever breastfeed or try to breastfeed your baby, either in the hospital or birth center, or after you went home?

Yes □ No □

If Yes, about how long after your delivery did you breastfeed or try to breastfeed your baby for the very first time (minutes, hours, days)?

_____

These next questions are about the formula your baby is getting. Please just try to answer as best you can, if you don't know an answer, that is fine.

17. Do you know which formula your baby is currently getting? NO YES
If yes, please specify form (i.e., powder, liquid) and brand (e.g., similac)

_____

18. How often is your baby receiving formula?

19. About how much formula does your baby take in a single feeding?

20. Do you know if your baby has had any problems with the formula(s)? YES NO Don't Know
If they have had problems, please specify(PLEASE "X" ALL THAT APPLY):

An allergic reaction or intolerance .....□
Too much gas ..... □
Constipation..... □
Too much spit up..... □
Diarrhea .....□
Vomiting ..... □
Too much mucus ..... □
Other problem (Please specify) .. □

Food Frequency Interview

Lastly, we would like to hear from you about the kinds of foods that you have been eating lately.

Date that the food frequency interview was last administered: _____

Today's Date: _____

Close your eyes for a minute to think about the foods and meals that you have eaten since we last spoke with you. After you open your eyes we will ask a series of questions about the foods that you eat. Please indicate how often per day, or week you ate each of the foods. If a food is listed that you have not eaten over the past month, please indicate this as well. Please let me know if there are fruit, vegetables, or meats that you eat frequently but are not on this list.

Potatoes	1. Baked: _____ 2. French fries: _____ 3. Potato soup: _____ 4. Vegetable soup w/ potatoes: _____ 5. Mashed: _____ 7. Scalloped: _____ 8. Other: _____	NOT EATEN OVER THE LAST MONTH
Sweet Potatoes	1. Baked: _____ 2. Fried: _____ 3. Soup: _____ 4. Mashed: _____ 5. Other: _____	NOT EATEN OVER THE LAST MONTH
Carrots	1. Raw: _____ 2. Cooked: _____ 3. Carrot juice: _____ 4. Soup or stew with carrots: _____ 5. In stir-fry/sauté: _____ 6. Other: _____	NOT EATEN OVER THE LAST MONTH

Cabbage	1. Cooked: _____ 2. Raw: _____ 3. Cole slaw: _____ 4. Cabbage rolls: _____ 5. Other: _____	NOT EATEN OVER THE LAST MONTH
Corn	1. Cooked: _____ 2. Creamed: _____ 3. On the cob: _____ 4. In stir-fry/sauté: _____ 5. Other: _____	NOT EATEN OVER THE LAST MONTH
Peas	1. Cooked: _____ 2. Pea soup: _____ 3. Vegetable soup w/ peas: _____ 4. In pasta, rice, etc.: _____ 5. Other: _____	NOT EATEN OVER THE LAST MONTH
Squash	1. Cooked: _____ 2. Vegetable soup w/ squash: _____ 3. In stir-fry/sauté: _____ 4. Other: _____	NOT EATEN OVER THE LAST MONTH
Green Beans	1. Cooked: _____ 2. Vegetable soup w/ green beans: _____ 3. In stir-fry/sauté: _____ 4. Other: _____	NOT EATEN OVER THE LAST MONTH
Spinach	1. Raw: _____ 2. Cooked: _____ 3. In casserole/souffle: _____ 4. Other: _____	NOT EATEN OVER THE LAST MONTH

