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Using the Social Ecological Model to Understand Breastfeeding Support for African American Women

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An abstract of
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Abstract

Using the Social Ecological Model to Understand Breastfeeding Support for African American Women
By Taylor E. Streeter

Introduction: Breast milk provides optimum health benefits for mothers, infants and children. African American women have the lowest rates of breastfeeding within the United States. Support has been identified as a major contributing factor to African American breastfeeding outcomes. The purpose of this study is to understand the relationship between sources of support and breastfeeding outcomes among African Americans using a Social Ecological Model framework.

Methods: This study is a systematic review of the literature that includes empirical studies that explore sources of support among African American women. This study is guided by five steps to conducting a systematic review. Significant associations were determined by statistical tests and the corresponding p-value for sources of social support and breastfeeding outcomes. Studies that did not contain statistical tests listed relevant descriptive statistics.

Results: Ten studies explored the relationship between interpersonal sources of support and breastfeeding outcome. Significant findings on breastfeeding outcomes were found in 63% of studies. Five studies explored the relationship between community sources of support and breastfeeding outcomes. Four studies found community sources of support were significantly and positively associated with breastfeeding outcomes. Three studies explored the relationship between macrosystem sources of support and breastfeeding outcomes. All studies found at least one policy was significantly associated with breastfeeding, though one study found policy was significantly and negatively associated with breastfeeding duration.

Discussion: Sources of breastfeeding support for African Americans found in the systematic review include partner, mother, family, friends, healthcare system, and policy. This study suggests several recommendations that can improve breastfeeding support among African American using SEM. These include explore the relationship between interpersonal sources of support and breastfeeding duration; further explore the relationship between other community sources of support such as workplace environment and religion and breastfeeding outcomes; and further explore how the macrosystem can positively support breastfeeding among African Americans.

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CHAPTER I – INTRODUCTION

Background

Breast milk provides optimum health benefits for infants and children. Research studies show that the antibodies present in breast milk lower an infant's risk for various illnesses including asthma, eczema, ear infections, necrotizing enterocolitis, vomiting, type 2 diabetes, and sudden infant death syndrome (U.S. Department of Health and Human Services, 2017). A breastfed infant is protected from other infections including *H influenzae, S pneumonia, V cholera, E coli*, and rotavirus (U.S. Department of Health and Human Services, 2017). Breast milk also lowers the risk of obesity and leukemia in children (American Academy of Pediatrics, 2012; Harder, Kallischnigg, & Plagemann, 2005; Stuebe, 2009; U.S. Department of Health and Human Services, 2017). Breast milk contains docosahexaenoic acid (DHA) that aids in the growth and development of an infant's brain. Research studies have shown that breastfed children have higher cognitive development scores compared to children who are formula fed (Boutwell, Beaver, & Barnes, 2012; Lee et al., 2016).

Breastfeeding also provides benefits for the mother. For some women, breastfeeding may aid in losing weight gained during pregnancy. A woman's body uses 500kcal per day to maintain an adequate milk supply (Stuebe, 2009). Breastfeeding can also reduce the mother's risk for type 2 diabetes, hypertension, cardiovascular disease, metabolic syndrome, ovarian cancer, and certain breast cancers (Schwarz et al., 2009; Stuebe, 2009). Among reasons women choose to breastfeed, a common belief and experience is that breastfeeding can help a mother establish and strengthen the bond with her child (Mitra, Khoury, Hintion, & Carothers, 2004; Nelson, 2006). Scientists hypothesize that the hormones oxytocin and prolactin, which are released during

breastfeeding, may play a role in the bond development between mother and her infant. The hormones have been shown to promote the maternal care giving bond in animal models (Jansen Weerth, & Riksen-Walraven, 2008). The physical skin-to-skin contact between mother and child during breastfeeding as well as the satisfaction of a mother physically providing nourishment for her child are other mechanisms that can promote the bond between a breastfeeding mother and child (Jansen et al., 2008).

Besides being a health benefit to mothers and children, breastfeeding can also reduce healthcare costs and the burden of disease and illness. One pediatric cost analysis utilized the 2007 Agency of Healthcare Research and Quality report to project the impact of breastfeeding on 10 childhood diseases. Researchers concluded that if 90% of United States women exclusively breastfed their infant for six months, the U.S. healthcare system could save $13 billion per year and prevent 911 infant deaths. (Batrick and Reinhold, 2012). A follow-up study performed a 2012 maternal and pediatric breastfeeding cost analysis. The authors found that suboptimal breastfeeding rates contribute to over 3,340 maternal and child deaths from 7 diseases. Of those 3,340 deaths, 78% are maternal deaths that could be prevented if U.S. women complied with breastfeeding recommendations. Furthermore, the U.S. healthcare system spends an estimated $14.2 billion on infant deaths that can be prevented if U.S. women exclusively breastfeed their infants for six months (Batrick et al., 2017).

Despite the well-established benefits of breastfeeding, breastfeeding rates in the United States remain below standard recommendations. The American Academy of Pediatrics recommends infants to breastfeed exclusively for the first six months of life with continued breastfeeding throughout the first year and beyond if desired by mother

and baby (2012). Healthy People 2020 has set national breastfeeding benchmarks for 81.9% of infants ever breastfed, 60.6% to breastfeed at 6 months, and 34.1% to breastfeed at 1 year (Centers for Disease and Control and Prevention, 2016). The Centers for Disease Control and Prevention (CDC) reports that while the U.S. has nearly met the recommended breastfeeding initiation rate (79%), duration rates fall below recommendations with a 49% rate of breastfeeding at 6 months and 27% rate of breastfeeding at 12 months (2014). Given the important health and economic benefits, breastfeeding promotion requires continued support and research from public health professionals.

Breastfeeding Disparity among African Americans

While American women currently do not meet the national breastfeeding guidelines, African American breastfeeding rates are significantly lower than all other racial and ethnic groups. The CDC cites the rate of breastfeeding among African American women at 68% ever breastfed, 42% breastfeeding at 6 months, and 22% breastfeeding at 12 months (2014). Though African American women have the lowest rates of breastfeeding within the United States, this group can receive the greatest benefit from improved breastfeeding (Jones, Power, Queenan, & Schulkin, 2015). African Americans have a higher rate and increased risk of obesity, type 2 diabetes, hypertension, cardiovascular disease, and childhood obesity compared to other racial and ethnic groups. Breastfeeding has been associated with reduced incidences of the aforementioned health outcomes (Jones et al., 2015; Spencer and Grassley, 2013). Another analysis found that due to suboptimal breastfeeding, African Americans experience 1.7 times more acute otitis media, 3.3 times more necrotizing enterocolitis, and 2.2 times more cases of child

deaths compared to non-Hispanic whites (Batrick et al., 2017). Given the burden of disease faced by African American women and children, increasing breastfeeding among this population can have a large impact on alleviating and reducing these health disparities.

Factors Influencing Breastfeeding among African Americans

Historically, African Americans breastfed their infants just like other women around the world. During slavery, some black women were forced to breastfeed white infants and work as wet-nurses or mammies. Some infants of slave wet nurses could not receive enough breast milk from their mother and died (Hoban, 2016). This negative culture memory is still present in some African American women, and some mothers choose to distance themselves from breastfeeding as to not be associated with slavery or forced labor (Devane-Johnson, Woods-Giscombé, Thoyre , Fogel, and Williams 2nd, 2017; Fleurant et al., 2017). Additionally, beginning in the 1960s, some African American women began associating breastfeeding with being poor and formula with perstige (Fleurant et al, 2017). This lead to some African American women choosing to feed their infant formula as a sign of status, and dissasociation with being poor is a reason some African American women currently choose formula over breastfeeding (Fleurant et al., 2017).

In addition to the historical context, other research has been conducted to explore factors contributing to poor breastfeeding rates among African Americans. An integrative literature review conducted by Spencer and Grassley (2013) discovered four contributing influences to breastfeeding among African Americans: information provided by

healthcare providers, lower rates of prenatal breastfeeding intention, barriers to breastfeeding initiation and duration, and impactful community breastfeeding interventions. The authors of this study noted that African American women are less likely to receive encouragement or support to breastfeed from healthcare providers compared to white and Hispanic women. Additional studies in this review found that black women were more likely to have prenatal breastfeeding intentions if they held positive beliefs and attitudes about breastfeeding, had social support from family and friends, and higher socio-economic status (Spencer and Grassley, 2013). Factors that negatively influenced breastfeeding intention include fear of pain, reluctance to breastfeed, embarrassment of breastfeeding in public, and perceived low self-efficacy. African American women with higher rates of breastfeeding initiation and duration were internally motivated to breastfeed and had breastfeeding family or friends, social support, healthcare provider support, and higher self-efficacy. Those with lower rates of breastfeeding experienced difficulties breastfeeding, perceived low milk supply, were embarrassed to breastfeed around others, and were comfortable with using formula (Spencer and Grassley, 2013).

DeVane-Johnson et al. (2017) also performed an integrative literature review to explore factors that impact breastfeeding outcomes among African Americans. Like Spencer and Grassley (2013), DeVane-Johnson et al. (2017) noted that breastfeeding opinions of partners, family, and friends; support from peer counselors; embarrassment from breastfeeding in public; fear of pain; perceived convenience of formula; and inadequate breastfeeding support from healthcare providers influenced breastfeeding outcomes among African Americans. This study also identified the work environment

and cultural perspectives on the purpose of breasts as negative breastfeeding influences. African American women are more likely to have working class jobs with an environment that would make it difficult to pump and store breast milk. Additionally, African American women are likely to have shorter maternity leaves compared to other racial or ethnic groups (DeVane-Johnson et al., 2017). Lastly, this integrative review identified cultural perceptions as a barrier to breastfeeding, noting that African American women are more inclined to believe that breasts are sexual objects that should not be used for feeding and to be concerned that breastfeeding will negatively impact the appearance of their breast (DeVane-Johnson et al., 2017).

Interventions Impacting Breastfeeding among African Americans

Researchers have explored interventions that have positively impacted breastfeeding outcomes among African American women. In Spencer and Grassley's (2013) integrative review, successful breastfeeding interventions often utilized community-based support such as motivational videos, educational classes, peer counseling, lactation consultants, and support from a community nurse via hospital and home visits and telephone calls. These interventions resulted in higher breastfeeding initiation and duration rates when compared to a control group. Hospitals that have undergone the Baby-Friendly Hospital Initiative have also experienced improved breastfeeding initiation and duration rates among African American women (Spencer and Grassley, 2013). While many interventions targeting African Americans have successfully predicted or improved breastfeeding rates, a substantial breastfeeding disparity remains in the United States. Continued research is needed to inform programs and interventions targeting breastfeeding among African Americans.

Sources of Breastfeeding Support among African Americans

A common theme identified in the literature as a major contributing factor to African American breastfeeding outcomes is positive or negative support (Spencer and Grassley, 2013). Several studies have indicated that social support is a determining factor for breastfeeding intention among black women with social support from the partner and maternal grandmother having the strongest influence (Bai, Wunderlich, Fly., 2011; Bentley et al., 1999). Regarding breastfeeding initiation and duration, studies find that African American women with higher rates of breastfeeding have breastfeeding family or friends or receive advice to breastfeed from significant others (Spencer and Grassley, 2013).

