

Barriers and Facilitators Influencing Infant Feeding Practices of Black Mothers: A
Scoping Review of the Literature and a Quantitative Study

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I dedicate this dissertation to my elders who have passed on and were not provided the educational opportunities that I was able to pursue. I honor your memory with this body of work and my degree. I will never forget the wisdom, stories, life lessons, and love that you all instilled in me throughout my life. Continue to shine your light down on me.

I would also like to dedicate my dissertation to the memory of my nephew Lincoln. There is not a day that goes by where I do not think of you. Tee Tee loves you so much!

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ABSTRACT

Breastfeeding has been shown to provide health benefits to an infant as well as the mother. Although existing literature demonstrates the benefits of breastfeeding, Black mothers continue to have lower breastfeeding initiation and duration rates compared to other racial and ethnic groups. Prior studies have examined various factors such as breastfeeding knowledge, the availability of social support, and social determinants to examine the lower rates of breastfeeding within the Black community. Information on barriers and facilitators that significantly influence breastfeeding practices among Black women can be used to develop programs and initiatives. Therefore, the current study adds to the growing body of literature examining impactful breastfeeding variables.

Article one is a scoping review of the literature which focuses on Black mothers utilizing breastfeeding social media groups as a form of social support. The scoping study explores the various forms of social support provided through social media and emerging themes within the literature. Additionally, the study highlights the importance of breastfeeding spaces specifically for Black mothers. Within the scoping review, few included articles discuss the wants and importance of a supportive Black breastfeeding community. Supportive communities were described as places where women of shared cultural experiences can bond and feel seen. Lastly, the study explored potential social media strategies to increase breastfeeding rates among Black women.

Article two is a quantitative study based on the social ecological model. Although numerous studies on the breastfeeding behaviors of Black women exist within the literature, to our knowledge, this is the first study focusing on Black women in

Tennessee. The purpose of the study is to determine barriers and facilitators within the levels of the social ecological framework which influence breastfeeding initiation and duration among Black women residing in Tennessee. Quantitative survey data were analyzed to determine which multi-level predictive variables impacted breastfeeding initiation within one hour of birth and breastfeeding duration rates. Study findings indicate that prenatal self-efficacy, assistance from a birth worker, and social support were significant determinants of breastfeeding within one hour of birth and breastfeeding durations.

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CHAPTER I: BREASTFEEDING AND BLACK MOTHERS INTRODUCTION

Breastfeeding is defined as an infant receiving breast milk directly from the breast (Section on Breastfeeding, 2012). The World Health Organization (WHO) and United Nations Children's Fund (Unicef) recommend that breastfeeding be initiated within the first hour of birth (WHO, 2017). Health agencies in the United States, such as The American Association of Pediatrics (AAP), recommend breastfeeding exclusively for six months and up to 12 months or longer with the introduction of complementary foods (Section on Breastfeeding, 2012). According to the AAP, human breast milk is the superior infant feeding choice compared to formula and cow's milk (Section on Breastfeeding, 2012).

Breastfeeding is the ideal method for infant feeding, as it provides infants with the proper nutrients required for growth and development. In addition, breast milk is a protective factor against infectious and chronic diseases (i.e., sudden infant death syndrome (SIDS), respiratory illnesses, childhood obesity) (Bartick et al., 2017). The former Surgeon General released a report stating the breastfeeding is a public health priority rather than a behavior choice (U.S. Department of Health and Human Services, 2011).

One of the primary predictors of breastfeeding initiation and duration is one's race or ethnicity. Comparable to their Caucasian and Hispanic counterparts of similar socioeconomic status, Black women continue to initiate breastfeeding at lower rates. In 2019, the Center for Disease Control and Prevention (CDC) reported that African

American mothers initiated breastfeeding at lower rates (73.6%) compared to Caucasian (85.5%) and Hispanic (87.4%) mothers (Chiang et al., 2019).

Breastfeeding Disparity

In recent years, studies have shown a consistent upward trend in the rates of breastfeeding. However, these increasing rates are not equitable across all subpopulations (Reis-Reilly et al., 2018). Despite the recommendations for breastfeeding, Black women are least likely to initiate and continue breastfeeding (DeVane-Johnson et al., 2018). Although there was a twofold increase of breastfeeding rates at six months for Black infants from 1996 to 2001, a racial disparity gap persists (Ryan and Zhou, 2003). In 2014, African American infants did not meet any of the U.S. national breastfeeding goals, while Caucasian infants met or exceeded each goal (Reis-Reilly et al., 2018). Between the years 2009 to 2014, there was on average a 17 point percentage gap in breastfeeding initiation between Caucasian and African American infants (Reis-Reilly et al., 2018).

National Immunization Survey-Child data (2015) indicates that the rate for breastfeeding initiation among Black infants was 69.4% compared to 85.9% among Caucasian infants (Beauregard et al., 2019). Black infants also had significantly lower rates of any breastfeeding continuance at three months (58.0%) compared to Caucasian infants (72.7%) (Beauregard et al., 2019). Despite increasing rates, Black infants still have the lowest prevalence of breastfeeding rates among racial/ethnic groups. Allen (2013) postulates that targeted intervention methods should be implemented to improve breastfeeding rates within the Black population.

Comparable to other existing health disparities, the rate of breastfeeding varies by geographical region. Prior research has demonstrated that women residing in

Southeastern states have lower breastfeeding initiation rates and shorter breastfeeding continuance compared to women living in the Northwest (Ryan et al., 2004).

Additionally, a multivariate analysis conducted by Kogen et al. (2008) demonstrated that the odds of not being breastfed is 2.5-5 times greater in the South compared to Oregon. In Tennessee, breastfeeding initiation rates for African American mothers was 70%, while the initiation rates for Caucasian and Hispanic mothers were 82% and 87%, respectively (Tennessee Department of Health, 2019).

Merewood et al. (2019) conducted a study to address breastfeeding racial inequities in Southern states by improving hospital breastfeeding policies. Participating hospitals increased compliance to advancing maternity practices resulted in the reduction of the White-Black racial disparities in breastfeeding. The rate of initiation and exclusive breastfeeding increased from 46% to 63%. This was achieved through increased staff training, hospital policy changes, and community engagement. Developing and implementing breastfeeding initiatives within regions and communities with lower rates can increase exclusive breastfeeding and duration among Black women. Persistent disparities suggest that Black women are faced with social and structural barriers hindering successful breastfeeding practices. Inequities such as insufficient breastfeeding education, lack of insurance, medical bias, and mistrust contribute to adverse health behaviors and outcomes among Black women (DeVane-Johnson et al., 2017; Edmonds et al., 2015; Prather et al., 2016).

Adverse Health Outcomes

Lower rates of breastfeeding within the African American community may amplify other racial health disparities. Lower breastfeeding rates are associated with a higher disease burden in the Black population (Bartrick et al., 2017). Black infants have the highest prevalence rates of infant mortality, sudden infant death syndrome, and necrotizing enterocolitis (Bartrick et al., 2017). Black adults have the highest morbidity and mortality rates from cancer, diabetes, influenza and are more likely to be obese. Risks for all of the aforementioned health conditions are reduced by breastfeeding (DeVane-Johnson et al., 2018).

Breastfeeding provides long-term benefits for preterm infants as well (Section on Breastfeeding, 2012). Additionally, increasing the rates of breastfeeding initiation in African American mothers may reduce the prevalence of maternal and infant mortality. WHO estimated that 1.5 million lives under the age of 5 would be saved if mothers breastfed the first six months of life through 2 years of age (Ware et al., 2019). A study conducted in Shelby county, Tennessee, determined that the initiation of breastfeeding was significantly associated with reduced rates in neonatal infant mortality and infection-related deaths (Ware et al., 2019). The reduced rates of breastfeeding in the Black community contribute to adverse health outcomes from infancy to adulthood. Increasing the rate of African American women who breastfeed is a necessary goal and can improve the overall health of this population group.

Historical Context

It is postulated that reproductive oppression dating back to slavery has led to disparities in maternal health outcomes, including the reduced rate of breastfeeding in the Black community (Taylor, 2020). Enslaved Black women were forced to undergo gynecological experimentation and wet nursing (Jefferson, 2014). The stigma associated with wet nursing continues to contribute to the lack of breastfeeding among Black women. In a study conducted by DeVane-Johnson et al. (2018), young Black mothers believed that breastfeeding was portraying the stereotype of a "mammy." The aforementioned forms of oppression also demonstrate the lack of body autonomy experienced by Black women for centuries. Mothers also noted that choosing not to breastfeed provided a sense of empowerment and allowed them to be in control of their reproductive and sexual autonomy (DeVane-Johnson, 2018). Past instances of medical abuse and trauma that Black women have faced can be directly correlated to the lack of provider trust and lower rates of medical adherence apparent in contemporary health care (Owens & Fett, 2019). This absence of trust in maternal care may deter Black mothers from adhering to breastfeeding recommendations as they do not trust the information given by their health care provider.

Social Determinants of Breastfeeding

Social and systemic barriers found in contemporary healthcare stem from historical occurrences of oppression. Social determinants of health (SDOH) are social and environmental conditions that affect a wide range of health outcomes and quality of life (WHO, 2008). A lack of breastfeeding initiation and shorter durations among Black women can be attributed to social barriers within maternal and infant health.

Prior research reveals that women with lower educational attainment and income levels are at a greater risk of not initiating breastfeeding (Association of State and Territorial Health Officials, 2017). Significant determinants for low-income women of color include lack of social support, low literacy level, inadequate access to care, and an unsupportive work environment (Jones et al., 2015). According to Hinson et al. (2021), a lack of access to resources and equipment such as breast pumps and lactation breaks were breastfeeding barriers for Black women. Additionally, neighborhood infrastructures can affect breastfeeding practices. For Black women, the likelihood of exclusive breastfeeding decreases as neighborhood disadvantages increase (Yourkavitch et al., 2018).

Black women are also faced with unique psychosocial determinants, such as racism and discrimination. Racism and discrimination increase stress levels and consequentially accelerate the risk of adverse health outcomes (Carter et al., 2017; Lathrop, 2020; Mouzon et al., 2017). Racism and discrimination impact Black women of all socioeconomic statuses. Overall, Black women are at an even greater risk of choosing not to breastfeed due to multiple social determinants having a cumulative effect on health behaviors and outcomes.

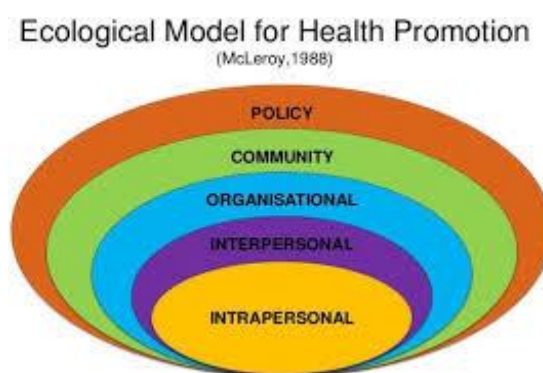
Many health inequities and disparities are caused by avoidable and unnecessary determinants; thus, they should be considered unjust (Carter-Pokras & Bacquet, 2002). Social determinants of health such as housing instability, transportation access, food insecurity, lack of insurance, and inadequate care can negatively impact health behaviors and outcomes (Gadson et al., 2017). Rather than focusing solely on health behaviors, the lack of available resources needed (e.g., insurance coverage, neighborhood environment,

quality care) to ensure optimal health should be examined. Implementing interventions to reduce social and structural barriers preventing breastfeeding initiation could inadvertently increase the prevalence among Black women (Scott et al., 2019).

Theoretical Framework for Examining Breastfeeding Practices

Figure 1

Social Ecological Model



Building upon the work of Brofenbrenner (1977), the social ecological model (SEM) is a multifaceted theoretical framework. The ecological approach explores how one's behaviors are impacted by various levels of social, structural, and environmental determinants (McLeroy et al., 1988). The SEM consists of five constructs; (1) intrapersonal, individual factors, (2) interpersonal, (in)formal social networks or interactions, (3) organizational, institutional organizations, (4) community, relationships among organizations and communities and (5) public policy, consist of local, state, and federal legislation. Each framework construct should be considered interactive and affect each other (McLeroy et al., 1988). Various studies have utilized the SEM to explore

micro and macro-level variables influencing breastfeeding initiation and duration among Black women (Bentley et al., 2003; Reeves & Woods-Giscombé, 2015). In addition, the SEM framework allows researchers to examine barriers and facilitators in various systems and explore their influence on one's behavior.