Tomatoes	1. Raw: _____ 2. Cooked/stewed: _____ 3. Sun-dried: _____ 4. Juice: _____ 5. Sauce (as in spaghetti, pizza sauce, chili): _____ 6. Soup: _____ 7. Other: _____	NOT EATEN OVER THE LAST MONTH
Ketchup	Ketchup	NOT EATEN OVER THE LAST MONTH
Broccoli	1. Raw: _____ 2. Cooked/steamed: _____ 3. In soup: _____ 4. In stir-fry/sauté: _____ 5. In pasta/casserole: _____ 6. Other: _____	NOT EATEN OVER THE LAST MONTH
Collard Greens, Kale, or Hanover	1. Uncooked: _____ 2. Cooked: _____ 3. Other: _____	NOT EATEN OVER THE LAST MONTH
Mushrooms	1. Raw (in salads) : _____ 2. Cooked (in stir-fry/sauté or pasta): _____ 3. Other: _____	NOT EATEN OVER THE LAST MONTH
Cauliflower	1. Raw: _____ 2. Cooked/steamed: _____ 3. Other: _____	NOT EATEN OVER THE LAST MONTH
Peppers (red/green/ yellow)	1. Raw (in salads): _____ 2. In stir-fry/sauté: _____ 3. Roasted: _____ 4. In sauces or dips: _____ 5. Other: _____	NOT EATEN OVER THE LAST MONTH
Onions	1. Raw (in salads): _____ 2. Cooked/caramelized: _____ 3. Deep fried/onion rings: _____ 4. In stir-fry/sauté: _____ 5. In sauces or dips: _____	NOT EATEN OVER THE LAST MONTH

Asparagus	1. Cooked: _____ 2. Other: _____	NOT EATEN OVER THE LAST MONTH
Eggplant	1. Cooked: _____ 2. Eggplant parmesan: _____ 3. Other: _____	NOT EATEN OVER THE LAST MONTH
Lettuce	1. Raw (in salads): _____ 2. Other: _____	NOT EATEN OVER THE LAST MONTH
Cucumber	1. Raw (in salads): _____ 2. Other: _____	NOT EATEN OVER THE LAST MONTH
Other vegetables		NOT EATEN OVER THE LAST MONTH
Bananas	1. Fresh: _____ 2. Other: _____	NOT EATEN OVER THE LAST MONTH
Oranges	1. Fresh: _____ 2. Juice: _____ 3. Mandarins: _____ 4. Other: _____	NOT EATEN OVER THE LAST MONTH
Pineapples	1. Fresh: _____ 2. Canned: _____ 3. Juice: _____ 4. Other: _____	NOT EATEN OVER THE LAST MONTH
Melons	1. Cantaloupe: _____ 2. Honeydew: _____ 3. Watermelon: _____ 4. Other: _____	NOT EATEN OVER THE LAST MONTH
Apples	1. Fresh: _____ 2. Juice: _____ 4. Applesauce: _____ 5. Other: _____	NOT EATEN OVER THE LAST MONTH

Pears	1. Fresh: _____ 2. Canned: _____ 3. Juice: _____ 4. Other: _____	NOT EATEN OVER THE LAST MONTH
Peaches	1. Fresh: _____ 2. Canned: _____ 3. Juice: _____ 6. Other: _____	NOT EATEN OVER THE LAST MONTH
Berries	1. Fresh: _____ 2. Cooked: _____ 3. Juices: _____ 4. Other: _____	NOT EATEN OVER THE LAST MONTH
Grapes	1. Fresh: _____	NOT EATEN OVER THE LAST MONTH
Raisins	1. Plain: _____ 2. In baked goods (i.e., raisin bread): _____ 3. Other: _____	NOT EATEN OVER THE LAST MONTH
Other Fruits	Type _____ Frequency _____	NOT EATEN OVER THE LAST MONTH
Fruit Jam/Jelly		NOT EATEN OVER THE LAST MONTH
Coffee/Tea	1. Coffee (# cups/day or week): _____ 3. Hot tea (# cups/day or week): _____ 4. Iced tea – sweetened/unsweetened (# cups/day or week): ___	NOT EATEN OVER THE LAST MONTH
Soda	Number of cans/bottles per day or week: _____ Type: _____	NOT EATEN OVER THE LAST MONTH
Diet products	Diet soda_____ # cans/bottles per day _____ Diet Drinks _____ Other Diet foods _____	NOT EATEN OVER THE LAST MONTH