In addition to interpersonal sources of support, there are also community and societal sources of support that impact African American breastfeeding outcomes. Researchers have noted that the national healthcare system is less supportive of African American women breastfeeding compared to other racial / ethnic women in America. This lack of support often manifests as African American women receiving inadequate or improper breastfeeding advice from health care providers and receiving less breastfeeding services from peer counselors and lactation consultants compared to white and Hispanic women (DeVane-Johnson et al., 2017; Evans, Labbok, and Abrahams, 2011). Studies have also shown that African Americn women are significantly less likely than white women to receive breastfeeding support services from hospitals including hospital staff not assisting an African American mother with bresastfeeding and not instructing them to breastfeed on demand (Gee, Zerbib & Luckett., 2012). Researchers are not sure why this disparity persist, but one hypothesis is that low demand, or

perceived low demand, of breastfeeding interest among African Americans may result in healthcare workers offering less breastfeeding advice and support (Evans et al., 2011). Workplace environment also contributes to community support for breastfeeding, and African American women often report an actual or perceived lack of support from employers (Kim, Fiese, & Donoan., 2017).

Lastly, societal influences such as media, social media, and policy are a source of support that can impact breastfeeding outcomes among African American women. Portrayals of breastfeeding through media and social media can influence cultural attitudes toward this practice. Additionally, many young adults engage with social media regularly and may seek online support groups that will reinforce health behaviors including breastfeeding or formula feeding. Policy can impact large segments of the population as all individuals within a state or the United States are required to follow state and national laws. Policies such as those that require employers to provide break time for pumping and a private area for pumping at work are designed to support working, breastfeeding mothers (Smith-Gagen, Hollen, Walker, Cook, & Yang, 2013). However, African American women are less likely to benefit from these policies as they often work in environments that are less supportive of breastfeeding or inconvenient for pumping and storing breast milk (Johnson, Rosenblum, & Muzik, 2016).

Theoretical framework

Johnson et al. (2015) used a Social Ecological Model (SEM) (Bronfenbrenner, 1994) framework to explore breastfeeding psychosocial interventions among African American women. To guide their work, the authors created an ecological model depicting

factors that impact breastfeeding among African American women (**Figure 1**). Individual factors such as attitude, knowledge, and beliefs; interpersonal factors such as partner, family, and friends; community factors such as health care providers and lactation consultants; and macrosystem factors such as healthcare and hospital policies influence breastfeeding among African Americans. The socio-historical context is not typically depicted as an SEM level, however, researchers believed that issues such as slavery, racism, and discrimination contribute to non-breastfeeding as a cultural norm and thus influences African American breastfeeding at all levels of SEM. Using the Johnson, Kirk, and Rosenblum (2015) ecological model as guide, this systematic review will explore sources of support and their impact on breastfeeding outcomes among African American women. As this study explores sources of support, individual level influences on breastfeeding will not be included. Also, while the socio-historic context for breastfeeding among African Americans is often discussed in qualitative interviews, this level included in Johnson et al. (2015) will not be explored for this systematic review. Studies that discuss partner, family, or friends will be grouped as interpersonal sources of support; studies that discuss healthcare system, work environment, or religion will be grouped as community sources of support; and studies that discuss media, social media or policy will be grouped as macrosystem sources of support (**Figure 1**).

Breastfeeding Social Ecological Model

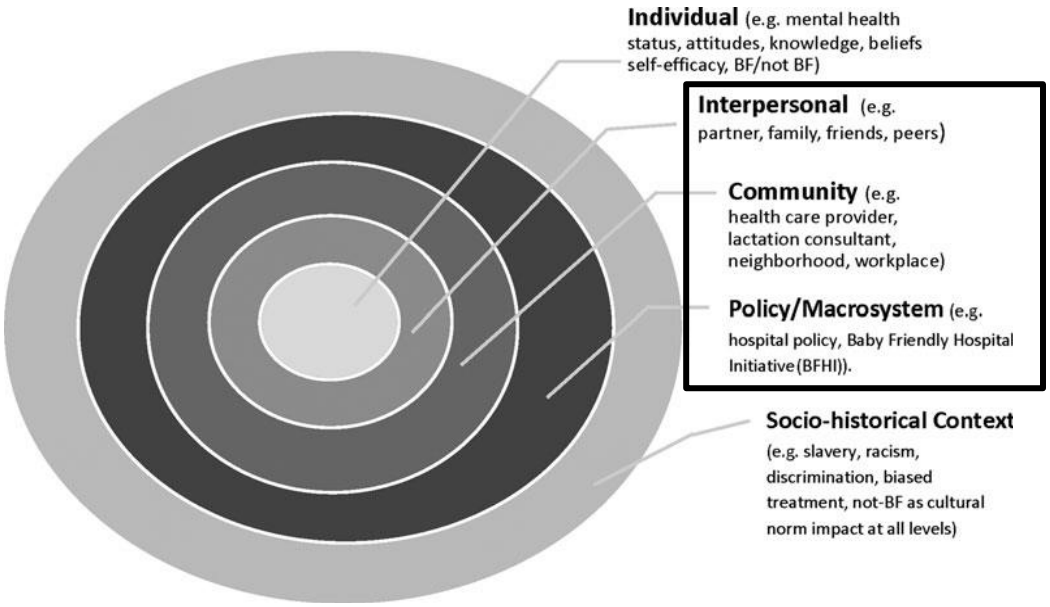

Figure 1: *A social ecological model of psychosocial factors influencing breastfeeding among African American women. (Johnson et al., 2015)*

Purpose of Study

The purpose of this study is to evaluate the relationship between sources of support and breastfeeding outcomes among African Americans using an SEM framework. Multiple studies have explored aspects of breastfeeding support among African Americans (Kim et al., 2017; Reno, 2017; Asiodu and Flaskerd, 2017; Spencer, Wambach, and Domain, 2015). Yet, these disparate studies often examine breastfeeding support at only one level of influence. Additionally, researchers often explore support from partner, family, and friends, but fewer studies have systematically explored other sources of support from the healthcare system, workplace, social media, and policies.

With sources of support being such an important factor in breastfeeding among African Americans, it is important to synthesize all sources. A comprehensive review and synthesis of existing literature that studies the relationship between sources of support and breastfeeding intention, initiation, and duration among African Americans can further aid public health professionals in understanding and impacting this relationship. For the purpose of this study, breastfeeding outcomes are defined as follows:

> Breastfeeding intention: The intention of a woman to breastfeed her child either during the prenatal period or before becoming pregnant.
>
> Breastfeeding initiation: a woman breastfed or fed her infant expressed breastmilk, even once (Geraghty S and Rasmussen K., 2010).
>
> Breastfeeding duration: the length of time for any breastfeeding, including through the initial stage of exclusive breastfeeding and any period of complementary feeding until weaning (Noel-Weiss, Boersma, and Kujawa-Myles, 2012).

Research Questions

Research Question 1: Using SEM as a framework, what are the interpersonal, community and policy sources of support for breastfeeding that have been studied for African American women?

Research Question 2: How do these sources relate to breastfeeding intention, initiation, and duration among African American women?

CHAPTER II - LITERATURE REVIEW

Chapter II will present relevant literature that explores interpersonal, community, and macrosystem breastfeeding support among African American women. Interpersonal studies that discuss partner, family, or friends will be grouped by the following themes: low-income African American women, Positive Deviant Theory, Theory of Planned Behavior, and African American adolescents. Studies that explore community sources of support will be grouped into three categories: healthcare system, work environment, and religion. Studies that explore macrosystem sources of support will be grouped into the categories of media, social media, and policy. Lastly a summation will be given discussing the strength and weaknesses of breastfeeding support for African Americans throughout all levels.

Interpersonal Breastfeeding Support

Sources of interpersonal support and their impact on infant feeding practices of African American women have been explored extensively in the literature. (Alexander, Dowling, and Furman, 2010; Bentley et al., 1999; Gross, Davis, Anderson, Hall & Hilyard, 2017; Mahoney and James (2000). One such study explored infant feeding decisions among low-income, inner city African American women (Alexander et al., 2010). Pregnant, African American women completed a structured interview survey on questions covering breastfeeding knowledge, attitudes, and the influence of partner, family, and friends on infant feeding practices. Relating to interpersonal support, women were specifically asked what close friends thought about breastfeeding. About 36% of women did not discuss breastfeeding with a close friend, and the remaining women received equally positive and negative recommendations. Positive advice from friends

encouraged breastfeeding due to infant health, immune system, and maternal bonding. Negative advice from friends discouraged breastfeeding due to loss of personal freedom, time constraints, personal negative experience, and child-care interference. If women partners did not want them to breastfeed, women were asked to provide the partner's reasons. Responses include partners said "no" without providing a reason, felt that breastfeeding would interfere with their involvement, felt a breastfed baby would be spoiled, and concern for the mother. Authors concluded that low-income, African-American women have limited personal support for breastfeeding, and opinions about breastfeeding are often ambivalent (Alexander et al., 2010).

Another study exploring breastfeeding among low-income, African American women utilized positive deviance theory to explore the qualities that allowed these women to deviate from the norm and breastfeed for an extended time (Gross et al. (2017). Eleven African American women who had breastfed a child for at least six months were recruited from Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) offices. Researchers conducted semi-structured interviews with women to discover how the mothers formed their intention to breastfeed and what enabled them to maintain breastfeeding for six months or longer. Regarding breastfeeding intention, four participants mentioned their mother's support, four mentioned knowing another family member that breastfed, and eight mentioned receiving partner support as strong influences on deciding to breastfeed. When women discussed factors that enabled them to maintain extended breastfeeding, interpersonal sources of support such as partners, mothers, and other female family were identified as major contributors. Lastly, study participants recognized that there were not many African Americans who maintain

breastfeeding and suggested expanding breastfeeding support for this population. Among their suggestions were to offer more peer support groups composed of African Americans. Many peer support groups are composed of Caucasian women, and participants felt mostly white support groups would not be able to address unique barriers and challenges of African American mothers (Gross et al., 2017).

Barbosa, Masho, Carlyle, and Mosavel (2017) also used positive deviance to explore breastfeeding among low-income, African American women. Differing from the Gross et al. (2017) study, this qualitative study compared positive deviants (African American women who breastfed four months or longer) to women who formula fed or breastfed three months or less. A convenience sample of 25, low income, African American women was recruited from WIC, home visiting programs, and low-income neighborhoods. Researchers conducted seven mini-focus groups where participants were interviewed about their breastfeeding attitudes and experience. Positive deviant women experienced both positive and negative breastfeeding support from family and friends. However, positive deviant women exhibited attributes such as persistence, assertiveness, and self-confidence that allowed them to disregard the negative advice and rely on their positive source of support. One mother described an experience where her partner supported her decision to breastfeed and provided latching assistance while her mother discouraged her from breastfeeding and insisted that formula feeding was easier. Without the support of her partner, the woman admitted that she may have listened to her mother and decided not to breastfeed. Short-term breastfeeding women also received positive and negative breastfeeding advice, however these women were more likely than positive deviant women to be influenced by negative sources. They also expressed that they

would have liked more encouragement from family and friends. Formula feeding women had few sources of interpersonal support that encouraged breastfeeding, and their predominant network supported formula feeding. Both short-term breastfeeding and formula feeding participants believed that their partner could be more helpful with formula feeding. Noting the importance of interpersonal support, the authors recommended further strengthening of social support among African American women as one strategy to increase breastfeeding rates (Barbosa et al., 2017).