Intrapersonal Level

Intrapersonal factors may include individual knowledge, behaviors, attitudes, and sociodemographic variables. Furthermore, demographics such as ethnicity, age, marital status, education level, and socioeconomic status are predictive factors of breastfeeding initiation (Bentley et al., 2003). Individual variables include a lack of breastfeeding education or self-efficacy in the ability to successfully breastfeed (Gross et al., 2015; Reeves & Woods-Giscombé, 2015). In addition to inadequate breastfeeding education, practical techniques to help overcome breastfeeding challenges are lacking. Several studies indicate that increased self-efficacy and confidence were influential facilitators in breastfeeding initiation and continuance for positive deviants (Gross et al., 2017; Reeves & Woods-Giscombé, 2015).

On the intrapersonal level, oversexualization of breasts was a barrier to breastfeeding for Black mothers. It is considered an intrapersonal barrier, as women internalize the perceived attitudes of others. Historically, the bodies of Black women were objectified and oversexualized (Parker, 2018). Women may feel that their breasts are viewed as sexual objects rather than nutrients for infants. According to Lutenbacher et al. (2016), Black mothers noted that as their infants aged, breastfeeding began making others uncomfortable and was perceived as something sexual. Moreover, inner-city Black mothers reported that they were averse to breastfeeding in public out of fear of being

ridiculed (Reeves & Woods-Giscombé, 2015). Shame may cause mothers to feel immodest or embarrassed to breastfeed in public and develop a negative self-image (Bentley et al., 2003; Dunn et al., 2015). Overall, the idea that breastfeeding is indecent or sexual is frequently seen within the Black community. The literature indicates a need for education that is inclusive of partners and social networks.

Interpersonal Level

Interpersonal relationships can impact infant feeding initiation and practices positively or negatively. Studies using the SEM model indicate that the child's father and grandmother seem to have the greatest influence on the decision to breastfeed for Black women (Bentley et al., 2003; Reeves & Woods-Giscombé, 2015). The social dynamic may be due in part to young or single mothers living with their own mothers. This creates a shift where the maternal grandmother decides infant feeding practices (Bentley et al., 2003). Furthermore, it can be assumed that expecting mothers highly regard the opinions and attitudes of their child's father pertaining to infant feeding practices. Thus, the child's father can either support or discourage breastfeeding initiation. A lack of support from family members has an adverse effect on breastfeeding initiation (Snyder et al., 2020). Due to the stigma surrounding breastfeeding, there may be a lack of familial role models within family dynamics; this can potentially contribute to a lack of education and low levels of support (Gross et al., 2015).

Organizational Level

Women returning to work, hospital practices, and The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) services can influence a mother's ability to initiate or continue breastfeeding. Returning to work is an

organizational barrier for the mother. The inability to keep up with scheduled feedings and the lack of available time can be discouraging (Snyder et al., 2020). Women living with lower incomes are more negatively impacted, as they are not usually provided with adequate breastfeeding breaks or facilities (Bentley et al., 2003).

Hospital policies can impact a mother's infant feeding decision starting at delivery. In baby-friendly hospitals, infants are kept in the same room as the mother, and breastfeeding is initiated within the hour of birth. Additionally, nursing staff are trained on breastfeeding practices and provide support to mothers. Policies such as these increase the likelihood of breastfeeding initiation and create a positive breastfeeding environment (Bentley et al., 2003; Merewood et al., 2019).

WIC is a federally funded program that provides prenatal support and breastfeeding education (U.S. Department of Agriculture, Food and Nutrition Service, 2013). (Beal et al., 2003). However, supportive WIC counselors may be the only source of breastfeeding education and resources for some Black mothers (Gross et al., 2015). Additionally, a positive correlation between the level of WIC site support and breastfeeding has been shown (Gleason et al., 2020). Although one of the primary services provided to mothers through WIC is breastfeeding education, previous studies show Black women are less likely to receive breastfeeding advice from WIC counselors (DeVane-Johnson et al., 2017).

Community Level

The community level of the framework focuses on cultural and social norms. Stigma of breastfeeding is still persistent within the Black community. Mothers noted that slavery and wet nursing influenced their decision to formula feed. The fear of

perpetuating a negative stereotype or a “mammy” dissuaded Black mothers from breastfeeding (DeVane-Johnson et al., 2018). Due to historical context, breastfeeding may not be a societal and cultural norm (Gross et al., 2015). Increasing Black breastfeeding role models within the community and reducing the cultural stigma can facilitate breastfeeding initiation. Additionally, increasing maternal health resources such as lactation assistance and counselors can increase practical knowledge and increase breastfeeding rates. Receiving formal support from lactation counselors within the community may be the only source of available support for some mothers (Snyder et al., 2020).

Lastly, the ideology of the “strong Black woman” can prevent Black women from seeking assistance with breastfeeding once challenges arise (Abrams et al., 2014; Gross et al., 2015). Dating back to enslavement, Black women were perceived to possess “superhuman strength” to justify their enslavement. Today, this construct is used within the Black community to describe the act of Black women overcoming oppression (Watson-Singleton, 2017). The strong Black women schema is comprised of coping behaviors such as emotional suppression, self-reliance, and caregiving (Nelson et al., 2016). The internalization that Black women must display strength and ignore physical and mental hardships can adversely affect their health. In interviews conducted with Black women, it was reported that a strong Black woman should remain strong, even in times of fear and pain (Beauboeuf-Lafontant, 2007). As previously noted, the schema is noted in breastfeeding practices among Black women. Rather than seem vulnerable, Black women will succumb to breastfeeding challenges rather than seeking outside help.

An increase in culturally appropriate education and breastfeeding role models are needed to show that asking for help can indicate strength.

Policy Level

Social structures and the implementation of policies serve as facilitators or barriers for breastfeeding among Black women. The “right to breastfeed” act protects breastfeeding mothers’ rights to breastfeed on federal property and also allows breast pumping during work breaks (Bentley et al., 2003). Although current laws support employed mothers, there are no specifications for occupations with infrequent breaks (i.e., nurses or teachers) (Snyder et al., 2020) or Black mothers working lower-wage jobs. Medicaid and other forms of insurance provide resources for breastfeeding mothers. However, those in underserved populations may be unaware of available resources (Dunn et al., 2015). Providing adequate resources are not beneficial if their availability is not promoted and encouraged.

Although most policies are implemented with the intention to assist mothers, some may be potential barriers. The “welfare reform” act states that mothers with children under the age of six months must work in order to receive benefits, negatively impacting low-income mothers who mainly qualify for benefits (Bentley et al., 2003). Low-income mothers are forced to return to the workplace prematurely, reducing the likelihood of breastfeeding continuance (Bentley et al., 2003). Revising such policies for the betterment of underserved populations can decrease macro-level barriers, which lead to lower breastfeeding rates. Positive policy revisions focused on underserved populations can decrease macro-level barriers, which lead to lower breastfeeding rates.

The SEM framework provides a holistic view of how breastfeeding initiation is influenced by intrapersonal, interpersonal, community, and organizational variables. By identifying barriers and facilitators at each level of the framework, program planners are better equipped to develop and implement effective interventions. It is important also to examine the interactions between the system levels and view them as interdependent. The multiple levels of the framework are interactive and influence each other. The SEM allows researchers to examine the interrelationships of all environmental levels influencing behavior. Solely focusing on individual factors and ignoring macro-level factors introduces the “mother’s blame” narrative. The ‘mother’s blame’ narrative places full responsibility for specific health behaviors and poor outcomes on the Black mother (Scott et al., 2019). This narrative does not address structural and social determinants, which abdicates responsibility for maternal disparities from healthcare providers and legislators (Scott et al., 2019).

Breastfeeding Barriers

Existing literature indicates that Black mothers have great intentions for breastfeeding initiation, but specific barriers prevent those intentions from developing into action (Persad & Mensinger, 2008). In an extensive review of the literature, Spencer and Grassly (2013) identified several barriers that hindered breastfeeding initiation among Black women. One significant barrier identified is the lack of appropriate breastfeeding education within the Black community. Black mothers were less likely to receive breastfeeding materials than Caucasian mothers. In a review of the literature conducted by Reeves et al. (2015), Black mothers sought breastfeeding support but were not given proper assistance by their health care providers. In a separate review of the

literature, Black women have also reported that they received inadequate or incorrect breastfeeding information during prenatal care (DeVane-Johnson et al., 2017). A study by De Vane-Johnson et al. (2017) noted that Black women were provided little to no breastfeeding information or instructions at the hospital. Moreover, the authors noted that WIC recipients who were Black were often discouraged from breastfeeding by their WIC peer counselors (DeVane-Johnson et al., 2017).

Racial Bias

Racial bias in the medical field leads to stereotyping, resulting in discriminatory actions (Dovidio et al., 2008; FitzGerald & Hurst, 2017; Lewis et al., 2016; Nelson, 2002). Suboptimal health care stemming from biased actions contributes to deleterious health behaviors and outcomes, continuing to decimate the health of the Black community (Taylor, 2020). In a focus group comprised of Black men and women living with chronic conditions, participants often perceived discrimination during their interactions with health care professionals. This was particularly true for female participants who reported feeling the need to constantly assert themselves to receive proper care (Cuevas et al., 2016). Moreover, female participants noted feelings of being ignored, stereotyped and that they were receiving inadequate care (Cuevas et al., 2016). The evident racial disparity in breastfeeding may be due in part to biased and prejudicial treatment provided to Black women by their health care professionals (Good Mojab, 2015).

In a scoping review of the literature, experiences of racial bias and discrimination were modifiable barriers to breastfeeding initiation and continuance. Healthcare providers assumed that Black women would not breastfeed, which impacted the quality of lactation

care they provided patients (Robinson et al., 2019). Black women received fewer referrals for breastfeeding support and were provided with limited assistance for breastfeeding challenges (Robinson et al., 2019). Similarly, in focus group discussions, Black mothers mentioned that health care providers would push formula even after expressing intent to breastfeed exclusively, which led to feeling ignored and unheard (Davis et al., 2021). Racial bias and discrimination in the maternal care system continue to amplify the impact of health inequities within Black infant feeding practices.

Social Barriers

Social and structural barriers are systemic inequities (i.e., access to education, socioeconomic status, access to care, and discrimination) that may hinder a mother from utilizing prenatal care. Examining maternal health disparities from a social ecological perspective shows that the absence of resources could increase the likelihood of adverse health behaviors and outcomes (Prather et al., 2016). Examples of such resources are medical insurance coverage and reliable transportation, which can be barriers to receiving prenatal care (Edmonds et al., 2015). Black women without prenatal care usually receive inadequate health information, resulting in less breastfeeding initiation (Yan, 2017).

Lack of Normalization/Representation in the Black Community

Although breastfeeding initiation and duration rates are increasing within the Black population, there is a lack of normalization and visual representation. The continuous stigma of breastfeeding in the Black community stems from the historical context of wet nursing. Women noted that breastfeeding has been called “nasty,” related to the oversexualization of breasts (DeVane-Johnson et al., 2018). These negative perceptions can cause mothers to develop feelings of shame or embarrassment. In a

review of the literature, Reeves et al. (2015) reported that most Black mothers were not receptive to breastfeeding in public because their partners considered it indecent and reprehensible.

Similar narratives were stated in a study grounded in Black Feminist Theory. Breastfeeding in public reportedly caused feelings of being exposed and ashamed. Social embarrassment was expressed by both breastfeeding and formula-feeding participants within the study (Robinson & VandeVusse, 2011). Breastfeeding mothers reported not wanting to “expose themselves” or have the public get the “wrong impression,” this was particularly true for feeding in front of males. Formula-feeding mothers all reported not wanting to pull their breasts out in public (Robinson & VandeVusse, 2011). Such feelings of shame or immodesty can cause negative body images and deter a Black woman from breastfeeding her infant.

Returning to Work

An impactful barrier in the literature is returning to work from maternity leave, which significantly impacts Black mothers as they tend to have shorter maternity leave than other racial/ethnic groups (DeVane-Johnson et al., 2017). Some work environments do not have supportive breastfeeding policies, which enable breastfeeding mothers to have pumping breaks (Spencer & Grassley, 2013). In lower-wage employment, mothers fear termination for requesting pump breaks (Gross et al., 2015). Additionally, federal policies require mothers to return to work early to receive benefits (Bentley et al., 2003).