Sweets	1. Cakes/brownies/cookies: _____ 2. Chocolate (milk, bars): _____ 3. Candy (sugar candy): _____ 4. Fruit pies or cobblers: _____	NOT EATEN OVER THE LAST MONTH
Supplement(s)	Brand:____ _____ Type: multivitamin, vitamin C, iron, calcium, other _____ Frequency:_____	NOT EATEN OVER THE LAST MONTH
Bacon	1. Fried: _____ 2. In salads: _____ 3. Ham: _____ 4. Other: _____	NOT EATEN OVER THE LAST MONTH
Pork	1. Roast pork: _____ 2. Pork chops: _____ 3. Ground pork: _____ 4. In stir-fry/sauté: _____ 4. Other (sausage): _____	NOT EATEN OVER THE LAST MONTH
Chicken/ Turkey	1. Roasted/Fried: _____ 2. In sandwiches: _____ 3. Ground: _____ 4. In stir-fry/sauté: _____ 5. In casserole: _____ 6. Other: _____	NOT EATEN OVER THE LAST MONTH
Fish	1. Baked/Poached: _____ 2. Grilled/Fried: _____ 3. Chowder: _____ 4. Casseroles_____ 5. In sandwiches (i.e., tuna): _____ 6. Other: _____	NOT EATEN OVER THE LAST MONTH
Beef	1. Roast beef: _____ 2. Ground beef: _____ 3. Meatballs: _____ 4. Stewed beef: _____ 5. Steak: _____ 6. In stir-fry/sauté: _____ 7. Other: _____	NOT EATEN OVER THE LAST MONTH

Liver	1. Baked: _____ 2. Fried: _____ 3. Other: _____	NOT EATEN OVER THE LAST MONTH
Other Meats	1. Hot dog _____ 2. Bologna _____ 3. Other_____r	NOT EATEN OVER THE LAST MONTH
Milk	1. Whole Fat: _____ 2. Two Percent: _____ 3. Skim: _____ 4. Soy _____	NOT EATEN OVER THE LAST MONTH
Cheese	1. American: _____ 2. Cheddar: _____ 3. Mozzarella (like on Pizza): _____	NOT EATEN OVER THE LAST MONTH
Yogurt	1. Fat Free 2. Whole Fat 3. Frozen	NOT EATEN OVER THE LAST MONTH

Appendix D

Healthy Beginnings Follow Up Interview

Breastfeeding Questionnaire

For the second part of the interview, we'd like to ask you some questions about your experiences with breastfeeding.

1. What are your personal experiences with breastfeeding?
(breastfed as an infant, family/friends breastfed their infants, video/demonstration on breastfeeding, have seen strangers breastfeeding in public)

2. How long do experts recommend a mother should exclusively breastfeed her baby?

3. How long do experts recommend a mother should breastfeed overall (with nutritional supplements)?

The information we have says that you (did/did not) breastfeed the baby that you delivered while participating in Healthy Beginnings.

If mother breastfed, ask if she is currently breastfeeding.

If currently breastfeeding, if not skip to question # 36:

4. Are you currently exclusively breastfeeding your baby?

a. How long do you intend to exclusively breastfeed

less than 1 week 1-3 weeks 1-3 months 4-6 months over 6 months

b. How long do you intend to breastfeed your baby overall (with nutritional supplements)?

less than 1 week 1-3 weeks 1-3 months 4-6 months 7-9 months

10-12 months over 12 months

c. Do you ever have feelings of sadness or isolation while breastfeeding?

d. How long did you exclusively breastfeed?

less than 1 week 1-3 weeks 1-3 months 4-6 months over 6 months

e. Why did you choose to stop exclusively breastfeeding?