Besides Positive Deviance Theory, the Theory of Planned Behavior has also been used to explore interpersonal sources of support for breastfeeding among African Americans. Fabiyi, Peacock, Hebert-Beirne, and Handler (2016) compared breastfeeding attitudes, social norms, and perceived behavior control of middle-class African-American women to African-born women. Researchers used Theory of Planned Behavior to guide semi-structured interviews with 10 African American and 10 African-born women. Participants were asked to discuss their breastfeeding experience, particularly with breastfeeding discouragement. Both African American and African-born women expressed receiving support to breastfeed from significant others. However, African-born women overall received stronger and more persistent breastfeeding support from family, friends, and partners while African American women received less support from family and friends and more support from healthcare providers. Both groups of mothers also reported breastfeeding dissuasions from family and friends. African American women reported negative comments from family members such as “I cannot imagine not having formula” and comments from their mother saying, “I did not breastfeed you and you came out fine.” They were also dissuaded from exclusively breastfeeding by receiving

advice from family to supplement with formula if they experience any breastfeeding problems. Authors concluded that significant others did not uniformly provide breastfeeding support to African American or African-born women (Fabiyi et al,, 2016),

In another study that utilized Theory of Planned Behavior to explore breastfeeding behaviors, researchers focused on mostly primipara, adolescent, African American mothers (Wambach and Koehn, 2004). Pregnant adolescents aged 13 – 18 were recruited from two urban prenatal clinics. Researchers used the Theory of Planned behavior to guide five mini focus groups with the aim of discovering factors that influence infant feeding practices of adolescents. Regarding interpersonal sources of support, this study found that adolescents overwhelming believed that they decided alone whether to bottle-feed or breastfeed. Yet, these young mothers often discussed advice received from their mother, partner, and other family members regarding the best method for feeding their infants. One mother expressed feeling pressure from her partner and partner's mother to formula feed. Others held the feeding advice of mothers and sisters in high-esteem and their recommendations influenced the young mother's feeding decision. The authors noted themes of ambivalence and uncertainty emerged as the adolescents received advice from significant others that conflicted with their own desires. Although the study participants believed that they made their breastfeeding decision on their own, this study concluded that subjective norms and social influences greatly influence breastfeeding decisions among this population (Wambach and Koehn, 2004).

The breastfeeding experience of African American, adolescent mothers was also studied by Rossman et al. (2017). The aim of this study was to examine infant feeding experiences of teenage mothers of low-birth-weight infants hospitalized in a neonatal

intensive care unit (NICU). Fifteen teenage mothers (12 African American) with infants hospitalized in a tertiary NICU participated in this multimethod study primarily consisting of semi-structured, individual interviews. Initially, all teenage mothers expressed breast milk to their infant in the NICU via hospital breast pump, though three could not continue providing breast milk through the end of their infant's hospital stay. Regarding interpersonal support, 73% stated their mother served as a source of support to pump breast milk. A third of African American teenagers who claimed their mother supported their decision to express breast milk also shared seemingly contradictory comments made by their mother including "Why would you want to breastfeed?" and "Don't it hurt?" One teenager's mother would not assist her in getting a breast pump for home because she did not believe breastfeeding was necessary. Despite these negative comments and actions, teenage mothers continued to feel supported by their mothers and felt comfortable asking them for breastfeeding advice (Rossman, Meier, Janes, Lawrence, & Patel, 2017). This study further highlights the strong influence mothers and have on infant feeding decisions among African Americans.

Mothers and partners are mentioned continuously in the literature as strong sources of breastfeeding support or hindrance (Gross et al., 2017; DeVane-Johnson et al., 2017; Fabiyi et al., 2016). While some women ignore infant feeding advice from others, the majority of African American mothers in the previous qualitative studies practice the infant feeding method of the strongest influencer, generally the mother or the partner. The theme of ambivalence also emerged in two studies (Alexander et al., 2010; Wambach & Koehn, 2004). This provides further evidence that African American women are often presented with contradictory infant feeding advice that may invoke

stress, anger, or guilt. Overall, there is a lack of consistent, positive, support for breastfeeding for African American women, and further understanding and improvement of interpersonal sources of support can enhance breastfeeding outcomes among this population.

Community Breastfeeding Support

Healthcare System

Segments of the healthcare system including hospitals, prenatal visits, lactation consultants, WIC peer counselors, doctors, and nurses, all of which can provide breastfeeding support or hindrance to African American women. Studies indicate that African American women receive inconsistent support from the healthcare system. In the positive deviant study that explored African American women who had breastfed for 6 months or longer (Gross et al., 2017) participants noted inconsistent breastfeeding support received from hospitals. The majority of study participants felt that their hospital provided sufficient lactation support. However, four women noted negative hospital support in the form of free formula samples, a formula sponsored breastfeeding kit, and formula supplementation of their infant without permission. Regarding healthcare workers, participants mentioned receiving little or no breastfeeding advice from doctors. However, all women mentioned that their WIC peer counselors were helpful in supporting and maintaining breastfeeding (Gross et al., 2017).

In the study that compared positive deviant breastfeeding women to women who breastfed short-term or formula fed (Barbosa et al., 2017), women received various levels of support from the healthcare system. The level of physician support varied among the three breastfeeding groups. Positive deviant women reported receiving strong

breastfeeding support from doctors prenatally, and they described hospital experience including access to helpful lactation consultants that supported their efforts to breastfeed. In contrast, short-term breastfeeding women received inconsistent breastfeeding advice from physicians and did not feel that their hospital experience fully supported breastfeeding. Formula feeding women reported feeling support to formula feed from physicians and hospital staff. Study participants also described various levels of breastfeeding support from WIC based on breastfeeding group. Positive deviant women felt very supported and encouraged by WIC staff to breastfeed. In contrast, some short-term breastfeeding women felt WIC staff encouraged breastfeeding and others felt WIC staff breastfeeding support was neutral or negative. Formula feeding women felt that WIC supported their decision to formula feed, and women from all three groups agreed that WIC impeded breastfeeding by distributing free formula samples (Barbosa et al., 2017).

Similar inconsistent or negative support from the healthcare system was reported in a study interviewing African American mothers or expectant mothers about their experiences with healthcare providers (Johnson et al., 2016). Women reported receiving lacking or discouraging breastfeeding advice from healthcare providers. One woman described that after her doctor put her on a strong medication, the doctor did not inform her of pumping and discarding breast milk to maintain her milk supply. Instead, the doctor told her to that she had to stop nursing. Women who did not breastfeed did not trust advice provided by their healthcare provider and were more likely to listen to family and friends infant feeding recommendations (Johnson et al., 2016).

Overall, the healthcare system has provided varying breastfeeding support for African American women. Doctors, nurses, lactation consultants, and WIC peer counselors can positively influence breastfeeding outcomes through support and education (Barbosa et al., 2015; Cottrell & Detman, 2013). Unfortunately, healthcare workers often do not provide breastfeeding advice or are perceived as unsupportive by African American women (Johnson et al., 2016; Obeng et al., 2015). Improved breastfeeding support from the healthcare system, specifically with doctors providing breastfeeding advice and the perception of WIC supporting breastfeeding can aid in improving breastfeeding outcomes among African American women.

Workplace

In addition to the healthcare system, the working environment of African American women can support or impede breastfeeding success. As African American women are more likely to work full time in an environment that does not support breastfeeding and have shorter maternity leaves compared to other racial or ethnic groups (DeVane-Johnson et al., 2017) the workplace is a commonly cited barrier to breastfeeding among this population (Johnson et al., 2015) The vast majority of participants in the positive deviant study (Gross et al., 2017) consisted of African American women who breastfed 6 months or longer were stay-at-home mothers. The few women who did work outside of the home experienced a mixture of support and barriers. One pharmacy technician described her working environment as supportive as her supervisors allowed her to regularly take breaks to pump breast milk. Another mother reported that a fast food job would ignore her inquiries or try to send her home early when she requested time to pump breast milk. Lastly, a full -time college student and

full-time worker experienced daily hassles trying to maintain a pumping schedule in between classes and during breaks at work. Despite these work challenges, participants were able to successfully breastfeed their children (Gross et al., 2017).

Johnson et al. (2015) also explored workplace breastfeeding support for African American women through holding focus groups with 8 pregnant women, 21 mothers, and 9 lactation consultants. All study participants perceived the working environment of African Americans as unsupportive of breastfeeding. Formula feeding mothers cited extensive work schedules and unsafe work environments such as working in a power plant as barriers to breastfeeding. Some women who were able to breastfeed before returning to work endured stress as unpaid maternity leave shortened the time that they could establish breastfeeding. Women also expressed fear of losing their job if they tried to negotiate with their employer for longer maternity leave, increased nursing breaks, and designated space to pump that is not a restroom. Lactation consultants discussed the legal rights of employer to provide breastfeeding women a space and time to express breast milk. Some professionals believed mothers should breastfeed as much as possible during their limited maternity leave instead of advocating for space and time at work to breastfeed, and others disagreed. The consultants noted that many African American women will not present their employers with a legal letter stating their right to express breast milk at work due to fear of losing employment (Johnson et al., 2015).

The working environment of African American women presents major challenges to initiating and maintaining breastfeeding. As many mothers have limited or unpaid maternity leave, they may see limited value in initiating breastfeeding and may believe that early weaning of their infant is practical. Also, African American women are more

likely to be single mothers or the only source of income for their family (DeVane-Johnson et al., 2017), so many cannot financially afford to have extended maternity leave. African American women who were able to breastfeed in unfavorable working environments exemplified extraordinary persistence and determination to overcome barriers. Increasing the ability of African American women to overcome challenging workplace barriers can improve breastfeeding behaviors among this population.

Religion

African Americans are significantly more religious than any other racial group within the United States, and African American women have stronger religious views compared to African American men (Pew Research Center, 2009). Pew Research Center reports that 84% of African Americans believe religion is very important to them, 82% of women are protestant, 64% of women attend historically black protestant churches, and 59% of women attend church service at least once a week (2009). While African American Christian churches have been used by public health professionals as a convenient setting to reach African Americans for health promotion interventions (Markens, Fox, Taub, & Gilbert, 2002), surprisingly little research has explored whether the church can be an effective community support system for breastfeeding African American mothers. Positive deviant women (Gross et al., 2017) recommended a support group for mothers at black churches as an impactful way to support breastfeeding mothers. As religion, specifically protestant Christianity, is central to the lives of many African American women, breastfeeding promotion through the church may positively influence breastfeeding perceptions and behavior

Spencer et al. (2015) conducted qualitative interviews to understand the breastfeeding experience of African American women through their daily lives. Researchers used the Sequential-Consensual Qualitative Design to explore the cultural, political, and personal context of African American women who had successfully breastfed. Regarding religious support, researchers noted the theme of spirituality and breastfeeding arose naturally as participants were not explicitly asked about religious practices. Mothers spontaneously mentioned Christian practices as a source of breastfeeding support and researchers and interviewers probed the women further to explore this theme. Study participants believed that breastfeeding was the natural way God intended for a baby to be fed. Quotes highlighting this idea: "God meant for us to [breastfeed]. That is why we have breasts." "We all see [breastfeeding] as a blessing." "I really had to pray that I would be able to breastfeed." Women felt that their church was an informal source of support for breastfeeding, and one participant mentioned successful career women at her church who had also breastfed as a source of inspiration and motivation. Some churches also provided lactation rooms with a TV to broadcast the service, allowing women to comfortably breastfeed in private while still enjoying their church experience. While most women mentioned the church as supportive of breastfeeding, one woman described her church as an unsupportive environment. As she did not see any other babies or toddlers being breastfed at church, she felt isolated as the lone breastfeeding mother (Spencer et al., 2015).

