Literature Review: Non-Breastfeeding Mothers

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Introduction

The prevalence of mothers who exclusively breastfeed their newborns in Dover, Delaware is alarmingly low. With about 75% of mothers not exclusively breastfeeding their infants for the first six months of life (which is what is recommended), there grows a concern for the health and well-being of both mother and baby (CDC, 2020). For the infant, by not receiving breast milk, they may be missing some important nutrients from their diet. This may increase their risk for numerous health complications, such as type 1 and type 2 diabetes, sudden infant death syndrome, respiratory tract infections, otitis media (ear infection), leukemia, and childhood overweight and obesity (American Academy of Pediatrics (AAP), 2021). For the mother, a lack of breastfeeding can impact her health outcomes as well. Mothers who do not breastfeed are at a higher risk of developing type 2 diabetes, hypertension, certain types of cancers, and may struggle to lose their pregnancy weight (AAP, 2021). By encouraging more mothers to breastfeed, mothers and their infants may experience better health outcomes.

Insufficient breastfeeding is not only a problem in Dover, but across the United States as well. Similar to the prevalence rates of mothers in Dover, only about one quarter (25.6%) of mothers nationally are exclusively breastfeeding their infants for the first six months of life (CDC, 2020). For this reason, the Office of Disease Prevention and Health Promotion has created a Healthy People 2030 objective of increasing "the proportion of infants who are breastfed exclusively through six months of age", with a target of 42.4% of infants (n.d.). Previous studies have shown the preventative benefits of exclusive breastfeeding on many infant health outcomes, such as those related to weight gain and overweight or obesity or asthma (Azad et al., 2018; Klopp et al., 2017). Additionally, a study from Ball and Wright found that the exclusive use of formula for infant feeding may result in higher rates of hospital visits,

hospitalizations, and use of prescription medications due to increased rates of lower respiratory tract illness, otitis media, and gastrointestinal illness for formula-fed infants, which results in greater costs to the healthcare system (1999). A more recent study from 2010 estimated that $13 billion per year (including direct and indirect costs to not exclusively breastfeeding) could be saved if 90% of families acted according to the recommendation to exclusively breastfeed their infants for at least six months (Bartick & Reinhold, 2010). By encouraging more mothers to exclusively breastfeed their newborns for at least six months, the health of the U.S. economy could also be improved.

Breastfeeding is a national health concern and every single person is impacted by this issue at least once in their life, whether it be as an infant or as a mother of an infant. At the time of birth, a mother has to make a decision on how she will nourish her child. For some mothers, that choice will be to exclusively breastfeed, for others it will be to formula-feed or use a combination of both feeding methods. This choice has health and economic consequences that may last a lifetime, so it is critical that the issue of exclusive breastfeeding be addressed in order to create more positive outcomes. The purpose of this literature review is to better understand the breastfeeding behaviors of mothers across the United States, to determine which factors impact a mother's choice or ability to exclusively breastfeed her newborn for at least six months, and which factors are most important and most changeable that can be addressed in an intervention for mothers of newborns in Dover, Delaware.

Definition and Diagnosis

Feeding a newborn with breastmilk from the mother is the optimal feeding method for babies. It is recommended that newborns be exclusively breastfed until six months of age due to

the number of nutrients that breast milk provides (CDC, 2020; AAP, 2014). Newborns should be breastfed about eight to twelve times within 24 hours after birth or every two to four hours everyday in the first weeks and months after birth. After six months, it is still recommended that the baby be breastfed until 12 months of age or the baby's first birthday. From six months until 12 months, breastfeeding should be initiated when the baby is hungry, and the mother can start to feed some solid foods throughout the day (CDC, 2020). Breastfeeding can even be continued one year after birth if the mother so desires.