If not currently breastfeeding:

5. How long did you exclusively breastfeed?

less than 1 week 1-3 weeks 1-3 months 4-6 months over 6 months

6. How long did you breastfeed your baby overall (with nutritional supplements)?

less than 1 week 1-3 weeks 1-3 months 4-6 months 7-9 months

10-12 months over 12 months

7. Would you describe the first 6 months of infant feeding as:

Mostly breastmilk some breastmilk/some formula

mostly formula

8. Would you describe the first 7-12 months of infant feeding as:

Mostly breastmilk some breastmilk/some formula

mostly formula

9. Did you ever have feelings of sadness or isolation while breastfeeding?

10. Why did you choose to stop exclusively breastfeeding?

11. Why did you choose to stop breastfeeding overall?

The information we have says that you (did/did not) breastfeed your previous children.

If mother breastfed previous children, if not skip to question # 47:

12. Why did you choose to breastfeed?

13. How long did you breastfeed your other children for?

14. Why did you discontinue breastfeeding?

15. What were your past breastfeeding experiences like?

If mother did not breastfeed previous children:

16. Why did you choose not to breastfeed?

I will now ask you some questions about breastfeeding support and education during your pregnancy while participating in Healthy Beginnings.

17. After delivery, did a healthcare worker speak to you about breastfeeding?

If yes:

- **a.** Did they show you how to breastfeed?
- **b.** What kind of healthcare worker spoke to you? (nurse, OB, lactation consultant, other)

18. Did you receive any other breastfeeding demonstrations?

- **a.** If yes, please describe.

19. Who was involved in the infant feeding decision?
(grandmother, family member, friend, baby's father, mother only)

20. Did anyone try to convince you to breastfeed?
(grandmother, family member, friend, baby's father)

21. Did anyone try to convince you not to breastfeed?
(grandmother, family member, friend, baby's father)

If mother delivered while incarcerated, if not skip to question #57:

Our information says that you delivered your baby while you were incarcerated.

22. Were you shackled during delivery?
23. Were you able to hold your baby after delivery?

If yes:

a. How soon after delivery were you able to hold your baby?

24. Were you able to have contact visitations with your baby after you returned to jail?

If mother breastfed:

25. Were you able to provide breastmilk to your baby after you returned to jail?

If mother delivered after release:

26. Were you employed or attending school during the time of your delivery?

27. How long after delivery did you/do you intend to return to work/school?

1-3 weeks **1-6 months** **6-12 months** **over 12 months**

If mother is breastfeeding or had breastfed, if not, skip to question #63:

28. Why did you choose to breastfeed?

29. Were there any factors that made breastfeeding easy?

30. Were there any factors that made breastfeeding hard?

31. What was your breastfeeding experience like?

If mother did not breastfeed:

32. Why did you choose not to breastfeed?

33. Did you have any physical limitations to breastfeeding?

- **a.** If yes, please describe (infectious disease, not enough milk, trouble latching, preterm birth/low birth weight, infant spitting up)

34. Were there any factors that you thought would make breastfeeding hard?

The next few questions are going to ask you about your beliefs and attitudes towards breastfeeding.

35. Can you tell me any advantages of breastfeeding?

36. Can you tell me any disadvantages of breastfeeding?

37. *On a scale from 1 to 5 (1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree)*

	Strongly Disagree	**Disagree**	**Neither Agree Nor Disagree**	**Agree**	**Strongly Agree**
Breastfeeding is important for the health of my baby					
Breastfeeding is an important way for me to bond with my baby					
Breastfeeding identifies my role as a mother					
Breastfeeding is too painful					
I find breastfeeding too time consuming					

Breastfeeding will cause my baby to become too attached					
Breastfeeding is an inconvenience to my current lifestyle					
I am knowledgeable about the benefits of breastfeeding					
I am confident in my ability to breastfeed or to have breastfed					
I have access to sources that can provide me with more information about breastfeeding					
I feel comfortable breastfeeding among close friends and family					
I feel comfortable breastfeeding in public					
Breastfeeding should not be performed in public					
I need to eat a nutritious diet in order to produce nutritious breastmilk					
If I wanted to have breastfed, I would have had to change my diet					
My emotions can taint my breastmilk					
I know that with breastfeeding, my baby is receiving enough to eat					
I know that with bottle-feeding, my baby is receiving enough to eat					
Infant formula is an accepted form of nutrition for newborn babies					