Predominantly, African American, churches have the potential to be an influential source of breastfeeding support. As many African American women have a spiritual identity, presenting breastfeeding as a spiritual experience may resonate with some

women. Additionally, the element of individual or collective prayer as well as church breastfeeding support groups may help some women through breastfeeding hardships. Even women who are breastfeeding their infant may not feel comfortable doing so during a church service even when using a breastfeeding cover. In this instance, lactation rooms in churches can be beneficial (Spencer et al., 2015), though it may take some convincing for church leaders to invest in a room that may not be used often. As the literature is lacking on the intersection of spirituality and breastfeeding, more research is needed to determine if this is a viable source of support for African American women.

Macrosystem Breastfeeding Support

Media and Social Media

Sources of breastfeeding support for African American women at the macrosystem level include breastfeeding portrayed through media and social media. However, there are a lack of studies exploring the impact of media and social media on breastfeeding outcomes among African Americans (Johnson et al., 2015). Furthermore, African American mothers have limited knowledge on available social media support groups, and breastfeeding mothers have indicated these types of support groups may improve breastfeeding perceptions and behaviors (Gross et al., 2017).

One qualitative study explored the use of social media among pregnant, African American women and their support persons (Asiodu et al., 2015). Researchers observed study participants use of social media in community settings such as antepartum and postpartum groups, breastfeeding classes, and support groups. During the community observations, authors noted that women and their support persons used social media before, during, and after the event, and social media was often accessed via Smartphone.

Common reasons participants used social media included to obtain general information about pregnancy, learn about health-related topics such as diet, exercise, and common pregnancy ailments, and receive advice from other similar mothers (Asiodu et al; 2015).

Asiodu et al. (2015) also conducted antenatal and postpartum interviews with African American participants (22 women and 8 support persons). Women and support person expressed great enthusiasm for the pregnancy apps and websites frequently used. Participants discussed how the pregnancy apps and websites supplied valuable information on the mother and baby's growth and development, contraction timers, and helpful advice. Notably missing from participants' pregnancy apps recollections were infant feeding messages or advice. Women and support partners often could not recall or locate (some searched the app during the interview) any breastfeeding information. To receive breastfeeding support, women often utilized Facebook groups and specific online support groups dedicated to breastfeeding. However, the women noted that these groups were composed almost entirely of Caucasian women. While mothers did find these online breastfeeding support groups helpful, women stated that support groups with women of color could better address their unique breastfeeding concerns (Asiodu et al., 2015).

Besides social media, researchers have also studied the portrayal of infant feeding in popular magazines (Frerichs, Andsager, Campo, Aquilino, & Dyer, 2006). Specifically, researchers wanted to determine if the framing of breastfeeding or formula differed between three genres of magazines (general, parenting, and African American) and explore the images these magazines used to portray their infant feeding message. The content of 7 magazines from each genre were analyzed from 1997 to 2003. Overall, breastfeeding was covered more throughout the 3 genres of magazines than formula

feeding. However, parenting magazines featured significantly more breastfeeding information compared to general magazines and magazines geared towards an African American audience. Breastfeeding benefits, advice, and barriers were also featured throughout the three magazine genres. Magazines geared towards African Americans presented the most information on the breastfeeding benefits, parenting magazines presented the most information on breastfeeding advice, and general magazines covered the three topics evenly. Researchers hypothesized that since breastfeeding is not a social norm for African Americans, magazines catering to this population may focus heavily on benefits to persuade more women to consider breastfeeding. Regarding images used to display infant feeding messages, only about 10% of the women in parenting magazines were African American. Additionally, only 3.2% of magazines geared toward African Americans portrayed an African American woman breastfeeding (Frerichs et al, 2006). Limited breastfeeding information in African American magazines and a lack of images portraying breastfeeding reflects the social norm that breastfeeding is unde0r utilized within this community.

Elements of the macrosystem, especially media and social media, can reinforce positive or negative infant feeding practices. Many African American mothers engage with social media regularly, and all are influenced by the norms presented through media. Unfortunately, African American women often do not see themselves reflected in online breastfeeding groups or through media. Increasing breastfeeding support from media and social media can influence breastfeeding perceptions that may increase breastfeeding intention within this population.

National Breastfeeding Organizations

There are also national breastfeeding organizations that work to increase breastfeeding among women within the United States. La Leche League USA (LLL USA) supports breastfeeding throughout the United States by offering free breastfeeding meetings lead by accredited La Leche League International volunteers, offering assistance with common breastfeeding issues, providing breastfeeding education, and building a breastfeeding community through family gatherings (La Leche League USA, 2018). Similar to LLL USA, Baby Cafe USA supports breastfeeding throughout the United States by providing meetings in community settings; and assisting with breastfeeding, pumping, weaning, and retuning to work (Baby Cafe USA, 2018). Breastfeeding USA provides national breastfeeding support through a variety of services including one-on-one peer breastfeeding counselors, group meetings, breastfeeding education through their website and social media, and advocacy activities. (Breastfeeding USA. 2018). Lastly, Black Mother's Breastfeeding Association (BMBFA) is a national organization with the mission to reduce racial inequalities in breastfeeding support for black families (Black Mother's Breastfeeding Association, 2018). This organization addresses breastfeeding disparities by offering Black Mothers' Breastfeeding Club, Community-based Breastfeeding Peer Counselor, mobile and web-based learning provider education and training, and national seminars (BMBFA, 2018).

General breastfeeding organizations can be a source of support among breastfeeding African Americans. However, the lack of diversity present in online breastfeeding groups (Asiodu et al., 2015), may also pose a challenge for African Americans attending general breastfeeding support groups. Organizations such as

BMBFA that organize breastfeeding support meetings for African Americans are an alternative. Yet, African American women would still have to feel comfortable and have enough time to attend such a support group. Besides support groups, African American women can also benefit from breastfeeding education, resources, training, and counseling that national organizations provide. On the websites of national breastfeeding organizations, information is often provided detailing how many women have attended support groups, educational sessions, or trainings. However, national breastfeeding websites explored in this paper did not provide information on the association between their organization and breastfeeding outcomes among American women as a whole or African American women as a subpopulation. More research on how national organizations can impact breastfeeding for the general population as well as other disadvantaged populations such as African Americans or those with lower socioeconomic status can strengthen macrosystem breastfeeding support among African Americans.

Policy

Lastly, policy can also influence breastfeeding behavior. At the highest level of society, breastfeeding policies legitimize the importance of breastfeeding and can aid mothers in workplace and logistical barriers for women intending to breastfeed (Kogan, Singh, Dee, Belanoff, & Grummer-Strawn, 2008). Various laws have been enacted to support and protect breastfeeding women, especially in the workplace. The Affordable Care Act (ACA) amended the Fair Labor Standards Act to require employers to provide breastfeeding women a space and necessary break time to express breast milk for up to one year after her child's birth. The employer must also provide a place beside a bathroom to pump breast milk, though the employer is not required to pay women during

her pumping breaks (National Conference of State Legislatures, 2017). Additionally, the ACA requires private insurance including plans offered on the marketplace to provide no cost sharing breastfeeding support services including breastfeeding supplies and lactation counseling (National Conference of State Legislatures, 2017). Besides federal laws, states have also enacted laws to support breastfeeding. The most widespread law, enacted by 49 states, allows women to breastfeed in any public or private location. Additionally, 29 states exempt breastfeeding from public indecency laws, 28 states have workplace support breastfeeding laws, 17 states exempt breastfeeding mothers from jury duty, and six states encourage the development of a breastfeeding education campaign (National Conference of State Legislatures, 2017). Though policy can have a varying impact on health practices, research has shown that supportive breastfeeding policies are associated with better breastfeeding outcomes (Kogan et al., 2008). As African American women are more likely to work in environments that are not supportive of breastfeeding, they can potentially benefit greatly from many breastfeeding policies. However, there is very little research on how breastfeeding policy may impact African American mothers. Three studies specifically explored the impact of breastfeeding policies on breastfeeding outcomes, and they will be presented in the systematic review.

Conclusion

Researchers have explored various sources of breastfeeding support among African American women. A common theme that has emerged upon exploring breastfeeding using an SEM framework is that both interpersonal (partner, family, friends) and community (healthcare) sources of support can have a positive, negative, or even ambivalent influence on breastfeeding among African American women. The most

common sources of support explored by researchers include partners, mothers, and healthcare workers. Though these sources of support are prevalent and influential, there are other sources of support, specifically within the community and macrosystem that warrant further study. Workplace barriers are a major barrier to breastfeeding duration and possibly breastfeeding initiation (some women may not want to begin breastfeeding if they know they will return to work soon). Religion or spirituality, media, social media, national breastfeeding organizations, and policy and its impact on breastfeeding among African American women have not been adequately studied in the literature. The SEM proposes that health behavior is not made by individual choice, but through an interrelation of factors at micro and macro levels. The literature has only extensively studied sources of support at the interpersonal level and part of the community level (healthcare system). However, breastfeeding outcomes among African Americans are still significantly behind other racial / ethnic groups. A more comprehensive understanding of other community factors outside of the healthcare system as well as the macrosystem can provide greater strides in improving breastfeeding outcomes among this population.

CHAPTER III - METHOD

The study is a systematic review of the literature that includes empirical studies that explore sources of support among African American women. This study is guided by the steps to conducting a systematic review as summarized by Khan, Kunz, Kleijnen, and Antes (2003). The authors recommend 5 steps to conducting a literature review: framing questions for review, identifying relevant work, assessing the quality of studies, summarizing the evidence, and interpreting the findings (Khan et al., 2003).

Step 1: Framing Questions for Review

Two questions guided this systematic review.

Research Question 1: Using SEM as a framework, what are the interpersonal, community and policy sources of support for breastfeeding that have been studied for African American women?

Research Question 2: How do these sources relate to breastfeeding intention, initiation, and duration among African American women?

Step 2: Identifying Relevant Work

Selection of Studies

Studies in this systematic review were found using an online search of PubMed, PsycINFO, and Medline. These databases were searched using the following terms: African American or black and breastfeeding. If the initial database search yielded more than 500 studies, limiting search terms to title/abstract for PubMed and abstract for

PsycINFO and Medline further narrowed results. This search strategy yielded a total of 634 studies. Studies were further grouped into interpersonal, community, and macrosystem SEM levels.

Inclusion Criteria

Studies had to meet several inclusion criteria to be included in this systematic review. Studies had to explore the relationship between of an interpersonal, community, or macrosystem source of support and a breastfeeding outcome among African American women. Studies that surveyed multiple races/ethnicities were required to have at least 30% of the study population composed of African American women. This is consistent with other breastfeeding systematic reviews (Johnson et al., 2015) that require a minimum of 30% African American participants to adequately reflect the study population. Studies also had to quantitatively measure a breastfeeding outcome. Breastfeeding outcomes in this study consist of breastfeeding intention, breastfeeding initiation, and breastfeeding duration. As this paper is a systematic review, other systematic or integrative reviews were excluded. This systematic review is interested in observing the association between support and breastfeeding, so intervention studies and program evaluation studies were also excluded. Lastly, this systematic review sought to include studies of the highest quality and limited included studies to those from peer-review journals. After duplications were deleted, the most common reason studies were excluded include those that did not measure a source of support (n=288), qualitative studies (n=25), and intervention / evaluation studies (n=25). A detailed methodology flow chart of studies included in this systematic review is presented in **Figure 2**.