Unfortunately, not all mothers breastfeed or breastfeed exclusively. Non-breastfeeding mothers will choose to formula feed after giving birth. The recommendations for how much and how often newborns should be fed with infant formula is the same as breast milk. Foods can be introduced with formula feeding when the baby is six months (CDC, 2020). There are numerous formula options that are available for infants to obtain most of the nutrients they need. Cow milk-based formula, soy-based formula, hypoallergenic formula, and lactose-free formula are the types available to non breastfeeding mothers and their babies. The forms that can be purchased are liquid and powder formulas that mothers have to prepare. There are also ready-to-use formulas that can be bought (NIH U.S. National Library of Medicine, 2021). Although formula usually costs money, the amount of options available to mothers who decide not to breastfeed are endless, which allows mothers to choose an option that their baby needs or that the mother prefers.

Choosing not to breastfeed newborns exclusively during the first six months of life or choosing not to breastfeed at all is a negative health behavior. The negative health problems that can arise due to the mother's decision to not breastfeed their newborn are numerous. Unfortunately, health problems can be experienced by the mother as well as the baby if

breastfeeding is not the feeding method of choice. For non-breastfed newborns, growth can be hindered, illness can be more likely to occur, and mortality has the possibility of increasing. Growth and development can be affected due to the fact that breast milk has the optimal nutrients for the baby (NIH U.S. National Library of Medicine, 2021). Diseases such as diabetes, ear infections, and obesity have been shown to occur in babies who are not breastfed (NIH U.S. National Library of Medicine, 2021; Bartick et al., 2016). In terms of suboptimal breastfeeding versus optimal breastfeeding behaviors, it has been shown that suboptimal breastfeeding has been associated with acute otitis media (ear infection), gastrointestinal infection, and necrotizing enterocolitis (intestinal inflammation) in infants of non-Hispanic white, non-Hispanic black, and Hispanic mothers. Mortality increases in infants who are suboptimally breastfed compared to optimally breastfed babies due to the increased rate of sudden infant death syndrome (SIDS) in these infants (Bartick et al., 2016). Risk of dental caries increases as well for non-breastfed babies. Breastfeeding exclusively and breastfeeding for even a little bit has shown to offer a protective effect to dental caries compared to infants who were never breastfed (Tham et al, 2015).

Mothers who do not breastfeed their infants might be at an increased risk for multiple diseases. Non-breastfeeding mothers have an increased risk for type 2 diabetes, hypertension, and ovarian cancer (NIH U.S. National Library of Medicine, 2021; Bartick et al., 2016). Suboptimal breastfeeding practices increase the risk for these diseases in both mothers of non-Hispanic and Hispanic origin (Bartick et al., 2016). Therefore, it is imperative that breastfeeding be the feeding method of choice for both baby and mom.

Epidemiology

Breastfeeding rates are low among mothers of newborns in the town of Dover, state of Delaware, and across the United States nationally. Although the recommendation is that infants should exclusively be given breastmilk for at least the first six months of their life, both local and national rates suggest that close to 75% of infants are not. In Kent County, where Dover is located, only 26% of the mothers in the Delaware Women, Infants, and Children (WIC) program are exclusively breastfeeding through six months. This is similar to Sussex County (24%) and slightly lower than New Castle County in Delaware (32%; The Ripples Group, 2020). However, this is not just a problem in Delaware. The neighboring states, Pennsylvania, New Jersey, and Maryland, each have low six month exclusive breastfeeding rates as well (25.9%, 27.7%, and 29.4%, respectively; CDC, 2020). In fact, these low rates can be observed on a national level. Across the United States, only 25.6% of mothers exclusively breastfeed their newborns, and not a single state has six month exclusivity rates above 40% (CDC. 2020). This means that more than half, and in some cases more than three-quarters, of mothers in the United States are not breastfeeding their infants according to the national recommendations.

In Delaware specifically, initiation rates of breastfeeding are relatively high (55%; The Ripples Group, 2020) and 42.4% of mothers continue to exclusively breastfeed through the first three months (CDC, 2020). The number of mothers in Delaware who are exclusively breastfeeding at six months versus three months is almost cut in half. It is also important to note that almost half of Delaware mothers are still breastfeeding to some extent come six months (CDC, 2020). In order to understand these drastic changes and encourage mothers of newborns to exclusively breastfeed at least through the first six months, it will be crucial to understand the factors that are associated with breastfeeding cessation and the decision to introduce formula or other foods before six months of age.