COVID-19 Policies

New hospital policies due to COVID-19 may inadvertently construct breastfeeding barriers. The World Health Organization (WHO) has provided infant care

guidelines for mothers who are suspected to be positive or have tested positive for COVID-19. WHO recommendations include skin-to-skin contact, keeping the infant in the room with the mother, breastfeeding, mask-wearing, and handwashing (WHO, 2020). To date, there is no evidence of COVID-19 transmission through breast milk (WHO, 2020). Despite WHO guidelines, some hospital infection prevention and control policies separate the infant from their mother (Tomori et al., 2020). Although separation policy is meant to prevent the transmission of COVID-19, it may cause potential harm. As breastfeeding is a protective factor, the lack of breastfeeding caused by the separation may increase susceptibility for other illnesses and diseases, including respiratory viral infections (Section on Breastfeeding, 2012). Additionally, infection prevention and control (IPC) policies increase disparities in populations that are disproportionately impacted by poor health outcomes (Tomori et al., 2020). Black infants are at increased odds of developing chronic illnesses and have higher rates of infant mortality (Bartick et al., 2017). Postpartum separation due to IPC policies is another potential barrier for breastfeeding initiation for Black mothers and increases the risk of adverse health outcomes in the Black community.

Breastfeeding Facilitators

Self-efficacy

Self-efficacy is one of the primary facilitators of breastfeeding initiation and long-term duration (Gross et al., 2015; Eastin & Sharma, 2015; Spencer & Grassley, 2013). In a sample of Black women, a breastfeeding self-efficacy scale was shown to be significantly predictive of breastfeeding at four weeks and 24 weeks (McCarter-Spaulding & Dennis, 2010). Narratives grounded in the Black Feminist Philosophy

demonstrate that Black mothers with the intention to breastfeed had high confidence in their abilities to obtain breastfeeding information, meet the demands of breastfeeding, and were confident to breastfeed in front of others (Robinson & VandeVusse, 2011). Narratives grounded in Black Feminist Philosophy use general equality principles and apply them to Black women by obtaining their specific viewpoints and experiences. Providing Black mothers with the practical knowledge and resources to boost their confidence during the prenatal period can facilitate breastfeeding initiation and continuance.

Peer Support

Positive interpersonal relations and interactions can be effective breastfeeding promoters (Snyder et al., 2020). In Shelby County, Tennessee, a community-led peer organization is working to improve the breastfeeding rates of Black women through mentorship and breastfeeding education (Pyles et al., 2021). Recently, more Black women are joining online breastfeeding communities to gain peer support (Asiodu et al., 2015). The use of social media has positively impacted breastfeeding practices among Black women and has provided a space that allows Black mothers to feel empowered and encouraged (Robinson et al., 2019). In a sample of low-income Black mothers, increased social support and support groups were recommended to be made available to low-income pregnant mothers during prenatal care (Edmonds et al., 2015). For women who lack support from family and friends, additional support can be provided by lactation counselors, midwives, and doulas (Thomas et al., 2017). Doula support provided to low-income Black mothers encouraged increased breastfeeding rates (Kozhimannil et al., 2013). Tailoring cultural interventions that provide support and encourage the use of

midwives and doulas within the Black community greatly increases support systems for Black mothers.

Breastfeeding Education

Providing Black mothers with adequate education during prenatal care is essential for successful breastfeeding initiation. Understanding the health benefits that breastfeeding provides to an infant is a facilitating variable (Gross et al., 2017). Edmonds et al. (2015) found that the well-being of the infant was a motivator to initiate breastfeeding. In addition to knowledge of the benefits of breastfeeding, practical knowledge and skills should be shared (Reeves & Woods-Giscombé, 2015). Knowing techniques that help in overcoming breastfeeding challenges can increase breastfeeding duration. For example, knowing the proper latching techniques and ways to manage engorgement can reduce the likelihood of breastfeeding cessation.

Hospital Initiatives

WHO and The United Nations Children's Fund (UNICEF) developed Baby-Friendly Health Initiative (BFHI) in 1991 to help improve breastfeeding rates worldwide (WHO, 2017). The pillars of this initiative consist of ten steps, "Ten Steps to Successful Breastfeeding," which are,

“Have a written breastfeeding policy that is routinely communicated to all health care staff, train all health care staff in skills necessary to implement this policy, inform all pregnant women about the benefits and management of breastfeeding, help mothers initiate breastfeeding within one hour of birth, show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants, give newborn infants no food or drink other than breast milk, unless medically indicated, practice rooming in (allow mothers and infants to remain together) 24 hours a day, encourage breastfeeding on demand, give no artificial teats or pacifiers to breastfeeding infants, and foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.” (WHO, 2017).

Successful implementation of all ten steps has been shown to increase breastfeeding rates. Various socio-ecological studies note that from an institutional level, hospital policies that encourage exclusive breastfeeding promote breastfeeding (Dunn et al., 2015; Snyder et al., 2020). In a study conducted by Merewood (2019), hospitals in four Southern states (MS, TN, LA, TX) with low breastfeeding rates of Black infants enrolled in BFHI. Hospitals received assistance and increased compliance to BFHI practices. The rates of exclusive breastfeeding and initiation increased among Black infants from 46% to 63%. The Black-White racial gap for breastfeeding initiation reduced by 9.6 percentage points as well. By increasing BFHI compliance, particularly in underserved neighborhoods, the racial disparity gap in breastfeeding can be reduced. Developing breastfeeding policies and procedures can expedite exclusive breastfeeding post-delivery.

Purpose of Study

Rates of breastfeeding in Black women are persistently lower than other racial and ethnic groups, contributing to adverse health outcomes for infants. Therefore, an examination of variables related to facilitators and barriers to breastfeeding is warranted, specifically among Black women. According to the literature, key facilitators include social support and education. Barriers are identified as racism and returning to work. The current study examined facilitators and barriers that contribute to breastfeeding practices among Black Women in Tennessee. As the rates for infant mortality are twice as high among Black infants in Tennessee (Lummus & Watson, 2018), it is important to identify

contributing determinants. Factors were examined through the lens of the Social Ecological Model. The model provides a comprehensive framework by identifying facilitators and barriers at each system level, allowing the researcher to examine personal and environmental determinants influencing infant-feeding practices. Black women of child-bearing age across all socioeconomic statuses were invited to participate in the study.

The purpose of this dissertation study was to explore influential barriers and facilitators contributing to infant feeding practices among Black mothers. The terminology “Black” is used to describe the race of participants. Black is to encompass women of diverse ethnicities who may not identify as “African American” (e.g., African, Afro-Caribbean, and Afro-Latina). Additionally, focusing on Black women will provide cultural insight to improve breastfeeding interventions. The approach for the dissertation study was organized in a two-article format; the first article is a scoping review of the literature which focuses on Black women utilizing social media breastfeeding groups as a source of additional information and support. The second article explored the facilitators and barriers impacting breastfeeding behaviors among Black mothers in Tennessee. Quantitative data from a validated survey were analyzed.

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Chapter II: Social Media Usage as a Form of Breastfeeding Support Among Black Mothers: A Scoping Review of the Literature

Breastfeeding is the optimal choice for infant feeding and provides proper nutrition for growth and development (Section on Breastfeeding, 2012). Despite health recommendations and studies that demonstrate the health benefits of breastfeeding, a racial disparity continues to persist. Black mothers in the United States have lower breastfeeding initiation and duration rates compared to their racial/ethnic counterparts. In 2019, 73.6% of Black mothers initiated breastfeeding; compared to the initiation rates of Hispanic mothers (87.4%), White mothers (85.5%) (Chiang et al., 2021). Many health disparities impacting the Black community can be reduced through breastfeeding. Increasing breastfeeding rates among Black mothers could improve the overall health of the Black community and lead to better health outcomes.

Lower rates of breastfeeding within the Black community may contribute to other racial health disparities. Poor breastfeeding practices are associated with a higher disease burden in Hispanic and Black populations. Black infants have the highest prevalence rates of infant mortality, sudden infant death syndrome, and necrotizing enterocolitis (Bartick et al., 2017). African Americans have the highest morbidity and mortality rates from cancer, diabetes, influenza and are more likely to be obese; breastfeeding can reduce the risks associated with these diseases (DeVane-Johnson et al., 2018). Breastfeeding also reduces the risk for neurological disabilities, metabolic syndrome, and long-term growth failure (Section on Breastfeeding, 2012).

Improving breastfeeding rates among Black mothers can assist in the reduction of maternal and infant mortality rates. It is estimated that if mothers were to breastfeed their

infant through two years old, 1.5 million lives of children would be saved (Ware et al., 2019). A study conducted in Shelby county, Tennessee, determined that there is a significant association between breastfeeding initiation and lower rates of neonatal infant mortality and infection-related deaths among Black infants (Ware et al., 2019). The reduced breastfeeding rates in the Black community are contributing to the high rates of chronic diseases such as hypertension and diabetes (Bartrick et al., 2017).

The Role of Social Support

Breastfeeding literature has explored various facilitators and barriers that influence breastfeeding practices among Black mothers. Factors such as racial discrimination, self-efficacy, breastfeeding education, and access to resources can significantly impact the decision to breastfeed or formula feed (McCarter-Spaulding & Gore, 2012; Robinson, Fial, et al., 2019; Robinson & VandeVusse, 2011). Numerous studies have focused on the role of social support as it pertains to infant feeding practices among Black women (Friesen et al., 2015; McCarter-Spaulding & Gore, 2012; Pyles et al., 2021). Although the mechanism is complex, it is strongly suggested that there is an association between social relationships and health behaviors and outcomes. Seminal work conducted by House (1981) defines the concept as the functional content of relationships that can be categorized into four forms of supportive behaviors: emotional, informational, instrumental, and appraisal.

Many breastfeeding studies focus on emotional and informational support. An example of emotional support is a positive interaction that encourages breastfeeding and provides empathy and care during challenging times. Family, peers, and romantic partners are some of the main sources of emotional support. Primary sources in

breastfeeding literature for informational support are health care professionals, as they disseminate breastfeeding education and practical knowledge to overcome latching issues or other breastfeeding challenges (Reeves & Woods-Giscombé, 2015).

Positive or negative interactions regarding breastfeeding can not only influence a mother's decision to breastfeed but can affect her ability to successfully breastfeed as well (Reeves & Woods-Giscombé, 2015). Supportive relationships positively influence breastfeeding self-efficacy among Black mothers, which increases the likelihood of breastfeeding initiation and lengthen duration rates (McCarter-Spaulding & Gore, 2012). Providing Black women with lactation support assist in long-term breastfeeding durations (Gross et al., 2017). Another example is in-person peer support groups among Black mothers, which provide additional knowledge and support needed for breastfeeding success (Friesen et al., 2015; Pyles et al., 2021). Conversely, inadequate antenatal and postnatal support may lead to lower exclusive breastfeeding rates and early breastfeeding cessation (Gianni et al., 2019). The lack of breastfeeding normalization within the Black community could also contribute to negative support from immediate social networks (Snyder et al., 2020).

The Use of Social Media

Social media outlets have become a great source of health-related information and support. A primary advantage of social media usage is that it allows individuals to engage in widespread communication to provide and receive information (Bennett & Glasgow, 2009). Many first-time parents utilize social media groups and forums to seek parenting advice (Moon et al., 2019; Pretorius et al., 2019). With numerous social media pages and groups dedicated to breastfeeding, new and expecting mothers have turned to virtual

support. As members of online breastfeeding communities, mothers are able to ask questions, voice concerns, and discuss challenges (Jin et al., 2015).

Furthermore, social media groups can be a source of added support and encouragement. This additional support and education increase breastfeeding self-efficacy, which facilitates breastfeeding success and longer breastfeeding continuance (Black et al., 2020). Breastfeeding interventions via social media have shown promise at increasing the rate of research participation among Black women. It is also an effective method for breastfeeding education distribution (Dauphin et al., 2020).