Process Identifying Studies for Systematic Review

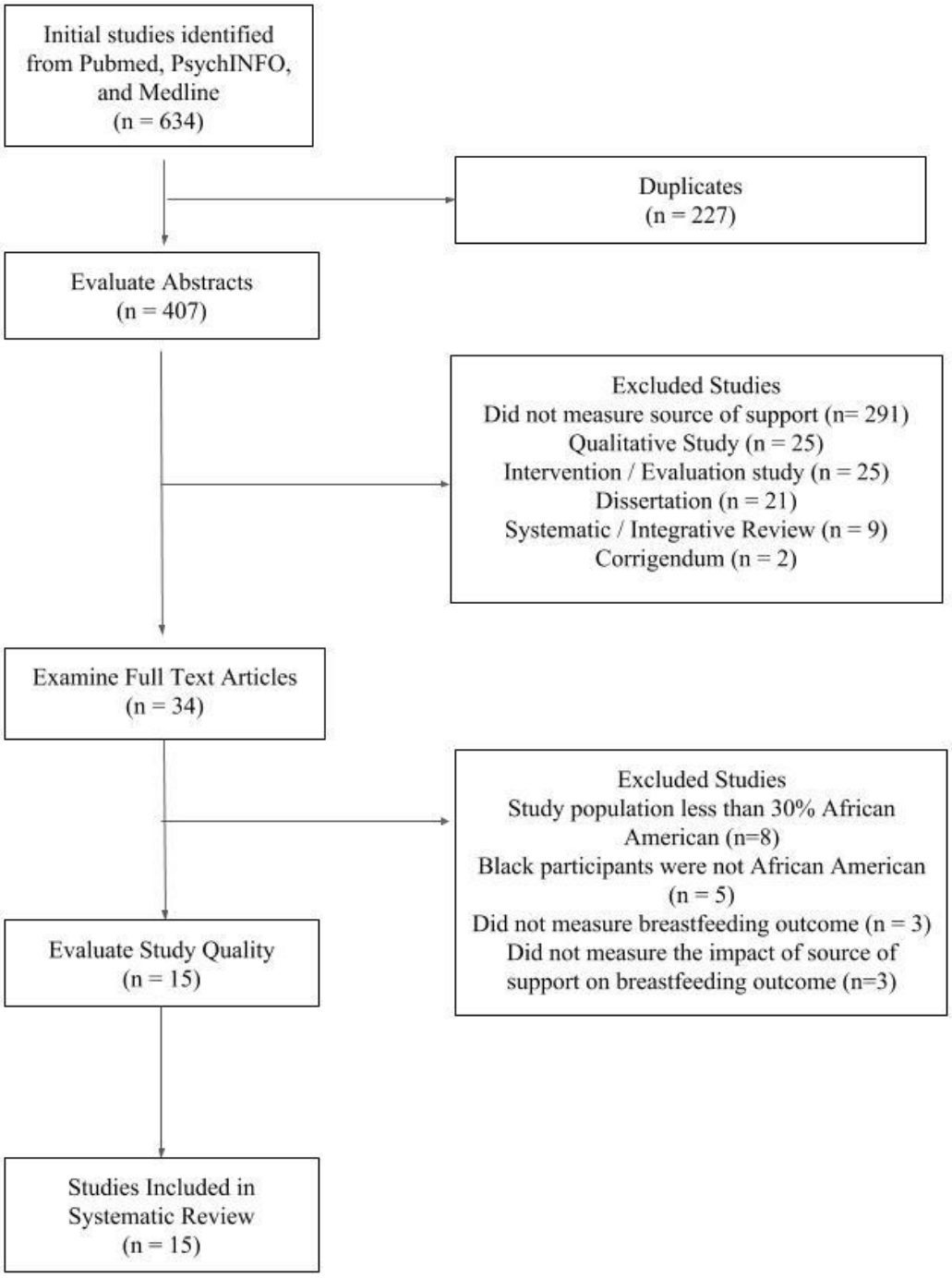

Figure 2: Flow chart detailing methodology for included systematic review studies

Step 3: Assessing the Quality of Studies

The Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies (National Institute of Health, 2014) was used to assess the quality of studies included in this systematic review (Figure 3). This quality assessment tool consists of 14-items that focused on concepts key to evaluating internal validity, specifically selection bias, information bias, measurement bias, and confounders. A sample question includes "Was the study population clearly specified and defined?" The answer choices for all items are "yes, no, and other (cannot determine, not applicable, and not reported)". General guidance for intended use of this form indicated that the responses to 14 items should not be tallied to determine whether a study should be disregarded due to poor study quality. Instead, this form should guide researchers to critically evaluate whether any noted flaws in the research design or implementation can cast doubt on the study's results or conclusions (National Institute of Health, 2014).

For this systematic review, this Quality Assessment Tool was used to describe the quality of studies include in the systematic review. However, no studies were eliminated based on poor study quality. Instead, a comparison was made between the results of high, moderate, and poor quality studies to determine whether study quality impacted the study's ability to find an association between variables.

For the 15 studies included in the systematic review, each of the 14 questions were scored as 1 for "yes" and 0 for "no." Cohort studies received a total of 14 points while cross-sectional studies received a total of 10 points. Total points that cohort or cross-sectional studies received were divided into approximately 3 equal parts where the top third scores were deemed high quality, the middle third scores were deemed moderate

quality, and the bottom third scores were deemed poor quality. Cohort studies scores of 14-11 were deemed to be of high quality, 10-6 of moderate quality, and 5-0 of poor quality. Cross-sectional studies scores of 10-8 were deemed to be of high quality, 7-5 of moderate quality, and 4-0 of poor quality. The 15 studies included in this systematic review consisted of 1 longitudinal study and 14 cross-sectional studies. The longitudinal study received a high quality score. The 14 cross-sectional studies included 8 high quality studies, 5 moderate quality studies, and 1 poor quality study. Each study and its corresponding quality rating were listed in the results section in tables that describe study characteristics (**Table 1 - Table 3**).

National Heart, Lung, and Blood Institute

Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies

Criteria	Yes	No	Other (CD, NR, NA)*
1. Was the research question or objective in this paper clearly stated?			
2. Was the study population clearly specified and defined?			
3. Was the participation rate of eligible persons at least 50%?			
4. Were all the subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?			
5. Was a sample size justification, power description, or variance and effect estimates provided?			
6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?			
7. Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?			
8. For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)?			
9. Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?			
10. Was the exposure(s) assessed more than once over time?			
11. Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?			
12. Were the outcome assessors blinded to the exposure status of participants?			
13. Was loss to follow-up after baseline 20% or less?			
14. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?			

Quality Rating (Good, Fair, or Poor) (see guidance)
Rater #1 initials:
Rater #2 initials:
Additional Comments (If POOR, please state why):

*CD, cannot determine; NA, not applicable; NR, not reported

Figure 3: Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies

Step 4: Summarizing the Evidence

When available, the following variables were extracted from each study and presented in a table describing study characteristics (**Table 1 – Table 3**):

(a) SEM level (interpersonal, community, macrosystem); reference; year

(b) Participant characteristics (*n* sample size; % African American, mean age, predominant education, predominant income, parity)

(c) Research design (cohort or cross-sectional)

(d) Study quality (high, moderate, poor)

(e) Breastfeeding outcome (intention, initiation, or duration)

(f) Significant association (yes or no)

For macrosystem studies, different participant characteristics were presented. These studies did not include the level of detail on individual characteristics as study samples were drawn from large databases over multiple years. Additionally, the percentage of study participants of African Americans were not required to reach 30% as these studies were the only ones discovered in the literature that ran separate analysis for African Americans. There may not have been enough African Americans present in the database to reach the 30% threshold, but these studies were the best indicator of the relationship between breastfeeding policy and breastfeeding outcomes among African Americans.

Significant associations were determined by statistical tests (chi-square, odds ratio, logistic regression, etc.) and their corresponding p-value for sources of social

support and breastfeeding outcomes. Studies that did not contain statistical tests listed relevant descriptive statistics. Results were categorized according to SEM level and further grouped by breastfeeding outcome (intention, initiation, and duration). Noted results, conclusions, and limitations for each study in the systematic review were discussed.

Step 5: Interpreting the Findings

Recommendations were made based upon the findings of the research questions. Specifically, strategies were presented to improve sources of support at each SEM level. If there was notable difference between associations found in high quality, moderate quality, and poor quality studies, sources of biases from the Quality Assessment Tool for Observational Studies were further explored.

CHAPTER IV – RESULTS

Table 1. Interpersonal Sources of Support for Breastfeeding among African American Women (N=10)

Reference, year	*Participant Characteristics*	*Research Design*	*Study quality*	*Breastfeeding outcome*	*Results* ***statistically significant**
Alexander et al. (2010)	n = 176, 95% AA, 61% high school education or less; median age 22; predominantly low-income (no percentage); 95% single; 51% primparious	cross-sectional	high	breastfeeding intention	Mother support was not significantly associated with breastfeeding intention (OR= 1.31; 95% CI, .55-3.13)
				breastfeeding intention	**Partner support was significantly and positively associated with breastfeeding intention (OR=4. 00; 95% CI, 1.67-9.61)***
Alexy and Martin. (1994)	n=142; 38% AA; average age 23; 44% completed high school; 54% married; 44% primparious	cross-sectional	poor	breastfeeding intention	Partner disapproval of breastfeeding was a concern for 61% of women without breastfeeding intention (no statistical test)
				breastfeeding intention	Mother or other family member disapproval was a concern of 55% of women without breastfeeding intention (no statistical test)
Bai et al. (2011)	n=236; 39% AA; mean age 27; 38% highschool graduate; 74% WIC participant; 55% single	cross-sectional	high	**breastfeeding intention**	**Among AA, subjective norm (conceptualized as "most people who are important to me" and "most mothers like me") was significantly and positively associated with breastfeeding intention (β=.52, p=.001)***
Baranowski et al. (1983)	n=357; 37% AA; 33% some high school; 61% married; 34% primparious	cross-sectional	high	breastfeeding intention	Among AA, partner social support was not associated with breastfeeding intention (β=.203, p=. 246)
				breastfeeding intention	Among AA, mother social support was not associated with breastfeeding intention (β=.215, p=. 236)
				breastfeeding intention	**Among AA, best friend social support was significantly and positively associated with breastfeeding intention (β=.650, p=.00014)***

AA = African Americans

Table 1. Interpersonal Sources of Support for Breastfeeding among African American Women (Continued)