To begin to understand the factors that impact a mother and her newborn's breastfeeding journey, the sociodemographic factors of mothers who exclusively breastfeed through six months can be explored. Across the United States, specific differences between mothers who do and do not exclusively breastfeed for six months can be observed. The biggest differences are seen for mothers based on their age, race and ethnicity, education, marital status, poverty status, and participation in WIC.

Beginning with age, only 18.7% of mothers under 20 years old exclusively breastfeed for six months compared to 24.2% of 20 to 29 year olds and 26.5% of mothers 30 and over. Race and ethnicity are also big factors, with Hawaiian or Pacific Islander mothers exclusively breastfeeding the most (46.9%) and Black and Hispanic mothers exclusively breastfeeding the least (21.2% and 21.5%). Mothers who graduated from college are more likely to exclusively breastfeed (32.8%) than mothers who only obtained a high school degree or less (21.5% and 17.1%; CDC, 2017). Marital status has a major impact, with 30.6% of married mothers exclusively breastfeeding, but only 17.6% of not married mothers doing the same. The closer a mother falls to or below the poverty line, the more likely she is to not exclusively breastfeed a well. Lastly, although WIC programs are implemented statewide to provide breastfeeding support, mothers enrolled in a WIC program are actually less likely to exclusively breastfeed for six months compared to those who are not enrolled (CDC, 2017).

The low rates of infants who are being breastfed through their first six months of life is a national problem. For the most part, mothers in Dover, DE are starting and ceasing exclusive breastfeeding at the same rate as mothers throughout the country. Nationally, mothers who are younger than 20 years old, identify as Black or Hispanic, have a high school degree or less, are not married, have incomes less than 100% of the poverty level, and who participate in WIC are

less likely to breastfeed their infants according to the national recommendations. Although exclusive breastfeeding rates are low for all mothers overall, the mothers who fall into these categories are at the greatest risk for choosing not to exclusively breastfeed.

Risk Factors

Intrapersonal Level

There are multiple factors that impact the mother's decision to breastfeed or to not breastfeed, especially in regard to the individual level determinants. These factors include demographics, knowledge, attitudes and beliefs, behaviors, and mental health conditions.

In regard to demographics, breastfeeding initiation, cessation, and general rates are somewhat impacted by race. White women have been shown to initiate breastfeeding more often as well as have a 46% lower risk of breastfeeding cessation from 4 to 6 weeks after giving birth compared to other races (Pitonyak et al., 2016). White women along with Asian women have been shown to have higher overall breastfeeding rates compared to African American and Hispanic women (Patterson et al. 2018). Age has an impact on breastfeeding behavior as well. A younger mother, especially between the ages of 20 to 24 are more likely to stop breastfeeding between 1 to 3 weeks after giving birth compared to women older than 35 years old. Surprisingly, these women who are aged 20 to 24 years old had a 1.5 times higher chance of initiating breastfeeding compared to older mothers (Dinour et al., 2019).

Additionally, lack of higher education is a risk factor to breastfeeding. Women with a college education have two times the chance of continuing to breastfeed past four months compared to women with only some education (Pitonyak et al., 2016). In fact, women with less than 16 years of education were less likely to initiate breastfeeding and more likely to

discontinue breastfeeding after they started (Dinour et al., 2020). When disregarding higher education, a lack of knowledge in regard to the benefits that breastfeeding provides or the parental knowledge about breastfeeding practices is a major risk factor to not breastfeeding as well (Schindler-Ruwish et al., 2019; Jones et al., 2015).

Mothers' beliefs and attitudes are significant barriers to the initiation or continuation of breastfeeding. Fears of leaking or not producing enough milk cause mothers to not breastfeed, especially when they are at work (Hedberg, 2013; Anstey et al., 2018). Mothers also think and fear that breastfeeding will be painful or they will experience latching issues (Schindler-Ruwish et al., 2019). Some mothers do not breastfeed because of their belief that formula feeding will allow them to be able to sleep through the night (Dunn et al., 2014). In multiple instances, mothers think of their breasts as sexual which leads them to avoid breastfeeding (Jones et al., 2015; Dunn et al.,, 2014). Also, a lack of confidence contributes to not breastfeeding. Mothers' lack of confidence is most likely due to the lack of experience that mothers have with breastfeeding. For example, women who are first time moms are more likely to lack the confidence to breastfeed than women who have had a previous baby (Schindler-Ruwish et., 2019). Additionally, mothers' perceptions of breastfeeding in public affect their decision to breastfeed. Although all 50 states have laws allowing breastfeeding in public and private there are mothers who think that the public will judge them if they are seen breastfeeding (Newland, 2019; Anstey et al., 2018).