Purpose of Study

The purpose of this study was to conduct a scoping review of the literature examining social media usage among Black mothers as a form of breastfeeding social support. As a secondary purpose, potential breastfeeding promotion interventions using social support through social media for Black mothers were explored. For the purpose of this study, participants will be referred to as “Black” rather than “African American” as it encompasses women of various ethnic backgrounds. The research questions for the study were (1) What is the extent of the current literature which focuses on Black mothers and breastfeeding support through the utilization of social media? (2) What forms of breastfeeding social support do Black women seek within social media support groups? (3) How does social support through social media support groups impact breastfeeding behaviors of Black women?

Methods

Scoping Review Framework

The aim of this scoping review of the literature is to examine the influence social support has among Black women and breastfeeding initiation and duration in recent literature. As a relatively new approach to literature reviews, there is no universally accepted definition for a scoping review of the literature (Pham et al., 2014). Unlike systematic reviews, a scoping review of the literature seeks to address broader research questions (Arksey & O'Malley, 2005). A scoping review was selected to examine the research topic due to the flexibility to include both quantitative and qualitative methods (Pham et al., 2014). Generally, scoping reviews are conducted to identify gaps in the literature, examine the extent of existing research activity, disseminate research findings, and evaluate the value of performing a full systematic review (Arksey & O'Malley, 2005). The five-stage process proposed by Arksey and O'Malley (2005) was used as the methodological framework for this study. The steps include: (1) identify the research question, (2) identify relevant studies, (3) study selection, (4) charting the data, (5) collating, summarizing, and reporting the data.

Search Strategies

With assistance from a university reference librarian, a literature search was conducted using the following scholarly databases: GoogleScholar, PubMed Central, ScienceDirect, Scopus, APA PsycINFO, and MEDLINE. The search strategy included the following key terms and concepts, *Black mothers, African American, millennial moms, breastfeeding, infant feeding, social media, online breastfeeding support, Facebook, Twitter, and Instagram*. A comprehensive search was conducted in APA

PsycINFO, MEDLINE using the terms breastfeeding and social media. The resulting articles were then manually examined to determine if the studies included the priority population of Black or African American women. Both terms were included, as some women who immigrated from African or Caribbean countries may identify as “Black” but do not consider themselves as “African American.” The references of review articles were manually reviewed. Citations of relevant articles were then placed in the Scopus database and further examined. Citations of relevant articles were then placed in the Scopus database and further examined.

Original research articles that centralized using social media as a source of breastfeeding support and included Black mothers as part of the study population were included in the review. Studies conducted within and outside of the United States were included. Articles that did not collect or report racial demographic data, were reviews of existing literature, and were non-English language studies were excluded from the scoping review. Since few studies were aligned with the criteria and purpose of the current study, publication date criteria were not applied. Six studies fulfilled study criteria and were selected. Currently, there is not a consensus on the methodology of a scoping review, including the suggested minimum number of articles that should be included (Colquhoun et al., 2014). All included studies were published between the years 2012 through 2021. The following information will be presented in Table 1, author's name, publication year, location, the aim of the study, population characteristics, research methods, and outcomes.

Results

Study Design

Two quantitative studies, one mixed-methods, and three qualitative studies were included in this scoping review. Online surveys were used for data collection in each quantitative study. Wilson et al. (2020) was the sole mixed-methods and longitudinal study. Participants completed surveys at one month postpartum and six months postpartum. Additionally, participants responded to a qualitative question on the follow-up questionnaire. The three remaining studies utilized various qualitative methods. Asiodu et al. (2015) conducted interviews with postpartum and pregnant women along with their support persons. Participants were also observed in community settings to provide a deeper examination of cultural and social norms. Robinson et al. (2019) utilized an online focus group design. Participants of Skelton et al. (2018) were given the option to either participate in an online focus group or one-on-one interviews.

Settings

Four of the included studies were conducted in the United States (Asiodu et al., 2015; Robinson, Davis, et al., 2019; Robinson, Lauckner, et al., 2019; Skelton et al., 2018). The remaining two studies were conducted in the United Kingdom (Morse & Brown, 2021). The other was comprised of participants from multiple countries (United States, United Kingdom, Canada, Australia, India, Malta, South African, Romania, New Zealand, and Japan), with the largest percentage of participants residing in the United States (Wilson, 2020).

Population

Each study utilized a convenient sampling method for participant recruitment. Three of the six studies contained a priority population of self-identified African American/Black women (Asiodu et al., 2015; Robinson, Davis, et al., 2019; Robinson, Lauckner, et al., 2019), while the three remaining studies were open to all races and ethnicities. In studies with various races/ethnicities, Black women were a small percentage of participants; .25% (5 participants) (Morse & Brown, 2021), 10% (3 participants) (Skelton et al., 2018), and 2% (5 participants) (Wilson, 2020).

Social Support Provided by Online Breastfeeding Groups

Participants noted various dimensions of social support provided to them through social media breastfeeding support groups in all six studies within this scoping review. Mothers described social media support groups as an educational resource, a location for exchanging information. (Asiodu et al., 2015; Morse & Brown, 2021; Skelton et al., 2018). Obtaining information through social media also provided mothers with the accessibility and convenience to receive responses in real-time during various times of the day and night, which was very valuable (Morse & Brown, 2021; Robinson, Lauckner, et al., 2019; Skelton et al., 2018).

In addition to informational support, social media breastfeeding support groups offer emotional support through feedback and shared experiences. Mothers noted that the primary forms of support provided to them through their online breastfeeding support groups were appraisal (receiving productive feedback) and emotional support (Wilson, 2020). Participants of Asiodu et al. (2015), which focuses on Black mothers, noted the use of online support in lieu of negative or a lack of support from their in-person support

networks. Mothers turned to social media in hopes of obtaining that additional support from mothers within their online community (Asiodu et al., 2015). One study within the scoping review examined the level of Facebook breastfeeding support compared to that of in-person support. For the current study, Facebook breastfeeding groups had the highest social support score and provided greater support than participants' in-person networks (Robinson, Lauckner, et al., 2019). Maternal grandmothers were reported to have the lowest mean support score for in-person support (Robinson, Lauckner, et al., 2019). This demonstrates the value of interacting with other breastfeeding Black mothers through social media, particularly within the Black community, as it may create a sense of breastfeeding normalcy which may be lacking within some in-person social networks.

Themes Within the Literature Pertaining to Support

Community

An overarching theme among multiple studies included in this review was a sense of community. Interacting with other mothers in online breastfeeding support groups created a sense of bonding and understanding (Skelton et al., 2018). Participants of Morse and Brown (2021) referred to online group members as a village or tribe where they were able to discuss shared experiences. Within this sense of community developed feelings of trust and a safe space with no judgment. This allowed mothers to have a sense of freedom to ask questions and seek advice from their peers (Skelton et al., 2018). The idea of a community held great significance in Robinson, Davis, et al. (2019), which focused on online breastfeeding support groups that were created solely for Black women.

Participants noted the desire to find breastfeeding groups specifically for Black women. There were also participants who expressed the feeling of being “othered” or

ignored in breastfeeding groups comprised of mixed demographics. They valued the importance of belonging to a group of women with shared cultural and social experiences as mothers (Robinson, Davis, et al., 2019). Interestingly, Black British mothers are joining American breastfeeding support groups for Black mothers to feel a sense of relatedness that may be lacking from other breastfeeding forums (Morse & Brown, 2021). As Asiodu et al. (2015) noted in an earlier study, participants were unaware of any breastfeeding resources and online communities specifically for Black women. They also discussed the need and want for supportive spaces for Black mothers (Asiodu et al., 2015). Study findings demonstrate the importance of visibility and support among breastfeeding mothers, specifically among breastfeeding Black mothers, and the desire to bond with those who have shared lived experiences.

Empowerment/Self-efficacy

Three of the six studies describe the role social media breastfeeding support groups have on breastfeeding confidence (Morse & Brown, 2021; Robinson, Lauckner, et al., 2019; Skelton et al., 2018). Belonging to online communities increased confidence in overcoming breastfeeding challenges and obtaining practical knowledge (Morse & Brown, 2021). Many participants used the term “empowerment” to describe their ability to not only successfully breastfeed but empowered in their decision to breastfeed (Robinson, Lauckner, et al., 2019; Skelton et al., 2018). Continued support and encouragement from online peers allowed participants to enhance their breastfeeding behaviors and overcome the feeling of self-doubt (Skelton et al., 2018). Increased breastfeeding confidence resulted from online participation (Morse & Brown, 2021; Robinson, Davis, et al., 2019; Skelton et al., 2018). For example, participants’ confidence

levels grew the more they learned from their breastfeeding peers. Obtaining educational and practical knowledge to overcome breastfeeding challenges heightened self-efficacy. All three studies reported that feelings of breastfeeding self-confidence led to longer breastfeeding durations and allowed participants to meet and even exceed breastfeeding goals (Morse & Brown, 2021; Robinson, Davis, et al., 2019; Skelton et al., 2018).

Members of breastfeeding support groups exclusively for Black mothers reported that observing other Black mothers become breastfeeding ‘champions’ was valuable in elevating their confidence. (Robinson, Davis, et al., 2019). Additionally, this feeling of empowerment stirred up a desire to encourage, empower and educate other Black women on their breastfeeding journeys through inviting more mothers into the group, sharing information, or becoming lactation specialists (Robinson, Davis, et al., 2019).

Relationship Between Online Breastfeeding Support and Breastfeeding Outcomes

Each study included in the scoping review contained results pertaining to breastfeeding intentions and durations of their participants. More than half of the participants (66%) in Wilson et al. (2020) reported breastfeeding exclusively for six months. The majority of participants (86%) noted that their primary infant feeding practice was to exclusively breastfeed their infants (Skelton et al., 2018). Sixty-five percent of participants were breastfeeding infants beyond six months (Morse & Brown, 2021). Mothers credited their breastfeeding success to the support and encouragement provided through social media breastfeeding groups (Morse & Brown, 2021). Based on the results of the aforementioned studies, it can be hypothesized that belonging to breastfeeding support communities has a positive effect on prenatal breastfeeding intentions and breastfeeding duration rates.

Participants for the three remaining studies were Black mothers. On average, Black mothers in the United States have lower breastfeeding duration rates. The breastfeeding durations for participants in the study by Robinson, Davis, et al. (2019) ranged from two to twenty-three months, with the average duration being 8.5 months. In the study conducted by Asiodu et al. (2015), 71% used a combination of breast milk and formula as their infant feeding practice. Four of the fourteen participants exclusively breastfed their infants beyond three months. Those who exclusively breastfed found Facebook to be a valuable source of support. According to Robinson et al. (2019), the average breastfeeding duration for participants was nine months, with the intended breastfeeding duration being approximately 19 months. The time extends beyond the current duration rates among Black mothers.

Table 1. Scoping Literature Review of Social Media Support for Black Women

<i>Author, publication year, Location</i>	<i>Aim of study</i>	<i>Population characteristics</i>	<i>Research methods</i>	<i>Outcome of Study</i>
Asiodu et al. (2015) United States	Described how first-time Black mothers and their support person (e.g., friend, mother, grandmother) utilize social media during the ante/postpartum period.	Adult, first-time pregnant, and perinatal Black mothers (N=14). Along with support persons (N=8).	Qualitative study consisting of interviews.	Participants turned to social media for education and social support.

<i>Author, publication year, Location</i>	<i>Aim of study</i>	<i>Population characteristics</i>	<i>Research methods</i>	<i>Outcome of Study</i>
Morse & Brown (2021) United Kingdom	Examined the experiences of mothers who use local breastfeeding support groups and why they are valued.	Adult breastfeeding mothers of various racial/ethnic backgrounds (N=12).	Quantitative study using an online questionnaire.	Participants reported the benefits of their local Facebook breastfeeding group. Benefits included local resources, information, friendship development, and support. Group membership was credited for longer breastfeeding durations.
Robinson, Davis, et al. (2019) United States	Examined the experiences of Black breastfeeding mothers who are active members of Facebook breastfeeding groups.	Adult, first-time, breastfeeding mothers who self-identify as Black/African American (N= 22).	Qualitative cross-sectional study with a focus group design.	Positive support from Black breastfeeding women with shared experiences increased confidence and prolonged breastfeeding goals and durations.
Robinson, Lauckner, et al. (2019) United States	Explored various sources of support among Facebook support groups members and how Facebook support may translate into breastfeeding behaviors.	Adult mothers who self-identify as Black/African- American (N=277).	Quantitative study using an online questionnaire.	Facebook provided the greatest amount of support compared to an in-person support network. Additionally, self-efficacy and attitudes are significant factors of breastfeeding intended duration.