Reference, year	*Participant Characteristics*	*Research Design*	*Study quality*	*Breastfeeding outcome*	*Results* ***statistically significant**
Bentley et al. (1999)	n = 441; 100% AA; 45% 18-25 years old; 82% never married; 78% < highschool diploma; 67% have <$340 monthly income; 31% primparious	cross-sectional	high	**breastfeeding intention**	**Partner perceived support of breastfeeding was significantly and positively associated with breastfeeding intention (OR=3.33; 95% CI, 2.04-5.45)***
				breastfeeding intention	**Mother perceived support of breastfeeding was significantly and positively associated with breastfeeding intention (p<.05)***
Fleurant et al. (2017)	n=362; 51% AA; average age 27; 37.4% some college or trade school; 72.5% WIC eligible; 39% married; 55% primparious	Prospective Cohort	high	breastfeeding duration (at discharge from NICU)	Partner breastfeeding support was not associated with breastfeeding duration (OR=.94; 95% CI, .53-1.66)
				breastfeeding duration (at discharge from NICU)	**Mother breastfeeding support was significantly and negatively associated with breastfeeding duration (OR=.45, 95% CI, .26-.79)***
Mahoney and James (2000)	n=66; 95% AA; median age 24; median 12 years of education; 95% single; 33% primparious	cross-sectional	high	**breastfeeding intention**	**Partner or mother support was significantly and positively associated with breastfeeding intention (OR=12.4; 95% CI, 4.92-31.4)***
Mickens et al. (2009)	n=109; 100% AA; 54% 24 and older; 63% college graduate and above; 68% income under 18,000; 62% single	cross-sectional	moderate	**breastfeeding intention**	**Peer support (attending breastfeeding support group) was significantly and positively associated with breastfeeding intention (OR=2.17; 95% CI 5.35-13.38).***
Murimi et al. (2010)	n=130; 44% AA; 38% 21-25 years old; 35% completed high school; 59% single	cross-sectional	moderate	breastfeeding initiation	Family members support was not significantly associated with breastfeeding initiation (p>.05).
Oniwon et al. (2016)	n = 100, 89% AA, 54% ≤ 25 years old; 63% high school education; 61% unemployed; 34% primparious	cross-sectional	moderate	Breastfeeding initiation	Friend advice influenced feeding decision among 24% breastfeeding women (no statistical test)
				Breastfeeding initiation	Partner advice influenced feeding decision among 20% of breastfeeding women (no statistical test).
				Breastfeeding initiation	Mother advice influenced feeding decision among 17% of breastfeeding women (no statistical test)

AA = African American; CI = Confidence Interval; OR= Odds Ratio

Interpersonal Breastfeeding Support

Ten studies explored the relationship between interpersonal sources of support and breastfeeding outcomes. The majority of studies consisted of 50% or greater African American (six studies), 50% or greater single women (seven studies), younger than 25 years old (six studies), and with the highest education completed as high school (six studies). Of the eight studies that contained statistical tests to measure the association of partner, family, or friends on breastfeeding outcomes, five studies found at least one source of interpersonal support was significantly and positively associated with breastfeeding intention or initiation. The significant findings in 63% of studies with statistical tests were consistent with qualitative studies that indicated interpersonal sources of support are positively associated with breastfeeding behavior among African Americans. Additionally, two studies did not find any significant associations between interpersonal support and a breastfeeding outcome (Alexander. O'Riordan, & Furman, 2010; Murimi, Dodge, Pope, & Erickson, 2010) and one study found a negative association between interpersonal support and a breastfeeding outcome (Fleurant et al., 2017). To further explore interpersonal sources of support for breastfeeding, studies were grouped according to breastfeeding outcome: breastfeeding intention, breastfeeding initiation, and breastfeeding duration.

Seven studies explored the association between interpersonal sources of support and breastfeeding intention (Alexander et al., 2010; Alexy & Martin, 1994; Bai et al., 2011; Baranowski et al., 1983; Bentley et al., 1999; Mickens, Modeste, Montgonmery, & Taylor, 2009; Mahoney & Jones, 2000). Of those seven, six (86%) found at least one source of interpersonal support was significantly and positively associated with

breastfeeding intention. One study used structured interviews to determine the factors that are associated with breastfeeding intention among teenage and adult women (Alexander et al., 2010). Among all women, results indicated that having partner breastfeeding support was significantly and positively associated with breastfeeding intention (OR= 4.00; 95% CI .55-3.13) (Alexander et al., 2010). Bai et al. constructed a survey using Theory of Planned Behavior to explore breastfeeding intentions among three racial / ethnic groups (2011). Among African Americans, subjective norms were the most significant factor in breastfeeding intention (β=.52, p=.001). Subjective norm in the survey was conceptualized as "people who are important to me" (Bai et al., 2011). As researchers did not break subjective norms into distinct categories, this paper categorized this interpersonal source of support as family. Researchers in another study administered a structured questionnaire to WIC participants to understand factors that were associated with breastfeeding intentions among low-income, African American women (Mickens et al., 2009). Study participants who attended a support group (conceptualized for this study as peer support) were more than twice as likely to have breastfeeding intention compared to those who did not attend the support group (OR=2.17; 95% CI 5.35-13.38). Mahoney and James administered a survey to understand the relationship between clinical and personal factors and breastfeeding intentions among women who received care from an urban health center (2000). Researchers found that both mother or partner support were significantly associated with breastfeeding intention (OR=12.4; 95% CI, 4.92-31.4). Bentley and colleagues interviewed African American women on their breastfeeding attitudes and opinions of their friends, family, and doctor (1999). Researchers discovered that the perceived support of the partner (OR=3.33; 95% CI, 2.04-5.45) and the perceived

support of the mother ($p<.05$) were significantly and positively associated with breastfeeding intention. Lastly, Baranowski et al. conducted a survey to understand factors associated with breastfeeding intention on women who had recently delivered an infant at a University Medical Center (1983). Breastfeeding support of the best friend of African American women was significantly and positively associated with breastfeeding intention ($\beta=.650$, $p=.001$).

There were two studies exploring interpersonal breastfeeding support where at least one source of interpersonal support was not associated with breastfeeding intention. In the study that explored breastfeeding intention among teenagers and adults, researchers found that mother support was not significantly associated with breastfeeding intention among the study population (OR= 1.31; 95% CI, .55-3.13) (Alexander et al., 2010). Likewise. Baranowski et al. found that partner ($\beta=.203$, $p=.246$) nor mother ($\beta=.215$, $p=.236$) support was significantly associated with breastfeeding intention among mothers who recently delivered at a medical center (1983).

Two studies explored the relationship between interpersonal sources of support and breastfeeding initiation. Oniwon, Tender, He, Voorhees, and Moon verbally administered a survey to African American women who utilized WIC services to understand barriers and facilitators of their breastfeeding decision (2016). Researchers did not conduct statistical tests that examined the association between breastfeeding and sources of support. As a part of their survey, participants indicated every person that influenced their decision to initiate breastfeeding. Friend advice influenced feeding decision among 24% of breastfeeding women; partner advice influenced feeding decision among 20% of breastfeeding women; and mother advice influenced feeding decision

among 17% of breastfeeding women (Oniwon et al., 2016). Murimi et al. also administered a survey to WIC participants to discover what factors influenced them to initiate breastfeeding (2010). Results indicated that family members support was not significantly associated with breastfeeding initiation ($p>.05$).

Surprisingly, only one study was found that explored the association between interpersonal sources of support and breastfeeding duration, though breastfeeding duration was not measured in a traditional way (Fleurant et al., 2017). Researchers were interested in determining what factors were associated with mothers who have infants in the neonatal intensive care units (NICU) decision to express breastmilk. Breastfeeding duration was defined as a woman who was expressing breastmilk at time of hospital discharge (length varied from days to months depending on the infant health condition). Researchers found that partner support was not significantly associated with breastfeeding duration in this population (OR=.94; 95% CI, .53-1.66). Surprisingly, mother support for breastfeeding was significantly and *negatively* associated with breastfeeding duration among African Americans (OR=.45, 95% CI, .26-.79). Though study participants indicated their mother was a positive source for breastfeeding, maternal support was correlated with lower rates of breastfeeding. Authors are not sure why the results from this study contradicted prevalent literature on the importance of mothers in supporting breastfeeding among African Americans. Researchers hypothesized that the mothers of African American study participants may have been impacted, perhaps more so than the study participants, by not experiencing breastfeeding as a culture norm. Additionally, study mothers and their mothers may positively associate formula with wealth. Fluerant et al hypothesized that these views may have caused the mothers of

study women to consciously or subconsciously have a negative association with breastfeeding duration (2017).

Table 2. Community Sources of Support for Breastfeeding among African American Women (N=5)

Reference, year	Participant Characteristics	Research Design	Study quality	Breastfeeding outcome	Results ***statistically significant**
Beal et al. (2011)	n=8757; 55% AA; 58% 20-29 years; 43% have 12 years of education 55% <$20,000;	cross-sectional	high	**breastfeeding initiation**	**Among AA**, provider advice to breastfeed was significantly and positively associated with breastfeeding (OR=4.49; 95% CI, 3.68-5.47)***
				breastfeeding initiation	**Among AA, WIC counselor advice was significantly and positively associated with breastfeeding (OR=2.12; 95% CI 1.47-3.06)***
				breastfeeding initiation	**Among AA, WIC counselor advice to bottle-feed was significantly and negatively associated with breastfeeding (OR=.38; 95% CI, .27- .52)***
Bentley et al. (1999)	n = 441; 100% AA; 45% 18-25 years old; 82% never married; 78% < highschool diploma; 67% have <$340 monthly income; 31% primparious	cross-sectional	high	**breastfeeding intention**	**Doctor perceived support of breastfeeding was significantly and positively associated with breastfeeding intention (OR=2.74; 95% CI 1.66-4.54)***
Mahoney and James (2000)	n = 66; 95% AA; median age 24; median 12 years of education; 95% single; 33% primparious	cross-sectional	high	breastfeeding intention	Nurse encouragement was not associated with breastfeeding intention (p=.09)
Oniwon et al. (2016)	n = 100, 89% AA, 54% ≤ 25 years old; 63% high school education; 61% unemployed; 34% primparious	cross-sectional	moderate	Breastfeeding initiation	Doctor / nurse advice influenced feeding decision among 54% of breastfeeding women (no statistical test)
				Breastfeeding initiation	WIC employee advice influenced feeding decision among 26% of breastfeeding women (no statistical test)
Timbo et al. (1996)	n=5142; 100% AA; 30% 20-25 years old; 37% high school education; 49% < 10,000 income; 57% single;	cross-sectional	high	**breastfeeding initiation**	**WIC advice to breastfeed was significantly and positively associated with breastfeeding (OR=2.5; 95% CI 2.00- 3.21)***
				breastfeeding initiation	**Prenatal advice from provider to breastfeed was significantly and positively associated with breastfeeding (OR=3.2; 95% CI 2.73-3.65)***

AA = African American; CI = Confidence Interval; OR= Odds Ratio; WIC = Special Supplemental Nutrition Program for Women, Infants, and Children

Community Breastfeeding Support

Five studies were discovered that explored the relationship between community sources of support and breastfeeding outcomes. All studies contained a study population of 50% or greater African American and explored community support through the healthcare system. The majority of studies consisted of participants that were younger than 25 years old (five studies) with low-income (5 studies). Of the four studies that contained statistical tests, three (75%) found that community support was significantly and positively associated with breastfeeding outcomes (Beal, Kuhlthau, & Perrin, 2011; Bentley et al., 1999; Timbo, Altekruse, Headrick, & Klontz, 1996). These findings were consistent with the literature that community sources of support, specifically the healthcare system, can have a positive impact on breastfeeding outcomes. To further explore community sources of support for breastfeeding, studies were grouped according to breastfeeding outcome: breastfeeding intention and breastfeeding initiation (no studies explored community sources of support on breastfeeding duration).

Two studies explored the relationship between community support and breastfeeding intention. In the study that researchers administered a breastfeeding survey to women receiving care from an urban health center (Mahone & Jones, 2000), results reveal that nurse encouragement was not significantly associated with breastfeeding intention (p=.09). In the study where researchers interviewed African American women on their breastfeeding attitudes and opinions of significant others, Bentley et al. found that doctor perceived support of breastfeeding was significantly and positively associated with breastfeeding intention (OR=2.74; 95% CI 1.66-4.54) (1999).