Behaviors such as smoking, use of alcohol, or prescription medications influence breastfeeding choices too. Doctors have told mothers who smoke to not breastfeed their baby, so if the mother does not want to quit she will choose to formula feed her child instead (Schindler-Ruwishet et al., 2019). In fact, mothers who smoke have shown a 50% lesser chance of initiating

breastfeeding (Dinour et al., 2020). Experiencing postpartum depression also leads to decreased breastfeeding rates. The prevalence of postpartum depression in mothers contributes to the discontinuation of breastfeeding practices (Pitonyak et al., 2016). Unfortunately, initiating breastfeeding and then having negative experiences due to breastfeeding practices affect postpartum depression. Challenges and obstacles the women experience through breastfeeding include pain, nipple rawness, mastitis (inflammation of breast), engorgement, difficulties latching, and insufficient milk supply (Schindler-Ruwish et al., 2019). Even when these factors do not contribute to postpartum depression they can contribute to mothers stopping exclusive breastfeeding before six months. Breastfeeding is not easy and can also be time consuming. Unfortunately, being a single mother can make breastfeeding even more difficult and draining (Hedberg et al., 2013). Finally, being food insecure is a barrier to breastfeeding. Food insecure women are more likely to stop breastfeeding after one week, and food secure women are more likely to breastfeed for greater than 10 weeks (Dinour et al., 2020). The list of individual factors that act as barriers or affect mothers' decisions to breastfeed is ongoing.

Interpersonal Level

At the interpersonal level, the major risk factor that affects breastfeeding rates is the relationship between mothers and their family and friends. For example, 15 out of 24 Black women stated their decision to breastfeed was influenced by those they knew (Schindler-Ruwish et al., 2019). Many times the influence that family and friends have on mothers is positive and geared towards mothers breastfeeding. Yet, when individuals have had poor experiences with breastfeeding they will influence other mothers to not breastfeed (Anstey et al., 2018). Sometimes, family members, such as grandparents, have a preference that the mother formula-

feeds due to the experience that the grandmother had when she had a newborn. Grandparents even undermine the mother's ability or desire to breastfeed by telling mothers they will not have enough milk or by diminishing the benefits of breastfeeding (Hedberg, 2013). There are other family members, like partners or grandparents, who also want to have a relationship with the baby. The fact that these family members want to feed the baby and bond with it takes away the opportunity for mothers to breastfeed and sometimes the desire to breastfeed. Also, women who are married are more likely to initiate breastfeeding and are twice as likely to breastfeed past four months than women who are single (Pitonyak et al., 2016; Dinour et al., 2020). However, an unsupportive partner acts as a barrier to breastfeeding (Hedberg et al., 2013). For instance, some partners have negative attitudes towards breastfeeding, such as disliking the effects that breastfeeding may have on the mother's body and therefore wanting the mother to formula feed. A lack of support system when it comes to cleaning, cooking, running errands, and taking on other childcare duties can affect a mother's ability to breastfeed as well (Dunn et al., 2014).

Community Level

At the community level there lies a few very important factors that impact a mother's choice to breastfeed or formula feed. One of the most common issues regarding breastfeeding from a community standpoint is that breastfeeding is unfortunately not seen as a societal norm to most people (Dunn et al., 2014). Even if a mother believes and supports the idea that breastfeeding should be a social norm, she may still choose not to due to her awareness of how others in the community feel about it. Within the community, there are also usually a lack of designated spaces to breastfeed in public (such as at restaurants or parks) and a lack of positive portrayals of breastfeeding in the media (Dunn et al., 2014). These are two issues in and of

themselves, but they also impact how breastfeeding is viewed in society. It is the belief of some healthcare professionals that increasing the prevalence of breastfeeding moms in the media and creating more designated spaces to breastfeed in public spaces will help make breastfeeding become more of a social norm, which will in turn encourage more mothers to breastfeed (Dunn et al., 2014).