<i>Author, publication year, Location</i>	<i>Aim of study</i>	<i>Population characteristics</i>	<i>Research methods</i>	<i>Outcome of Study</i>
Skelton et al. (2018) United States	Examined the attitudes and beliefs of mothers who use social media to understand the effects on breastfeeding outcomes.	Adult mothers of various racial/ethnic backgrounds (N=33).	Qualitative study utilizing online focus groups and one-on-one interviews.	Participants noted that social media groups resulted in a supportive community, breastfeeding normalization, empowerment, resources, and shared experiences.
Wilson (2020) Multiple (21) countries; including the United States	Explored breastfeeding facilitators that led to six-month exclusive breastfeeding in millennial moms who are members of social media breastfeeding support groups.	Mixed demographic population of exclusively breastfeeding millennial mothers (N=241).	Mixed-methods longitudinal study with an online questionnaire.	Breastfeeding social support had a direct effect on participants' breastfeeding confidence, knowledge, and attitudes. Additionally, exclusive breastfeeding at six months within social media breastfeeding groups was three times greater than the national average.

Discussion

The purpose of this study was to provide an overview of the current literature pertaining to social media breastfeeding groups as a form of social support among Black mothers. Although only six studies were included in the scoping review, results indicate

that membership in social media breastfeeding groups can have a positive influence on breastfeeding behaviors (Asiodu et al., 2015; Morse & Brown, 2021; Robinson, Davis, et al., 2019; Robinson, Lauckner, et al., 2019; Skelton et al., 2018; Wilson, 2020). Social media breastfeeding communities provide mothers with encouragement and support, especially for women who lack familial support. Additionally, social media is a convenient and efficient way for women to obtain breastfeeding information. For Black women who are faced with social barriers, particularly during the COVID-19 epidemic, membership to online breastfeeding communities can be a safe alternative to in-person support groups.

Each study included within the scoping review mentions participants turning to social media breastfeeding groups as a form of additional social support and a source of obtaining breastfeeding information among peers and lactation specialists (Asiodu et al., 2015; Morse & Brown, 2021; Robinson, Davis, et al., 2019; Robinson, Lauckner, et al., 2019; Skelton et al., 2018; Wilson, 2020). The ability to obtain multiple forms of support through social media outlets provides mothers with the ability to overcome breastfeeding barriers. The opportunity to obtain social media support is particularly salient for Black mothers due to the historical stigma within the Black Community. The stigma primarily stems from historical trauma due to slavery abuse and forced wet nursing (Asiodu et al., 2015). Being a member of a Black breastfeeding community can help reduce stigma and give mothers a sense of support (Skelton et al., 2018). Interacting with other breastfeeding mothers shows Black women that there are others who are defying negative views. Social media groups specifically for Black mothers provide a visualization of

breastfeeding role models. Groups allow Black women to share knowledge and educate themselves and others.

Along with the provided support is a sense of community. Within the social media support groups, mothers are able to reciprocate information and provide peers with shared experiences, recounting their breastfeeding struggles and victories. Breastfeeding groups exclusively for Black women emerged as an important factor. Asiodu et al. (2015) reported that participants were unaware of online communities specifically for Black breastfeeding mothers, and the desire for such a community would be beneficial to their breastfeeding journey. Similar sentiments were echoed as participants within Robison, Davis, et al. (2019) reported feeling ignored in breastfeeding in groups composed of all demographics. The inclusivity of having breastfeeding groups where Black mothers can support one another is invaluable to their breastfeeding journey (Robinson, Davis, et al., 2019). Moreover, Black British mothers turn to Black breastfeeding groups based in the United States due to a lack of such communities within the United Kingdom (Wilson, 2020). Interestingly, an increase of online communities for Black breastfeeding mothers within the last few years demonstrates the necessity and desire for Black women to have these shared spaces and also shows a culture shift among Black mothers to initiate breastfeeding.

Membership among these breastfeeding communities provided mothers with a sense of confidence in their breastfeeding abilities. Three studies discuss an increase in self-efficacy and the feeling of being empowered in their decision to breastfeed. Among Black women participants, seeing other Black mothers as breastfeeding role models increased their self-confidence on their breastfeeding journeys (Robinson, Davis, et al.,

2019). Feelings of confidence and empowerment led to longer breastfeeding duration and allowed mothers to reach personal breastfeeding goals (Eastin & Sharma, 2015; Gross et al., 2015; McCarter-Spaulding & Dennis, 2010). Although not every study reports a theme of self-efficacy, each discusses breastfeeding intention and duration.

Despite the absence of an established correlation between online breastfeeding support groups and higher breastfeeding rates, membership in such communities positively impacts breastfeeding behaviors. Results are comparable to previous studies, which indicate social support as a facilitator of breastfeeding initiation and continuance (Gross et al., 2017; Schindler-Ruwisch et al., 2019; Snyder et al., 2020). Positive interactions within online breastfeeding communities can increase the rates of breastfeeding among Black women. Social media should be considered as an option to reach underserved populations with lower breastfeeding rates. The additional support provided through social media platforms can elicit confidence and empower Black women in their breastfeeding abilities.

Limitations

Studies included in the scoping review were limited to search terms pertaining to social media platforms. Potential studies exploring other mobile applications were excluded. The lack of current literature focusing solely on Black women and social media breastfeeding groups was a limitation to this study. With few studies examining the topic, it could lead to the underrepresentation of the population. Additionally, as three studies within the scoping review included participants of various demographics, it is difficult to differentiate the specific responses of Black participants. Nonetheless, this review likely

covered the scope of current literature focusing on social media usage as a form of breastfeeding support among Black women.

Conclusion

The current scoping review contributes to the growing body of literature which focuses on racial disparities and breastfeeding behaviors of Black women. Continued research is warranted in order to further examine the direct impact that social media breastfeeding support groups have on breastfeeding initiation and duration rates among Black women. Social media platforms are easily accessible avenues for breastfeeding education and support. Therefore, incorporating social media in breastfeeding interventions for Black women can positively impact breastfeeding behaviors.

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Chapter III: Facilitators and Barriers That Impact Breastfeeding Behaviors of Black Mothers in Tennessee

Breastfeeding is the gold standard for infant nutrition and development. Human breast milk is superior to cow's milk, providing infants with antibodies to improve immunity (Georgieff, 1997). It is recommended that mothers initiate breastfeeding within the first hour of birth (World Health Organization, 2017). The American Association of Pediatrics (AAP) recommends that infants are exclusively breastfed for six months followed by continued breastfeeding for 12 months or more (Section on Breastfeeding, 2012). Exclusive breastfeeding is a protective factor against poor infant health outcomes (Section on Breastfeeding, 2012). Breastfeeding reduces the likelihood of developing health conditions such as diabetes, ear infections, respiratory infections, celiac disease, and irritable bowel syndrome (U.S. Department of Health and Human Services, 2011). In addition to reducing the disease burden, breastfeeding initiation is associated with reducing infant mortality (Chen & Rogan, 2004; Ware et al., 2019). Exclusive breastfeeding for six months may also assist with weight loss and provide a form of contraception (Trussell, 2011). Lastly, breastfeeding can reduce the risk of postpartum hemorrhaging and developing breast and ovarian cancer (Section on Breastfeeding, 2012).

Despite the health and nutritional benefits of breastfeeding initiation and duration, rates in the United States remain low. Low rates are a public health concern, as adverse maternal-infant health outcomes disproportionately impact Black mothers and infants. The racial disparity noted in breastfeeding aligns with persistent chronic health disparities among Black women. The Black population has the highest rates of chronic illness (e.g.,

hypertension, diabetes) and the worst maternal-infant health outcomes (Bartick et al., 2017). In 2019, 73.6% of Black mothers initiated breastfeeding; compared to initiation rates of Asian mothers (90.3%), Hispanic mothers (87.4%), White mothers (85.5%) (Chiang et al., 2021).

Additionally, Black mothers are at increased risk of maternal mortality. Data from the pregnancy mortality surveillance system show that Black mothers face pregnancy-related death at a rate of 42 deaths per 100,000 live births, which is three times as high as Caucasian (11 death per 100,000 live births) and Hispanic mothers (13 deaths per 100,000 live births) (CDC, 2014). Improving breastfeeding rates among Black mothers can reduce the disease burden in the Black population and improve maternal-infant health outcomes.

Tennessee Breastfeeding Rates

Within Tennessee, Black mothers and infants continue to have poor maternal and infant health outcomes. Tennessee is ranked 33rd for maternal mortality and 38th for infant mortality (Walton, 2018). Moreover, the rate at which Black mothers die from pregnancy-related death is two to three times higher than their Caucasian counterparts (Lummus & Walton, 2018). Additionally, Black infants are dying at two times the rate of Caucasian infants (Lummus & Walton, 2018). Black women are faced with factors such as structural racism and medical bias, which contribute to maternal health inequities. In addition to the variables mentioned above, Black mothers in Tennessee often have inadequate prenatal care, leading to adverse health outcomes. Only 40.7% of black mothers received adequate prenatal care (Lummus & Walton, 2018). Realized adverse health outcomes include maternal/infant mortality and poor perinatal health.

For Black mothers participating in prenatal health care, proper education during the prenatal period increases the likelihood of positive health behaviors such as breastfeeding. As stated previously, lower breastfeeding rates continue to perpetuate racial health disparities within the Black community of Tennessee.

Theoretical Framework

The social ecological model (SEM) provides a theoretical framework for explaining how multi-level variables influence breastfeeding initiation (Bentley et al., 2003; Dunn et al., 2015; Reeves & Woods-Giscombé, 2015). The model consists of five levels: intrapersonal, interpersonal, organizational, community and policy. The SEM framework allows for an in-depth examination of environmental factors contributing to the racial breastfeeding disparity. When researching disparities such as breastfeeding, it is important to identify upstream variables affecting behavior rather than solely targeting individual factors. By identifying barriers and facilitators at each framework level, practitioners can be better equipped to develop and implement effective interventions.

The intrapersonal level of the model focuses on individual behaviors such as self-efficacy and knowledge (Robinson & VandeVusse, 2011). The interpersonal level of the framework identifies variables such as breastfeeding support provided by family, peers, or a partner (Robinson, Lauckner, et al., 2019). Organizational level variables pertain to how supportive institutions such as work or school are toward breastfeeding mothers (Bentley et al., 2003). Community factors refer to social and cultural norms surrounding breastfeeding in the Black community (Kim et al., 2017). Lastly, the public policy level can be used to review federal and local breastfeeding legislation. Tennessee currently has three supportive policies for breastfeeding mothers. Mothers have the right to breastfeed

their children at any public or private place that they are authorized to be in.

Breastfeeding is not considered an act of public indecency, obscenity, nudity, or sexual conduct. The third policy indicates that employers must accommodate breastfeeding mothers at work by providing a lactation space that is not a bathroom stall and allow for breastfeeding pump breaks (Congressional Research Services, 2009).

The five levels of the SEM framework should be viewed as interdependent and interactive; variables from each level influence each other. Multiple systems impact an individual's health behaviors at once. With breastfeeding initiation and duration, the SEM provides a framework for exploring the interactions between intrapersonal factors and social and structural inequities. For instance, inadequate access to prenatal care may cause mothers to be uneducated on breastfeeding benefits. Moreover, lower-income mothers may have shorter maternity leave or work extensive hours to support their children, resulting in a lack of breastfeeding due to time constraints.

Purpose of study

Although existing literature focuses on the breastfeeding disparity between Black and White women, there is little to no research examining breastfeeding among Black women in Tennessee. Given the racial gap of breastfeeding in Tennessee, along with the percentage of the Black population experiencing higher rates of adverse health conditions, it is necessary to explore contributing factors to breastfeeding among Black women. The aim of the current study is to explore barriers and facilitators that impact infant feeding behaviors of Black mothers living in Tennessee, using the social ecological model as a framework. The following research questions were addressed:

RQ1: Do prenatal infant feeding intentions impact breastfeeding behaviors among Black mothers in Tennessee?

RQ2: What impact does self-efficacy have on breastfeeding initiation and duration rates among Black mothers in Tennessee?

RQ3: How do work environments impact breastfeeding behaviors among Black mothers in Tennessee?

RQ4: How did the COVID-19 pandemic affect breastfeeding behaviors of Black mothers in Tennessee?