Three studies explored the relationship between community support and breastfeeding initiation. Beal et al. (2003) were interested in exploring whether African American and white women utilizing WIC services received different breastfeeding advice. Researchers analyzed data from a National Maternal and Infant Health Survey that contained self-reported medical provider and WIC advice that women received. Among African Americans, medical provider advice to breastfeed was significantly and positively associated with breastfeeding initiation (OR=4.49; 95% CI, 3.68-5.47); WIC counselor advice was significantly and positively associated with breastfeeding initiation (OR=2.12; 95% CI 1.47-3.06); and WIC counselor advice to bottle-feed was significantly and negatively associated with breastfeeding initiation (OR=.38; 95% CI, .27- .52). Though not a primary outcome of this study, it was also interesting to note that researchers found African American women were more likely to receive bottle feeding advice and less likely to receive breastfeeding advice from WIC counselors compared to white women (Beal et al., 2003). Another study analyzed data from a nationally representative sample of African American women who gave birth in 1988. Results indicate that WIC advice to breastfeed was significantly and positively associated with breastfeeding (OR=2.5; 95% CI 2.00- 3.21); and prenatal advice from a medical provider to breastfeed was significantly and positively associated with breastfeeding (OR=3.2; 95% CI 2.73-3.65). Lastly, Oniwon et al. (2016) did not include a statistical test when exploring breastfeeding among African Americans but results from this study indicate that doctor / nurse advice influenced feeding decision among 54% of breastfeeding women, and WIC employee advice influenced feeding decision among 26% of breastfeeding women.

Table 3. Macrosystem Sources of Support for Breastfeeding among African American Women (N=3)

Reference, year	Participant Characteristics	Research Design	Study quality	Breastfeeding outcome	Results ***statistically significant**
Hawkins et al. (2012)	All mothers who participated in PRAMS from 31 states plus New York City (32 "states")	cross sectional	high	breastfeeding initiation	Among AA, workplace provision laws were not significantly associated with breastfeeding initiation (DD = -.019; 95% CI -.07-.03)
				breastfeeding initiation	**Among AA, breastfeeding laws for location policies were significantly and positively associated with breastfeeding initiation (DD=.060; 95% CI .01-.011)**
				breastfeeding duration	Among AA, workplace provision laws were not significantly associated with breastfeeding duration for at least 4 weeks (DD= -.00; 95% CI -.04-.04)
				breastfeeding duration	**Among AA, breastfeeding laws for location policies were significantly and positively associated with breastfeeding duration (DD=.056; 95% CI .02-.010)**
Kapinos et al (2017)	All Medicaid and private insurance births from 2009 to 2014	cross sectional	high	**breastfeeding initiation**	**AA mothers are significantly more likely to initiate breastfeeding after the ACA mandate (p<.01)***
Smith-Gagen et al. (2014)	n=3,132; African Americans, Hispanics, and Whites that participated in National Health and Nutrition Examination Survey (NHANES) from 2003 - 2010)	cross sectional	high	breastfeeding initiation	Among AA, none of the 8 laws or policies examined to support breastfeeding were significantly associated with breastfeeding initiation (ranges of CI .8-1.3)
				breastfeeding duration	**Among AA, break time from work was significantly and negatively associated with breastfeeding duration (OR=.6; 95% CI .5-.8)***
				breastfeeding duration	**Among AA, private area to pump at work was significantly and negatively associated with breastfeeding duration (OR=.6; 95% CI .4-.8)***
				breastfeeding duration	**Among AA, exemption from jury duty was significantly and negatively associated with breastfeeding duration (OR=06; 95% CI .4-.9)***
				breastfeeding duration	**Among AA, awareness education campaign was significantly and negatively associated with breastfeeding duration (OR=.5; 95% CI .3-.8)***
				breastfeeding duration	**Among AA, pumping law enforcement was significantly and negatively associated with breastfeeding duration (OR=.9; 95% CI .5-.8)***

AA = African American; ACA = Affordable Care Act; CI = Confidence Interval; DD= Difference in Difference; OR= Odds Ratio; PRAMS = Pregnancy Risk Assessment Monitoring System

Macrosystem Breastfeeding Support

Three studies were discovered that explore the relationship between macrosystem sources of support and breastfeeding outcomes. All studies explored macrosystem support through policy. All studies found at least one policy was significantly associated with breastfeeding outcomes among African Americans. To further explore the macrosystem sources of support, elements of each study will be discussed beginning with the most recent study.

Kapinos, Bullinger, and Gurley-Calvez (2017) explored whether the breastfeeding support services that were expanded under the Affordable Care Act (ACA) were associated with breastfeeding initiation. Their study sample included all Medicaid and private insurance births from the census of U.S. National Vital Statistics System from the years 2009 to 2014. Results indicated that African American mothers were significantly more likely to initiate breastfeeding after the ACA mandate ($p<.01$).

Smith-Gagen and colleagues. (2013) sought to determine the association between eight specific breastfeeding laws and breastfeeding initiation and duration among racial and ethnic groups. The eight laws that were explored include breastfeeding being exempt from indecency laws, breastfeeding being allowed in any public or private location, allowing break-time at work to pump, providing private area to pump at work, breastfeeding mothers being exempt from jury duty, breastfeeding awareness and education campaign, pumping law enforcement, and public breastfeeding law enforcement. Among African Americans, none of the eight laws or policies examined to support breastfeeding were significantly associated with breastfeeding initiation (ranges of CI .8-1.3). Among African Americans, five breastfeeding laws that were meant to

support breastfeeding surprisingly had a negative effect on breastfeeding duration. Specifically, break time from work (OR=.6; 95% CI .5-.8), private area to pump at work (OR=.6; 95% CI .4-.8), exemption from jury duty (OR=06; 95% CI .4-.9), Among African Americans, awareness education campaign (OR=.5; 95% CI .3-.8), pumping law enforcement (OR=.9; 95% CI .5-.8) were all significantly and negatively associated with breastfeeding duration when compared to breastfeeding duration among white women. Researchers proposed two reasons why this unexpected result may have been observed among African Americans. The first hypothesis suggested the Personal Responsibility and Work Opportunity Act that required mothers with children under six to work may have had the unintended consequence of reducing the capacity for low-income mothers to breastfeed. Additionally, authors noted that African American mothers often work in environments that are not supportive of breastfeeding. The workplace law that mandates employers to provide breaks only applies for companies with 50 employers or more and does not apply for salaried positions. Thus, African American women may not be working in environments that can directly benefit from workplace breastfeeding laws.

Lastly, Hawkins, Stern, and Gillman, (2012) sought to determine whether breastfeeding laws were associated with breastfeeding initiation and breastfeeding duration for a period of four months or greater. Researchers' study sample included all women who participated in the Pregnancy Risk Assessment Monitoring System (PRAMS) from 2000 to 2008 within 31 states plus New York City (making 32 'states'). Hawkins et al. (2012) utilized differences in differences (DD) models to determine whether there were any differences in breastfeeding outcomes before and after workplace provisions and location policy laws were passed. Among African Americans, workplace

provisions that required to provide break time and private space for breastfeeding employees were not significantly associated with breastfeeding initiation (DD = -.019; 95% CI -.07-.03) nor breastfeeding duration (DD= -.00; 95% CI -.04-.04). However, location policy laws that permitted breastfeeding in any public or private location were significantly and positively associated with breastfeeding initiation (DD=.060; 95% CI .01-.011) and breastfeeding duration (DD=.056; 95% CI .02-.010) among African Americans (Hawkins et al., 2012)

Table 4. Summary of Systematic Review Findings	
Social Ecological Model Level	**Breastfeeding Outcome**
Interpersonal	**Intention** - Generally positive association
	Initiation - Inconclusive (statistical test not used and no association
	Duration - Inconclusive (one study, non-traditional measure)
Community	**Intention** - Inconclusive (positive and no association)
	Initiation - Positive association
	Duration - Unknown (no studies)
Macrosystem	**Intention** - Unknown (no studies)
	Initiation - Inconclusive (positive, negative, and no association)
	Duration - Generally negative association

Systematic Review Summary

Studies included in this systematic review found positive, negative, and unknown associations between breastfeeding intention, initiation, and duration at various SEM levels (**Table 4**). Multiple studies found a positive association between interpersonal sources of support, generally by the mother or partner, and breastfeeding intention. However, the association between interpersonal sources of support and breastfeeding initiation was inconclusive with one study finding no association and another study not using statistical tests to measure association. The association between interpersonal sources of support and breastfeeding duration was also inconclusive due to one study measuring duration in a non-traditional way. Multiple studies also found a positive association between community sources of support, specifically through the healthcare system, and breastfeeding initiation. However, this systematic review found positive and no association between community sources of support and breastfeeding intention, and this review found no studies exploring the relationship between community sources of

support and breastfeeding duration. Lastly, macrosystem studies found positive, negative, and no association between macrosystem sources of support and breastfeeding initiation. There was generally a negative association between macrosystem sources of support and breastfeeding duration. No studies were found for this systematic review that explored the association between macrosystem sources of support and breastfeeding intention.

CHAPTER V – DISCUSSION

Findings for Research Questions

Research Question 1: Using SEM as a framework, what are the interpersonal, community and policy sources of support for breastfeeding that have been studied for African American women?

Interpersonal

Interpersonal sources of support for African Americans include partner, mother, family, and friends. Interpersonal sources have been studied most extensively throughout the literature both qualitatively (Alexander et al., 2010; Barbosa et al, 2017) and quantitatively (Bentley et al., 1999; Mahoney and James, 2000; Murimi et al., 2010). Though not every study finds an association between interpersonal support and breastfeeding outcomes, qualitative and quantitative studies overall support that interpersonal sources of support are generally, positively associated with breastfeeding outcomes among African American women.

Community

Community sources of breastfeeding support for African Americans include the healthcare system, workplace environment, and religion. Sources from the healthcare system including doctors, nurses, and WIC employees have been studied extensively both qualitatively (Barbosa et al., 2017; Gross et al., 2017) and quantitatively (Beal et al., 2011; Mahoney and James, 2000). Qualitatively, results indicate that African Americans perceive both positive and negative support from the healthcare system. Studies from the

systemic review support the healthcare system having an overall positive association with breastfeeding outcomes (Beal et al., 2011; Bentley et al., 1999; Timbo et al., 1996; Oniwon et al., 2016). Though the findings of this systematic review support the healthcare system and breastfeeding outcomes, unfortunately, African Americans are less likely than white women to receive breastfeeding support and advice from the healthcare system (Evans et al., 2011). Though the healthcare system can be a positive source of breastfeeding support, no studies were found that examined the relationship with workplace environment. Therefore, workplace was not included in this systematic review. Considering that returning to work can be a determining factor in whether an African American woman initiates or continues breastfeeding, more research is needed in this area to understand how the workplace environment can support breastfeeding among African American women. Additionally, few studies were found that explored religion qualitatively, and no studies were found that explored the relationship between religion and breastfeeding for African American women quantitatively. Spirituality may be a source of breastfeeding support that can be explored by researchers in future studies.

Macrosystem

Macrosystem sources of support for African American women include media, social media, and policy. The impact of media and social media on breastfeeding outcomes has been explored qualitatively (Asiodu et al., 2015; Frerichs et al., 2006) though no quantitative studies were found that explored this relationship. African American women, like all Americans, have their health behaviors influenced to some degree by media. Further research is needed to determine how African American women perceive the portrayal of African American women breastfeeding or formula feeding

through media and social media. Additionally, further research is needed for media and social media to positively influence breastfeeding among African American mothers. In addition to media, policy is also a source of support that was explored quantitatively but not qualitatively. Though breastfeeding policy is often enacted to support working mothers and breastfeeding mothers in public places, these policies have had both positive and negative association with breastfeeding outcomes among African Americans.