Organizational Level

At the organizational level, there are many factors that impact a mother's decision to breastfeed. One of the most commonly cited reasons by both mothers and healthcare professionals is the lack of breastfeeding support at work or school (Pitonyak et al., 2016; Newland, 2019; McCardel & Padilla, 2020; Hedberg, 2013; Dunn et al., 2014). Many mothers are impacted by the fact that their employer may not offer maternity leave, and if they do, it is most likely unpaid. It appears that many employers do offer unpaid maternity leave; however, the rate of mothers who are not offered any paid maternity leave may be as high as 66% (Pitonyak et al., 2016). For mothers who are low-income, this gives them very little options, and returning to work is a necessity in order to support themselves, their baby, and perhaps their entire family. Even for mothers who successfully initiate breastfeeding postpartum, if they return to work early, they are more likely to stop breastfeeding than mothers who stay at home longer (Pitonyak et al., 2016). The workplace itself poses a significant threat to a mother's ability and choice to breastfeed. Many employers do not provide any or enough support in order for breastfeeding mothers to feel comfortable pumping at work. These lack of supports include things such as a private and clean space to pump, access to breastfeeding resources (such as a

lactation consultant or educational materials), or a flexible schedule that allows time to pump (Newland, 2019; McCardel & Padilla, 2020; Dunn et al., 2014).

Baby-Friendly hospitals also play an important role at the organizational level. The Baby-Friendly Hospital Initiative (BFHI) was created by the World Health Organization and United Nations Children's Fund to help hospitals in providing mothers with the necessary skills and education to successfully breastfeed their newborns exclusively. As of 2019, 600 facilities in the United States were designated as Baby-Friendly; however, only 28% of babies were born in such facilities (Baby-Friendly USA, 2019). Babies who are born in Baby-Friendly hospitals are more likely to be exclusively breastfed than babies who are not (Patterson et al., 2018). By increasing the number of hospitals and facilities that participate in the BFHI, the greater the chance that more newborns can be exclusively breastfed.

Similar to the need for more Baby-Friendly hospitals, is the need for better support coming from different types of healthcare providers. Women are told to breastfeed by their doctor, however, these mothers are not necessarily shown how to breastfeed. Support can be limited even if mothers are shown how to breastfeed by their provider due to the fact that many mothers have been shown to experience little support after leaving the hospital. (Schindler-Ruwish et al., 2019). There seems to be a tendency for personnel such as pediatricians, nurses, and family practitioners (those who are not directly involved in a mother's pregnancy) to have less knowledge about breastfeeding and to show less support around the behavior (Dunn et al., 2014). Anstey et al. (2018) conducted a qualitative study on lactation consultants' perceived barriers to managing breastfeeding issues and found that it is the belief of many consultants that certain healthcare providers are not always properly trained to correctly inform the feeding practices of mothers. Their own beliefs may also get in the way; for example, if a pediatrician

holds personal, positive views on formula feeding, they may be more likely to encourage mothers to formula feed as well. Unfortunately, in the eyes of these lactation consultants, the lack of knowledge of certain healthcare providers mostly comes down to a lack of coordination within any given healthcare system. When it comes to training healthcare providers to provide better breastfeeding support, there are issues regarding a lack of time and staff to conduct such training. Within entire healthcare systems, there also tends to be a lack of awareness for lactation services and other supports that the system may offer, resulting in less mothers who receive beneficial help and information about breastfeeding (Anstey et al., 2019). Increasing the number of hospitals and facilities that participate in the BFHI may solve some of these issues, but it certainly will not solve all of them.