RQ5: What impact does social support have on breastfeeding initiation and duration among Black mothers living in Tennessee?

RQ6: Do frequent experiences of racial discrimination decrease breastfeeding initiation and duration rates among Black mothers living in Tennessee?

RQ7: Does having a birth worker increase the likelihood of breastfeeding initiation and longer durations among Black mothers living in Tennessee?

RQ8: Do breastfeeding rates vary among regions of Tennessee for Black mothers?

RQ9: How do social/cultural norms impact breastfeeding practices among Black mothers in Tennessee?

Methods

Participants

Black women were the priority population within this study. Rather than complete a comparative study that provides the differences in breastfeeding behaviors among races, we wanted to show the perspectives of Black mothers in the state. Comprising the study population solely of Black women allows the researcher to obtain cultural and social insight into the Black community (Robinson & VandeVusse, 2011). Black women have a tragic and unique relationship with breastfeeding due to enslavement and wet nursing (DeVane-Johnson et al., 2018; Owens & Fett, 2019; Scott et al., 2019). Some Black

women continue to formula feed because it provides autonomy over their bodies.

Additionally, from decades of medical experimentation on Black and Brown female bodies, minority women may not trust their providers when receiving medical advice or care. Moreover, Black women are faced with additional determinants such as discrimination and racism that negatively impact every dimension of their health. To continue to strive for a reduction of maternal and infant health disparities, the narratives of Black women are vital. To address inequities in the health care setting, we must hear from those with lived experiences.

Eligible participants were adult (18 years and older) mothers who identified as Black (e.g., African American, Afro-Caribbean, Afro-Latinx, African or Bi/Multiracial), who resided in the state of Tennessee during their most recent pregnancy and delivery. The survey instrument was open to breastfeeding mothers as well as those who formula-fed their infants. The targeted age group were women of childbearing age (18-44 years old) (Ellington et al., 2020). Exclusion criteria were defined as mothers less than 18 years old, non-Tennessee residents, and those who identified as non-Black.

Recruitment and Data Collection

Upon approval of the Institutional Review Board at a southern regional university, adult (18 years or older) Black mothers residing throughout the state of Tennessee were recruited as participants. A convenience sample method was used to recruit participants through social media platforms and other online mechanisms. This recruitment method was most appropriate given the nature of the study and allowed women to participate during COVID-19 safely. Community organizations were contacted for participant recruitment. Organizations included: The Tennessee Breastfeeding Coalition, Birthing

Strides, Statewide Black Doula Association, Tennessee Health Disparities Task Force, Tennessee Black Nurses Association, multiple Tennessee chapters of Zeta Phi Beta Sorority, Sisters With A Purpose, Nashville National Pan-Hellenic Council Facebook group, Black People Making Moves Facebook group, various Facebook groups for Black mothers, and birthing centers. Organizations assisted in distributing the survey by posting the survey link and advertising an approved flyer to their social media pages and emailing their organization members. The survey link remained open from June 2021 to August 2021.

Measures

A 48-item questionnaire was developed to address the research questions. The questionnaire was designed to measure the variables within each construct of the SEM. Prior to data collection, the instrument was piloted within a subset of the priority population. Based on the pilot study, questionnaire items were revised. Scales with proven reliability were added to assess variables of interest. The final questionnaire took approximately 20 minutes to complete. Scales used to measure the constructs within the final questionnaire are described in the next section.

Infant Feeding Intention Scale

The Infant Feeding Intentions (IFI) scale (Nommsen-Rivers & Dewey, 2009) was used to assess the intent to breastfeed and breastfeeding duration (Research question 1). The 5-item scale uses a Likert Scale point system ranging from “very much agree” to “very much disagree” to measure participant responses. The first two items of the assessment tool were used to measure the intention to initiate breastfeeding (e.g., “I am planning to at least give breastfeeding a try). The remaining three items assessed the

intent to exclusively breastfeed at one, three, and six months. The total score ranges from 0 to 16, with a higher score indicating a greater breastfeeding intention. The reliability and validity have been assessed in a multi-ethnic population with a Cronbach's coefficient alpha score of 0.90 (Nommsen-Rivers & Dewey, 2009).

Prenatal Breastfeeding Self-Efficacy Scale

A past-tense adaption of the Prenatal Breastfeeding Self-Efficacy Scale (PBSES) was used to measure breastfeeding self-efficacy (Wells et al., 2006) (Research question 2). The PBSES is formatted as a Likert scale instrument with responses ranging from "not at all sure" to "completely sure." One example of a scale item is: "I can make time to feed my baby even if I feel busy." Psychometric analysis in a population of majority Black women resulted in a Cronbach's coefficient alpha score of 0.89 (Wells et al., 2006). The assessment tool has been found to distinguish the difference in self-efficacy among women who decided to breastfeed or formula feed in a prior study (Robinson & Vandevusse, 2011).

Work environment

Items were developed by the researcher to examine the impact that the work environment has on breastfeeding duration rates (Research question 3). Questions were based on previous literature and accommodations employers are to provide by law in Tennessee. Three items were used to assess if the work environment was accommodating to breastfeeding mothers. An example of an included question, "My employer provides lactation breaks."

COVID-19

The researcher developed questionnaire items to examine how the COVID-19 pandemic affected breastfeeding duration rates (Research question 4). Items were based on existing research and available COVID-19 breastfeeding guidelines. The item to assess breastfeeding changes inquired if mothers weaned their children earlier or later due to COVID-19. Participants could also indicate if COVID-19 did not alter their breastfeeding duration.

Network Breastfeeding Support

An adapted version of the Network Breastfeeding Support (NSB) instrument was used to measure the amount of breastfeeding support provided by various support persons (McCarter-Spaulding & Gore, 2012) (Research question 5). The instrument was designed to measure the availability and quality of support provided by one's social network with responses ranging from "not at all" to "very much" (e.g., "How important does he/she think it is breastfeeding to your baby?") The assessment tool was used to determine support variables among Black mothers with a Cronbach's coefficient alpha score of 0.87-0.90 (McCarter-Spaulding & Gore, 2012).

Discrimination in Medical Settings Scale

The Discrimination in Medical Settings scale (DMS) was used to determine the frequency of discriminatory practices in health care settings (Peek et al., 2012) (Research question 6). The assessment tool is a modification of Williams' Everyday Discrimination Scale (EDS) adapted to clinical settings. DMS is a 7-item Likert scale designed to assess the frequency of experienced discrimination in medical or clinical settings ranging from

"never" to "almost all of the time." An example of a question measuring discrimination is: "You receive poorer service than others." The DMS showed great internal consistency and validity in a population of African American population with a Cronbach's coefficient alpha score of 0.89 (Peek et al., 2012).

Cultural norms

The researcher developed survey items to assess perceived breastfeeding cultural norms within the Black community (Research question 9). The developed questions were based on existing literature and past research studies (Kim et al., 2017). Four items were used to measure perceived levels of stigma and normalcy surrounding breastfeeding in the Black community. One developed question is, "There is still a level of stigma surrounding breastfeeding in the Black community."

Demographics

The following demographic information was collected from participants: age, education level, The Special Supplemental Nutrition Program for Women, Infants, and Children's Program (WIC) status, year of most recent childbirth, relationship status, and the number of pregnancies. Participants were also asked to provide their residing county in order to determine how breastfeeding rates may vary across Tennessee (Research question 8).

Data cleaning

Survey data were downloaded from Qualtrics and uploaded to SPSS. Data were cleaned before analyses. Participants who met eligibility requirements and completed at least 50% of the questionnaire were included. Participants who did not identify as Black, were not residing in Tennessee during their most recent pregnancy, and completed less

than 50% of the survey were excluded from analyses. All quantitative data analyses were completed using IBM SPSS v 27 software.

Data analysis

Infant Feeding Intention Scale

The first item of the scale was reverse-scored, where 0 is ‘strongly agree.’ After recoding, the scores of items 1 and 2 were averaged. The calculation provided a final sum score ranging from 0 to 16. Zero indicates a very high intention to not breastfeed at all, and 16 indicates a very high intention to exclusively breastfeed for six months.

Prenatal Breastfeeding Self-Efficacy Scale

The items from the prenatal breastfeeding self-efficacy scale were each calculated and combined to give the sum score. For the current study, the total score ranged from 4 to 20. A higher scale score is indicative of greater breastfeeding self-efficacy.

Network Breastfeeding Support Scale

The mean score for each support person (mother, child’s father, healthcare provider, and peers) was calculated individually. Individual scores were then averaged together for one total mean score. Scores ranged from 0 to 3, with 0 indicating no available support at all.

Discrimination in Medical Settings Scale

In prior studies using the discrimination in medical settings scale, responses were shown to be unevenly distributed, with large percentages selecting the ‘never’ category. Based on the prior findings, multi-item scale responses were dichotomized into ‘never’ and ‘any.’ The methodology was used in a previous research study utilizing the scale (Hausmann et al., 2010).

Statistical analysis

Independent sample t-tests were used to determine the difference in means for those who initiated breastfeeding and those who did not. Binary logistic regression analysis was performed on each predictor variable to analyze their significance on breastfeeding initiation one hour after birth (seen in Table 11). Ordinal logistic regression analysis was used to determine the relationship between selected independent variables and breastfeeding duration. A 2-sided p-value $< .05$ was considered statistically significant.

Results

A total of 215 participants initiated the survey, with 177 included in the data analysis. The median age for participants was 35.5 (SD = 6.8) years old. Table 1 provides a demographic description of participants (N=177). Seventy participants held graduate degrees. One hundred and four reported being married. Forty-four participants identified as WIC recipients during the time of their most recent pregnancy. Ninety-five percent of WIC recipients reported initiating breastfeeding upon returning home from labor. Moreover, 86% of WIC participants were provided breastfeeding education, which was covered in prenatal appointments. The greatest percentage of participants in the study were Davidson County residents (54.5%).

Table 1*Descriptive Statistics*

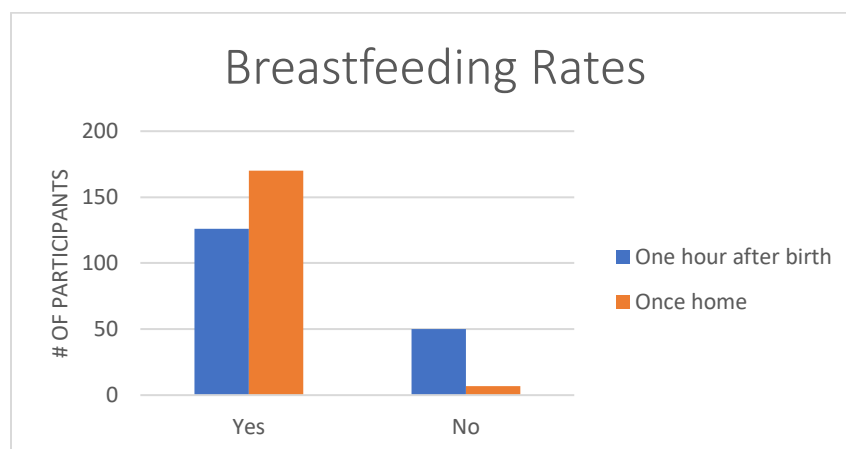
Characteristics	<i>N</i>	<i>%</i>
Total	177	
Education		
High school/GED	2	1.1
Some college	26	14.7
Associates degree	12	6.8
Bachelor's degree	47	26.6
Graduate degree	70	39.5
Missing	20	11.3
Relationship status		
Single	16	9.0
In a relationship	12	6.8
Cohabiting with partner	24	13.6
Married	104	58.8
Divorced	1	.6
Missing	20	11.3
WIC recipient		
Yes	44	24.9
No	113	63.8
Missing	20	11.3
Number of pregnancies		
Primiparous	52	29.4
Multiparous	125	70.6

Note. Primiparous = First pregnancy. Multiparous = Multiple pregnancies

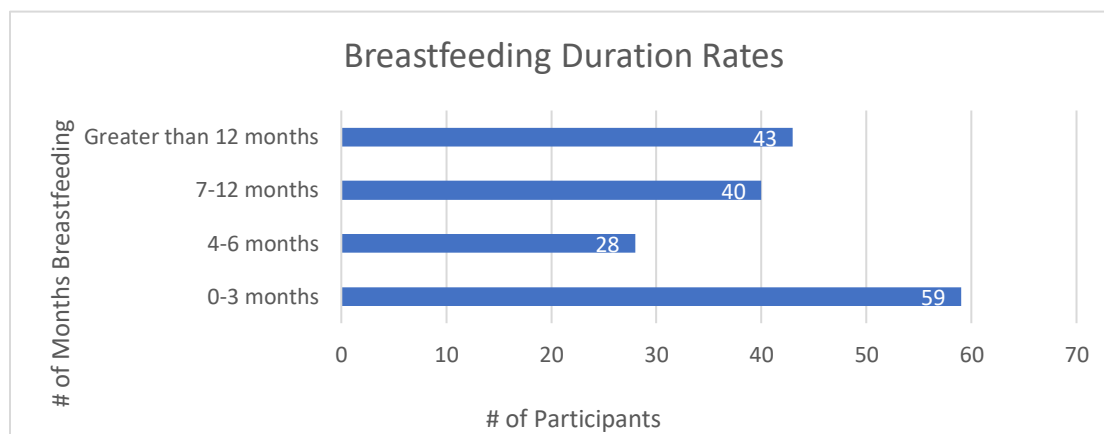
Sixty-three percent of the participants noted that they were provided with breastfeeding education during prenatal care. The majority of mothers included in this study initiated breastfeeding within one hour of giving birth (71.6%). Ninety-six percent of mothers initiated or continued breastfeeding once they returned home from the hospital (Figure 1).