Research Question 2: How do these sources relate to breastfeeding intention, initiation, and duration among African American women?

Interpersonal Sources of Support

Breastfeeding Intention

Among the ten studies that explored interpersonal support for African American women, seven explored breastfeeding intentions. Results of this systematic review found that interpersonal sources of support were generally, positively associated with breastfeeding intention. Specifically, partner support was positively associated with breastfeeding intention (Alexander et al., 2010; Bentley et al., 1999; Mahoney and James, 2000) and partner disapproval was a concern for a majority of women with formula feeding intention (Alexy and Martin, 1994). Additionally, mother breastfeeding support was positively associated with breastfeeding intention (Bentley et al., 1999; Mahoney and James; 2000) and mother breastfeeding disapproval was a concern for the majority of study participants with formula feeding intentions (Alexy and Martin, 1994).Though not all studies found an association between breastfeeding intention and partner (Baranowski et al., 1983) or mother support (Alexander et al,, 2010; Baranowski et al., 1983), the

majority of studies in this systematic review support that both mother and partner support were positively associated with breastfeeding intention.

Family and friends were studied for their relationship with breastfeeding intention. Family support was associated with breastfeeding intention, though Bai et al. (2011) measured the association by "most people who are important to me" and not family explicitly. Family disapproval was also a concern of the majority of study participants with formula feeding intentions (Alexy and Martin, 1994). Friend support was associated with breastfeeding intention in two studies (Baranowski et al., 1983; Mickens et al., 2009). Though family and friend support may be associated with breastfeeding intention, further research is needed to understand their association with all breastfeeding outcomes.

Breastfeeding Initiation

There were two studies that explored the relationship between interpersonal sources of support and breastfeeding initiation. Results of this systematic review found inconclusive evidence of an association between interpersonal sources of support and breastfeeding initiation. One breastfeeding initiation study (Oniwon et al., 2016) did not use statistical tests. The second study found family support was not associated with breastfeeding initiation (Murimi et al., 2010).

Breastfeeding duration

Only one study explored the relationship between an interpersonal source of support and breastfeeding duration. However, Fleurant et al. (2017*)* measured duration as length (varied from days to weeks) a mother expressed breastmilk to an infant in the

Neonatal Intensive Care Unit (NICU). Considering that researchers typically measure breastfeeding duration among healthy infants and not among mothers who are likely stressed from having their child in an NICU, further research is needed to determine how partner and mother support are associated with breastfeeding duration.

Interpersonal Discussion

Though the association between interpersonal sources of support and breastfeeding intention, initiation, and duration were explored, there was a surprising lack of quantitative studies found that explored the relationship between interpersonal sources of support and breastfeeding initiation or duration. In a literature review that explored the relationships between interventions and breastfeeding outcomes (Johnson et al., 2015), researchers found that an intervention targeting fathers was not a predictor of breastfeeding duration. No other interventions targeted interpersonal sources of support. Researchers may not readily study the interaction between interpersonal support and breastfeeding initiation since breastfeeding intention is a strong indicator of breastfeeding initiation. However, African American women often struggle to maintain breastfeeding even after initiation. It is important for researchers to further research the relationship between interpersonal sources of support and breastfeeding duration. As these sources are closest to the mother, they have the potential to greatly support or hinder breastfeeding duration among African American women.

Community Sources of Support

Breastfeeding Intention

Of the five studies that explored community sources of support among African Americans, two explored their association with breastfeeding intention. Results of this systematic review found inconclusive evidence of an association between community sources of support and breastfeeding intention. One study found perceived doctor support was associated with breastfeeding intention (Bentley et al., 1999). However, a second study found nurse support was not associated with breastfeeding intention (Mahoney and James, 2000).

Breastfeeding Initiation

The findings of this systematic review support that community sources of support were positively associated with breastfeeding initiation. Doctor, healthcare provider, and WIC employee advice or perceived support to breastfeed were all positively associated with breastfeeding initiation (Beal et al., 2011; Timbo et al., 1996). Doctor or nurse advice also influenced the breastfeeding decision of 54% of breastfeeding women (Oniwon et al., 2016).

Breastfeeding Duration

Studies exploring community sources of support and breastfeeding duration were not found for this systematic review.

Macrosystem Sources of Support

Breastfeeding Intention

Studies exploring macrosystem sources of support and breastfeeding intention were not found for this systematic review.

Breastfeeding Initiation

Findings of this systematic review found inconclusive evidence for the association between macrosystem sources of support and breastfeeding initiation. Breastfeeding location laws (Hawkins et al., 2012) and the Affordable Care Act (Kapinos et al., 2017) were associated with breastfeeding initiation. However, eight breastfeeding laws including work laws, education campaigns, and jury duty exemption (Smith-Gagen et al., 2014) and another analysis of workplace provisions (Hawkins et al., 2012) found that breastfeeding provisions were not significantly associated with breastfeeding initiation. While authors are not sure why workplace provision laws were not associated with breastfeeding initiation (Smith-Gagen et al., 2014; Hawkins et al., 2012), one explanation is that African American women may not be aware of workplace provisions. Even if they are aware of the provisions, they may be less likely to utilize these provisions from fear of losing their jobs (Johnson et al., 2015).

Breastfeeding Duration

Findings of this systematic review found that macrosystem breastfeeding support generally had a negative association with breastfeeding duration. Hawkins et al. (2012) found workplace provision laws were not associated with duration, but breastfeeding

laws for location were associated with breastfeeding duration among African American women. Surprisingly, Smith-Gagen (2014) found that breastfeeding laws meant to help women breastfeed actually hindered breastfeeding duration among African Americans. Similar reasons why breastfeeding laws were not associated with breastfeeding initiation may also be true for breastfeeding duration i.e. African American women are not aware of the laws, and they are less likely to utilize workplace laws for fear of losing their job. A combination of these factors and other confounding factors may breastfeeding laws are hindering breastfeeding duration. For example, studies in this systematic review did not explore the work place sector i.e. blue collar or white collar and its association with breastfeeding duration. As African American women are more likely to work in environments that are not supportive of breastfeeding (DeVane Johnson et al., 2017), workplace laws may have a positive association with breastfeeding outcomes among African Americans in higher level positions. As none of the macrosystem studies included in this systematic review specifically focused on African Americans and related confounding factors, a repeated study focusing exclusively on breastfeeding policies and African Americans may be able to further explain the association between breastfeeding policies and breastfeeding duration among this population.

Macrosystem Discussion

All studies included in this systematic review for macrosystem analyzed breastfeeding policies. However, the literature indicated African Americans can be supported by other sources of macrosystem support such as media, social media, and national breastfeeding organizations. The sources of breastfeeding among African Americans at the macrosystem level have not been adequately studied. Even among the

policies that have been studied, they do not have an overall positive association with breastfeeding outcomes among African Americans. It is troubling that the primary mechanisms for policies to support breastfeeding women through work have no association or a negative association among African Americans. The macrosystem impacts societal norms and cultural identity. Though it is the farthest environment from the individual, it supports lower levels of the SEM and provides a supportive or hindering environment for individual, interpersonal, and community factors to interact. More research needed to determine how polices, especially workplace policies, relate to African American women and to determine what can be done within their workplace environment to allow policies to be a positive source of support among African Americans.

Though macrosystem sources of support included in this systematic review explored the relationship between policy, breastfeeding initiation and duration among African Americans, no policy studies or other sources of macrosystem support were found that explored macrosystem sources association with breastfeeding intention. Though policy may influence breastfeeding intention, it may not be considered by researchers to have an obvious connection on breastfeeding intention. Further research of the macrosystem is needed to understand its relationship to breastfeeding intention among this population.

Strengths and Limitations

This study has several strengths on limitations. A systematic review is an excellent way to synthesize data from different sources into a culminating report in order to draw conclusions and generate new ideas. Additionally, this study explored current

breastfeeding policy studies in conjunction with interpersonal and community factors. Many studies exploring breastfeeding focus only on interpersonal or community factors. Also, the majority of studies in this review are high quality (60%) followed by moderate quality (33%). While this study has many strengths, limitations were also noted. This systematic review only included observational breastfeeding studies as 93% consisted of cross-sectional studies. As a result, the limitations of cross-sectional studies also apply to this systematic review, i.e. the inability to determine causality. Reporting bias is another limitation of this systematic review. Studies that have negative results are less likely to get published and are thus less likely to be found by investigators. Additionally, I only included studies from published journals. Other unpublished reports such as dissertations may have contained relevant information to add to this systematic review. I used the recommended cut off point that 30% of study participants had to be African American. Some studies were eliminated that were very close to this percentage i.e. 27%-29%. Though a participant threshold was useful for ensuring a large proportion of African Americans, it also limited studies included in this systematic review. This systematic review was also limited by the definition of breastfeeding initiation and duration. As there is not one consensus definition for when breastfeeding initiation ends and breastfeeding duration ends, this study is limited by trying to accurately categorize these breastfeeding outcomes in studies included in this systematic review. Lastly, this study was limited by having only one author code study quality. Having two or more investigators code study quality would increase the validity of this measure.

Implications for Public Health Action

Implications for this study include more research at the community and macrosystem level for breastfeeding support among African Americans. Regarding macrosystem support, policies generally have a negative or no association on breastfeeding duration, though certain policies are positively associated with breastfeeding initiation. Even with these mixed results, workplace policies can still support breastfeeding among African American women in public and the workplace. Policy makers should continue to advocate for current breastfeeding policies. With guidance from future research, policy makers may be able to introduce new policies that can have more of a positive impact on breastfeeding outcomes. African American are also exposed to and interact with media and social media, but the relationship between these sources of support and breastfeeding outcomes among this population are unknown. Additionally, African Americans women are only supported at the community level through the healthcare system. Other research on work environment or religion and its association with breastfeeding outcomes may be able to strengthen community level support.

This study also has implications for the health workforce including public health educators, community workers, nurses, doctors, lactation or peer counselors, and other individuals who can influence African American women to breastfeed. As partner, mother, and other significant others are influential in the feeding decision of African American women, the health workforce can integrate interpersonal sources of support into education materials, class sessions, and consultations. This can be achieved by modifying breastfeeding education material geared towards African Americans for

mothers to discuss breastfeeding with significant others, having healthcare workers suggest or facilitate the discussion of breastfeeding with significant others, or having breastfeeding trainings or classes targeting the mother and her significant others. Through research and practice, public health and healthcare practitioners can strengthen breastfeeding support at all SEM levels for African American women.

Recommendations for Future Research

From the results of this systematic review, the following recommendations can be made:

1. Further explore how interpersonal sources of support can influence breastfeeding duration
2. Encourage / train / conduct interventions with doctors, nurses, and WIC employees to promote breastfeeding among African American women
3. Further explore workplace environment, religion, and their impact on breastfeeding outcomes
4. Further explore how breastfeeding intention can be influenced by macrosystem
5. Further explore sources of the macrosystem and its influence on breastfeeding outcomes among African Americans

Conclusions

Observational studies in this systematic review show that African American women receive general breastfeeding support at the interpersonal and community levels of SEM. More research is needed on other community sources of support such as workplace and religion to strengthen community breastfeeding support. African American women do not

receive breastfeeding support at the macrosystem. Further research should explore the relationship between all macrosystem sources and breastfeeding outcomes. Through improved support throughout all SEM levels, African Americans women can have greater breastfeeding success and improved maternal and infant outcomes.

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