Lastly, another major factor in a mother's decision to breastfeed is the fact that WIC and some hospitals provide mothers with formula free of charge. Despite the fact that breastfeeding is also free, many mothers find formula feeding to be an easier choice if they are able to receive formula at no cost. Advocating for and supporting exclusive breastfeeding is something that the WIC programs are intended to do, but since formula is provided for free, a mother is less likely to initiate and to continue to breastfeed if she is in the WIC program (Hedberg, 2013). The partnerships held between state WIC programs and formula manufacturers may make decreasing the amount of formula given away difficult. Instead, to create organizational change at this level, the focus may need to lie on better education and promotion of breastfeeding among WIC participants.

Policy Level

Breastfeeding laws and policies can differ from state to state. In Delaware, a mother has the right to breastfeed in any public location that she is permitted to be in (US Legal, n.d.). As mentioned previously, this law may not make a huge difference if the mother feels breastfeeding is not socially acceptable. It is also true that mothers and their partners or families may not be aware of each of the local and national laws and policies that affect her ability to breastfeed in public (Dunn et al., 2014). There are also laws that specifically negatively impact mothers who work for small-sized businesses. For example, the federal Break Time for Nursing Mothers law requires employers to provide breastfeeding mothers a functional space and a reasonable break time to pump while working. However, this law does not apply to employers with less than 50 employees (Wage and Hour Division, 2010). So for mothers who work in industries that tend to have a small staff, such as in restaurants or child care, they may not have the opportunity to pump at work.

Some mothers may be covered by the Family and Medical Leave Act through their employer, which allows them to take up to 12 weeks of unpaid leave during any given year to care for their newborn while remaining covered by their insurance (Wage and Hour Division, n.d.). This is great for mothers who can afford to take this time off, but may be useless for mothers who need to work in order to continue to support themselves and their family. Lastly, many mothers may not have health insurance that covers the cost of breast pumps or other breastfeeding supplies (Dunn et al., 2014). For some mothers, purchasing formula may be less expensive than purchasing breastfeeding supplies on their own. Furthermore, for the mothers who cannot afford to buy breastfeeding pumps and supplies, they may be eligible for WIC, which means they can receive formula for free.

Screening and Prevention

Breastfeeding is the optimal method of feeding a newborn until the baby is 12 months old. Breast milk provides many nutrients that helps the baby fully develop to be as healthy as one can be. A clear sign that a newborn is being fed properly is how often they soil their diapers. On average, newborns should have six wet diapers per day and about three to four bowel movements in one day (Galvin, 2017). To ensure the baby is developing correctly, doctors examine the baby multiple times during the first year after birth. During this time, mother's take their child to the doctor six times for a "well-baby" visit, and a nurse or doctor measures the newborn's weight, length, and head circumference (ODPHP, 2020; Desiraju, 2018). These visits take place when the baby is three to five days old, one month old, two months old, four months old, six months old, and nine months old (ODPHP, 2020). Around one month old, babies should be gaining weight and growing in length, however, this development should not be extremely rapid. At two months, doctors look for the baby's ability to raise their head when lying down and their ability to lift their hand to their mouths. At four to six months old, babies are examined to have the ability to roll over, and at nine months old signs of crawling start to show (ODPHP, 2020). During these crucial months, length, weight, and head circumference are continuously measured and plotted on growth charts to ensure proper development. Breastfeeding is essential to ensure these measurements are optimal since formula feeding is associated with an increased body mass index (BMI). Rapid weight gain and BMI has been associated with formula feeding starting after three months of age to six months of age (Azad et al, 2018).

There are some common breastfeeding issues that mothers face, however, some of them can be easily prevented. It is important for the baby to latch on to the mother's breast for breastfeeding to offer optimal benefits. Several signs of a good latch include the baby's chin

touching the mothers breast, the baby's head being straight and the head not turning to the side, and hearing or seeing swallowing motions (USDA). Mothers can experience breast pain or cracked nipples when breastfeeding; however, a proper latch to the breast or changing the position of the baby can prevent these problems from occurring (Ben-Joseph, 2015).

Treatment

It is extremely important for mothers to initiate and continue to breastfeed to ensure optimal growth for their baby. Breast milk protects against many negative outcomes, so the promotion of breastfeeding is essential in the baby's first year of life. Formula is manufactured, and although it can contain similar nutrients to breast milk, it does not match its components, such as lactose, protein, and fat completely. Other benefits of breastfeeding that formula does not provide are antibodies from the mother's milk and skin to skin contact that promotes bonding between the mom and child (Galvin, 2018).