Figure 1

Breastfeeding Initiation Rates



Breastfeeding mothers were asked to provide their breastfeeding duration (Figure 2). In qualitative responses for breastfeeding cessation, many participants reported that they were unable to meet breastfeeding demands due to work, their milk supply began to reduce, or they felt it was time upon reaching their breastfeeding goals.

Figure 2*Breastfeeding Duration Rates***Research question 1: Infant feeding intentions**

Infant feeding intentions scale scores were calculated to determine prenatal infant feeding intentions as a predictive variable of breastfeeding practices. Results indicate that infant feeding intention scores were not a significant predictor in breastfeeding initiation (OR = 1.037; 95% CI = .928, 1.159; $p = .524$) or duration rates ($p = .229$) (Table 2). Additionally, there was not significant difference in the group means for those who breastfed within one hour ($M = 13.66$, $SD = 2.7$) and those who did not ($M = 13.35$, $SD = 3.4$); $t(174) = .634$, $p = .527$).

Table 2*Ordinal Regression for Infant Feeding Intentions*

Variable		Estimate	SE	<i>p</i>	95% CI	
					Lower	Upper
Threshold BF Length	(0-3 months)	0.218	0.723	0.763	-1.199	1.634
	BF Length	0.901	0.726	0.214	-0.522	2.324
	(4-6 months)					
	BF Length	1.942	0.738	0.008	0.496	3.388
	(7-12 months)					
Location	Infant feeding intentions	0.062	0.051	0.229	-0.039	0.163

Note. BF = Breastfeeding

Research question 2: Prenatal self-efficacy

Results indicate a significant difference in mean scores between the two groups $t(171) = 3.71, p < .001$; those who initiated ($M = 17.3, SD = 2.5$) compared to those who did not ($M = 15.5, SD = 3.6$). As self-efficacy scores increase by a factor of .201, a participant is 1.2 times more likely to initiate breastfeeding within one hour ($OR = 1.22$; $95\% CI = 1.087, 1.375$; $p < .001$). Similarly, there was a statistically significant relationship between self-efficacy scores and breastfeeding duration. As a participant's self-efficacy score increased, the likelihood of longer breastfeeding duration increased as well ($p = .005$) (Table 3).

Table 3

Ordinal Regression for Prenatal Self-Efficacy

Variable		Estimate	SE	<i>p</i>	95% CI	
					Lower	Upper
Threshold BF Length (0-3 months)		1.798	0.884	0.042	0.066	3.530
BF Length (4-6 months)		2.515	0.894	0.005	0.763	4.267
BF Length (7-12 months)		3.572	0.913	0.000	1.783	5.362
Location	Prenatal self-efficacy	0.146	0.052	0.005	0.044	0.248

Note. BF = Breastfeeding

Research question 3: Work environment

A subset analysis on participants who reported working outside of the home during their most recent pregnancy was conducted (n=112). Of those who were breastfeeding, twenty-nine percent reported breastfeeding between 0-3 months; additionally, twenty-nine percent breastfed for longer than twelve months. An ordinal regression analysis was conducted to determine if working environmental variables such as a lactation space, access to a refrigerator for milk storage, and pumping breaks impacted breastfeeding duration. Employer-provided lactation space was not significant to breastfeeding duration rates among breastfeeding mothers working outside of the home ($p = .783$). None of the participants within this subpopulation reported access to a refrigerator for milk storage. Moreover, none reported having employer-provided lactation breaks (Table 4).

Table 4*Ordinal Logistic Regression Analysis for Work Environment*

		Variable	Estimate	SE	<i>p</i>	95% CI	
						Lower	Upper
Threshold	BF Length (0-3 months)		-0.885	0.256	0.001	-1.389	-0.381
	BF Length (4-6 months)		-0.178	0.241	0.461	-0.65	0.294
	BF Length (7-12 months)		0.817	0.255	0.001	0.318	1.317
Location	Lactation space not provided		-0.107	0.388	0.783	-0.868	0.654
	Lactation space provided (reference)		0 ^a				
	Lactation breaks provided (reference)		0 ^a				
	Work fridge provided (reference)		0 ^a				

Note. BF = Breastfeeding. ^a0= Reference group

Research question 4: COVID-19

Given the global pandemic, we chose to examine the breastfeeding behaviors of Black women during this time period. A total of 72 participants reported breastfeeding during the COVID-19 global pandemic. Additionally, the questionnaire inquired if they were aware of the breastfeeding guidelines during COVID-19 and if their health care providers shared any information. Participants were also asked, “Did the COVID-19 pandemic impact your breastfeeding behaviors?” Sixty-six percent stated no change in their planned breastfeeding duration, while 30% extended their breastfed duration. Four percent chose to cease breastfeeding sooner than originally planned. Interestingly, more than half of the participants (67%) did not receive any breastfeeding guidance or

education from their healthcare provider to assist in continued breastfeeding safely and healthily.

Research question 5: Social support

The source of social support with the highest mean score was the child's father ($M = 1.59$, $SD = .545$). Peers were reported as the lowest score ($M = 1.33$, $SD = .625$) (Table 5). Although the lowest social support score was for peer support, 67% agreed that interacting with other Black mothers was a source of support in their infant feeding decision.

Social support scale mean scores between those who initiated breastfeeding within one hour had greater social support scores ($M = 2.39$, $SD = .504$) than those who did not ($M = 2.14$, $SD = .694$); $t(165) = 2.48$, $p = .014$). For breastfeeding initiation, for each .711 point increase on the social network support scale, a participant is 2.0 times more likely to initiate breastfeeding within one hour ($OR = 2.03$; 95% $CI = 1.133, 3.656$; $p = .017$). The social network scores were not significant to breastfeeding duration ($p = .759$) (Table 6).

Table 5

Network Breastfeeding Support scores

<u>Support person</u>	<u>Mean</u>	<u>SD</u>
Child's father	1.59	.545
Healthcare professional	1.55	.497
Mother	1.40	.671
Peers	1.33	.625

Table 6*Ordinal Logistic Regression for Social Support*

Variable	Estimate	SE	<i>p</i>	95% CI	
				Lower	Upper
Threshold BF Length (0-3 months)	-0.879	0.656	0.181	-2.164	0.407
BF Length (4-6 months)	-0.207	0.653	0.751	-1.486	1.072
BF Length (7-12 months)	0.847	0.656	0.197	-0.439	2.133
Location Social support	-0.082	0.269	0.759	-0.610	0.445

Note. BF = Breastfeeding

Research question 6: Discrimination in medical settings

Participants identified with few items on the discrimination in medical setting scale. Seventy-nine percent of participants reported that they received poorer service than others, while 70% noted that they do not feel like a nurse or doctor listens to them. Additionally, 69% felt as if they were treated with less courtesy than others. Despite high reports of discrimination, none of the items on the scale had a significant impact on breastfeeding initiation or duration rates; poorer service ($p = .3710$), felt a doctor/nurse not listening ($p = .249$), doctor/nurse acts as if they are better than you ($p = .482$), acts as if you are not smart ($p = .343$), acts afraid of you ($p = .823$), treated with less respect ($p = .616$) and treated with less courtesy ($p = .999$) (Table 7).

Table 7*Ordinal Logistic Regression Model of DMSS Items*

	Variable	Estimate	SE	<i>p</i>	95%CI	
					Lower	Upper
Threshold	BF Length (0-3 months)	-0.718	0.308	0.020	-1.322	-0.113
	BF Length (4-6 months)	-0.052	0.302	0.862	-0.644	0.540
	BF Length (7-12months)	1.025	0.315	0.001	0.407	1.642
Location	Dr/nurse act as if they are better than you	0.320	0.455	0.482	-0.572	1.212
	Dr/nurse act as if they are better than you (reference)	0 ^a				
	Receive poor service	-0.460	0.515	0.371	-1.469	0.548
	Receive poor service (reference)	0 ^a				
	Dr/nurse act as if you are not smart	-0.471	0.497	0.343	-1.445	0.502
	Dr/nurse act as if you are not smart (reference)	0 ^a				

Dr/nurse act afraid of you	0.087	0.389	0.823	-0.675	0.848
Dr/nurse act afraid of you (reference)	0 ^a				
Treated w/ less respect	-0.281	0.561	0.616	-1.381	0.818
Treated w/ less respect (reference)	0 ^a				
Treated w/ less courtesy	-0.001	0.576	0.999	-1.130	1.128
Treated w/ less courtesy (reference)	0 ^a				
Dr/nurse do not listen	0.529	0.459	0.249	-0.371	1.429
Dr/nurse do not listen (reference)	0 ^a				

Note. BF = Breastfeeding. ^a0 = Reference groups.

Research question 7: Birth workers

Few participants reported having a doula (12.4%) and/or midwife (14.1%) as part of their birthing experience. It was determined that having a birth worker was a significant determinant of initiating breastfeeding within one hour after birth. Compared to participants with a doula, those without a doula were less likely to breastfeed within one hour (OR = .221; 95% CI = .050, .983; $p = .047$). Similarly, those without a midwife are less likely to not initiate breastfeeding within one hour of birth compared to those with a midwife (OR = .197; 95% CI, .045, .872; $p = .032$).

In terms of breastfeeding duration, study participants without a midwife were less likely to have greater duration rates than those with a midwife ($p = .007$) (Table 8). The assistance of a doula was not a significant determinant in breastfeeding duration rates ($p = .390$) (Table 9). Participants who reported utilizing a birth worker as a part of their birthing experience were asked to provide their reasons for having a doula or midwife. Many noted the additional support and advocacy that a birth worker can provide for Black women during prenatal care and labor.

“It was my first pregnancy and I was aware of the black maternal mortality rate and wanted someone advocating for me.” – 30 years old

“I wanted to make sure I was listened to and protected during my child birthing experience. I did research, so I knew that having a midwife and a doula would statistically improve my health outcomes.” – 36 years old

“They were more holistic and I felt that they had a patient centered care approach instead of a one size fits all.” – 25 years old

Table 8
Ordinal Regression for Midwife

Variable	Estimate	SE	p	95% CI	
				Lower	Upper
Threshold BF Length (0-3 months)	-1.622	0.401	0.000	-2.408	-0.837
BF Length (4-6 months)	-0.929	0.390	0.017	-1.692	-0.165
BF Length (7-12 months)	0.152	0.382	0.690	-0.597	0.901
Location W/out Midwife	-1.105	0.410	0.007	-1.910	-0.301

With Midwife
(reference) 0^a

Note. BF = Breastfeeding. ^a0 = Reference groups.

Table 9

Ordinal Regression for Doula

Variable		Estimate	SE	<i>p</i>	95% CI	
					Lower	Upper
Threshold BF Length (0-3 months)		-0.957	0.405	0.018	-1.750	-0.163
	BF Length (4-6 months)	-0.279	0.399	0.485	-1.061	0.504
	BF Length (7-12 months)	0.763	0.403	0.059	-0.028	1.553
Location	W/out Doula	-0.361	0.420	0.390	-1.184	0.462
With Doula (reference)		0 ^a				

Note. BF = Breastfeeding. ^a0 = Reference group.