Fortunately, several strategies can be used to promote breastfeeding. First, educating the mother about the benefits and challenges can assist in the decision to breastfeed. If mothers know that there are numerous benefits to breastfeeding for their baby and themselves, then they may be more likely to breastfeed. Also, addressing the difficulties of breastfeeding so that women are prepared to breastfeed but also so that they do not become too fearful can help as well. In fact, educational interventions have been shown to promote breastfeeding at six months (Oliveira et al., 2016). Additionally, increasing positive support systems can promote breastfeeding among new moms. Support systems can help mothers during difficult times when breastfeeding is hard, or can help with chores and cooking, so that mothers can have the time and energy they need to breastfeed (Dunn et al., 2014).

PRECEDE Analysis and Conclusion

An extensive review of the literature on the infant feeding behaviors of mothers revealed the main behavioral and environmental causes of a mother's decision to not exclusively breastfeed for at least six months. The single most important behavioral cause of not exclusively breastfeeding is the choice to formula feed. When a woman has a baby, she is faced with the decision of exclusively breastfeeding her child, formula feeding, or providing a combination of both. Other behavioral causes include going back to work or lifestyle factors such as smoking, drinking, or taking prescription medications. Each of these behaviors ultimately leads to a mother choosing to formula feed to some degree rather than exclusively breastfeed, making formula feeding the most important and the most changeable behavior to encourage exclusive breastfeeding.

Environmental causes also play a significant role in a mother's choice to breastfeed. These causes include the lack of Baby-Friendly hospitals, lack of educational and social support from healthcare providers, the abundance of free formula provided by WIC and certain hospitals, and the lack of designated space to breastfeed in public. When it comes to the issue of not breastfeeding, the only other option a mother has is to formula-feed. Despite the fact that these environmental causes also ultimately lead to some form of formula feeding, addressing them head on as one of the target causes of not exclusively breastfeeding may improve the chances that a mother refrains from formula feeding for at least the first six months of her baby's life. With that being said, the most important and most changeable environmental cause of a mother choosing not to exclusively breastfeed, is the fact that many of the healthcare providers who are not directly involved in a mother's pregnancy or delivery may not be properly supporting or educating a mother about exclusive breastfeeding practices. Healthcare providers such as

pediatricians, primary care doctors, and nurses play an important, influential role in a mother and infant's lives, and so their lack of support and ability to provide important resources about breastfeeding to a mother postpartum is significant.

Both the choice to formula-feed and the lack of support from certain healthcare providers involves specific predisposing, reinforcing, and enabling factors at many levels, which can be targeted through interventions to improve the prevalence of mothers who exclusively breastfeed through the first six months. Predisposing factors include a mother's lack of knowledge of the benefits of breastfeeding, a belief that breastfeeding is painful, low confidence in her ability to breastfeed, and negative attitudes about breastfeeding in public. The general lack of breastfeeding knowledge and negative breastfeeding attitudes of certain healthcare providers are also predisposing factors. Reinforcing factors include breastfeeding not being seen as a social norm and the influence of a mother's family and friends. Such individuals may influence a mother to formula-feed if that is what they did when they had a baby or what they believe is best. They may also want the opportunity to bond with the baby by having the ability to feed them, which of course must be done by bottle feeding and not breastfeeding. Finally, the enabling factors that impact the choice to formula-feed and the lack of support from healthcare providers includes the lack of training and educational materials made available to healthcare professionals by their place of work, the lack of designated spaces to breastfeed in public, and the lack of breastfeeding resources (i.e. breast pumps) made easily available to mothers. By addressing these predisposing, reinforcing, and enabling factors that cause a mother to formula-feed and healthcare providers to be underprepared to support their patients, more mothers will make the decision to exclusively breastfeed their newborn for the first six months of their life, if not

longer. Addressing these issues may be especially helpful for increasing exclusive breastfeeding rates among mothers who are low-income, Black, Hispanic, undereducated, young, or single.

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