Research question 8: Breastfeeding rates across the state

Eighty-four percent of participants were Middle Tennessee residents. Therefore, we were unable to calculate breastfeeding rates by county. A total of 72.7% of Middle Tennessee participants reported that they initiated breastfeeding within one hour of birth. Little variability existed among duration rates; 0-3 months (30.3%), 4-6 months (17.6%), 7-12 months (26.8%) and greater than 12 months (25.3%).

Research question 9: Cultural/Social norms

Responses to cultural/social norms indicate a cultural shift within the Black community. One hundred twenty-four participants disagreed that there was a lack of support for breastfeeding within the Black community. However, only 62 participants

agreed that they had many Black breastfeeding mothers within their community (family/peers). Additional items gauged responses on the level of stigma and normalization surrounding breastfeeding. Of the four items pertaining to stigma and normalization, none were statistically significant. Items were: Many breastfeeding mothers in the community ($p = .969$), Level of stigma ($p = .665$), Breastfeeding is normalized ($p = .260$), Lack of cultural support ($p = .436$) (Table 10).

In addition to quantitative survey responses, participants were asked if there were any unique cultural variables impacting breastfeeding behaviors in the Black community. Wet nursing was mentioned as a source of stigma. Also, older generations in the Black family may influence a mother's infant feeding decisions.

"The stigma of Black women as wet nurses during slavery is a persistent negative perception associated with breastfeeding." – 49 years old

"Cultural context of breastfeeding during slavery provides a unique lens through which breastfeeding may be viewed for black women. In my opinion, this problematic history makes breastfeeding my own child and improving both of our health very empowering." – 41 years old

"Breastmilk isn't enough for black babies. They need cereal in their bottles They won't sleep through the night. It's not regular milk All things I was told/heard as a new mom." – 31 years old

"There's a stigma that breast milk is "not enough." Even my very supportive mother has said "That baby is still hungry" after seeing me breastfeeding." – 34 years old

Table 10

*Ordinal Logistic Regression for
Cultural/Social Norms*

					95% CI	
Variable		Estimate	SE	<i>p</i>	Lower	Upper
Threshold	BF Length (0-3 months)	-0.240	0.430	0.577	-1.083	0.603
	BF Length (4-6 months)	0.466	0.431	0.280	-0.380	1.311
	BF Length (7-12 months)	1.572	0.447	0.000	0.695	2.449
Location	Many BF mothers in community	-0.012	0.319	0.969	-0.638	0.613
	Many BF mothers in community	0 ^a				
	There is a level of stigma	-0.195	0.449	0.665	-1.074	0.685
	There is a level of stigma (reference)	0 ^a				
	BF not normalized	0.501	0.445	0.260	-0.371	1.374
	BF not normalized (reference)	0 ^a				
	Lack of cultural support	0.380	0.488	0.436	-0.576	1.336
	Lack cultural support (reference)	0 ^a				

Note. BF = Breastfeeding. ^a0 = Reference groups.

Additional analysis

Along with the individual analysis, additional regression analyses were performed to determine interactions among main predictors and their impact on breastfeeding behaviors. Based on previous literature, a binary logistic regression was completed to examine the effects of self-efficacy, social support, and the aid of a doula on breastfeeding initiation within one hour of delivery when controlling for education level and relationship status. The model was statistically significant, $X^2(12) = 33.629$, $p = .001$. Collectively, these variables explain 28.8% of the variance of the breastfeeding initiation within one hour (Nagelkerke $R^2 = .228$) (Appendix A). Findings indicate that the combined influence of self-efficacy, social support, and the aid of a birth worker are significant predictors for breastfeeding initiation within one hour. An ordinal logistic regression model containing the variables prenatal self-efficacy, social support, and two items from the DMS scale (treated with less courtesy and Dr/nurse does not listen to you) was performed to determine the effects that they have on breastfeeding duration rates. Together, these predictors were found to have a significant relationship with the length of breastfeeding, $X^2(4) = 10.108$, $p = .039$. Although the model was significant, it only accounts for 7% of the variance (Nagelkerke $R^2 = .070$). Overall, the variables account for a very small percentage of breastfeeding duration determinants (Appendix B).

Table 11

*Binary Regression Analysis
for All Main Predictors*

Variable	B	SE	OR	<i>p</i>	95% CI	
					Lower	Upper
Prenatal self-efficacy	0.201	0.060	1.222	0.001	1.087	1.375

Constant	-2.380	0.992	.093	0.017		
Infant feeding intentions	0.036	0.057	1.037	0.524	0.928	1.159
Constant	0.437	0.781	1.547	0.576		
Social support	0.711	0.299	2.035	0.017	1.133	3.656
Constant	-0.649	0.691	0.523	0.348		
Doula No	-1.510	0.762	0.221	.047	0.050	0.983
Constant	2.303	0.742	10.000	0.002		
Midwife No	-1.625	0.759	0.197	0.032	0.045	0.872
Constant	2.398	0.739	11.000	0.001		
Many women breastfeeding in my community	0.274	0.392	1.315	0.485	0.610	2.834
There is still a level of stigma surrounding breastfeeding in the Black community	-0.081	0.554	0.923	0.884	0.312	2.730
Breastfeeding is not normalized in the Black community	0.240	0.521	1.271	0.645	0.485	3.533
There is a lack of cultural support for breastfeeding	0.199	0.596	1.220	0.739	0.610	2.834
Constant	0.578	0.512	0.820	1.783		
A doctor or nurse acts as if they are better than you	-0.021	0.560	0.979	0.970	0.327	2.938
You receive poorer service than others	0.306	0.614	1.358	0.618	0.408	4.520

you are treated with less courtesy than others	0.148	0.689	1.160	0.830	0.300	4.475
You are treated with less respect than others	-0.947	0.680	0.388	0.164	0.102	1.471
A doctor or nurse acts as if you are not smart	0.200	0.607	1.221	0.742	0.372	4.009
A doctor or nurse acts as if they are afraid of you	0.238	0.488	1.269	0.626	0.487	3.300
You feel like a doctor or nurse is not listening to what you are saying	0.075	0.556	1.078	0.893		
Constant	1.016	0.354	2.762	0.004		

Note. Midwife and Doula reference groups is “yes.” Cultural norms items reference group is “agree.”
DMS scale items reference groups is “any.”

Discussion

To the researcher’s knowledge, this is the first study to utilize a quantitative approach to examine multi-level variables of breastfeeding initiation and duration among Black mothers in Tennessee. In the current study, 96% of participants were breastfeeding mothers. Due to the large percentage, the primary dependent variable for breastfeeding initiation was if a participant initiated breastfeeding within one hour rather than if they initiated once they were home from the hospital.

The large percentage may be due in part to the convenience sampling method utilized for this study. Additionally, mothers who breastfeed may have greater interests and knowledge in infant feeding practices; they are more inclined to participate in research and share their breastfeeding experiences. Many participants were college-

educated women; their level of education may also indicate that they were more likely to breastfeed. The mean participant age along with the high percentage of Black breastfeeding could also be an indication of a cultural or generational shift in the Black community, with increasing breastfeeding education and reduced stigma.

Results of the current study confirm several multi-level variables shown to impact breastfeeding behaviors in prior studies. The significant predictor of breastfeeding initiation was the aid of a doula. Findings indicate that prenatal self-efficacy, social support, and the aid of a midwife were significant predictors of both breastfeeding initiation and duration. Infant feeding intentions, discrimination, cultural/social norms, and the work environment did not have a significant effect on breastfeeding initiation or duration rates. Additional research studies should be completed to further examine the impact of these variables on breastfeeding behaviors of Black women in Tennessee. Similar to previous literature, this study implicates the importance of initiation and duration for breastfeeding Black mothers (Gross et al., 2017; McCarter-Spaulding & Gore, 2012; Robinson & VandeVusse, 2011). Given the low breastfeeding rates for Black women in Tennessee, initiatives that incorporate social support and assist Black women in developing self-efficacy during prenatal care should be reviewed as well.

Current study findings indicate that self-efficacy is predictive of breastfeeding initiation and continuance. Participants with greater self-efficacy scores were more likely to initiate breastfeeding within one hour and have longer breastfeeding durations. The literature identifies breastfeeding confidence as a significant promoter among Black women (McCarter-Spaulding & Dennis, 2010; Robinson & VandeVusse, 2011). Having high levels of self-efficacy allows mothers to feel confident in their breastfeeding abilities

and overcome potential barriers such as latching issues and time management. Study participant responses from the current study indicate that although breastfeeding may not be the socially accepted norm, Black women are becoming confident and empowered in their breastfeeding decision. Increasing the level of self-efficacy during the prenatal period could be pivotal in improving breastfeeding initiation rates and deterring early breastfeeding cessation.

The level of social support provided was also indicative of breastfeeding initiation and continuance. Infant feeding decisions can be influenced by the opinions and attitudes of one's support network (McCarter-Spaulding & Gore, 2012; Robinson, Lauckner, et al., 2019). Within the study, the child's father provided the greatest level of support compared to the mother, peers, and health care provider. Previous literature has explored the role of the father on breastfeeding behaviors. Based on the current study, fathers can help to facilitate or undermine a mother's effort to initiate breastfeeding (Bugg et al., 2021; Mwamba, n.d.). Active Black fathers are caregivers, providers and are involved in decision-making pertaining to their infant. As the role of a co-parent, their opinions are highly regarded by the mothers of their children. If a father is reluctant to the idea of breastfeeding, the mother may choose to formula feed to appease her partner. Educated fathers are more equipped to support and understand the health benefits of breastfeeding (Bugg et al., 2021). Providing Black fathers with adequate breastfeeding education allows them to be supportive and encouraging partners.

Although peers had the lowest social support score, more than half of participants noted that interactions with other Black mothers in their peer group were influential on their infant feeding decision. Responses may suggest that participants searched outside of

their immediate peer group for breastfeeding advice. Black breastfeeding mothers are now able to connect through social media forums. Support groups provide a safe space to discuss breastfeeding challenges among women with shared social experiences (Robinson, Davis, et al., 2019). For Black women who rarely see breastfeeding mothers, support groups provide an opportunity to interact with Black breastfeeding role models. Representation is important, and peer observation can be empowering (Asiodu et al., 2015).

For the current study, work environment was not a statistically significant indicator of breastfeeding duration. High levels of social support and self-efficacy may explain the findings. Working mothers with high levels of support may be able to better balance work and home life and continue breastfeeding at work. For those with high self-efficacy, reaching their breastfeeding goals may supersede any potential barriers, which can include work schedules. The results demonstrated a lack of accessibility to breastfeeding essentials in the workplace. Responses may be due in part to a lack of clarity in the questions. However, a large percentage of working mothers reported a lack of refrigeration for milk storage and lactation breaks. Therefore, policies for lactating employees should be reevaluated. The lack of accommodations can create additional breastfeeding barriers for lower-income mothers (DeVane-Johnson et al., 2017; Gross et al., 2015; Lutenbacher et al., 2016).

An interesting finding within the study was the lack of significance for prenatal infant feeding intentions on breastfeeding initiation and durations. The finding may be a result of recall bias. Given the length of time between pregnancy and research participation, participants may not accurately recall the level of breastfeeding intention

during their prenatal period. It could be postulated that despite a mother's intentions to breastfeed their infant for a specific duration, they were unable to meet their breastfeeding goals due to circumstantial barriers. Further analysis should be conducted to examine how social determinants, or a lack of support could alter prenatal feeding intentions.

The potential impact of the COVID-19 global pandemic on the breastfeeding behaviors of Tennessee Black mothers was of interest, given the existing disparities. Many breastfeeding mothers reported that they were not provided with any information to breastfeed their infant safely during the pandemic. Interestingly, a very small percentage opted to wean their infants earlier than planned. More than half of the participants stated that their breastfeeding plans did not change. In qualitative responses, participants reported they felt breastfeeding during the pandemic was the healthiest option for their baby. They believed their breast milk was a protective measure for their infant to fight any potential transmission of COVID-19. The COVID-19 quarantine period may have allowed Black mothers at home to develop a feeding schedule.

Surprisingly, culture and social norms were not predictive of breastfeeding initiation or continuance within the current study. Findings may point to a shift in the culture where more Black mothers are open to the idea of breastfeeding and understand the health benefits it provides (Kim et al., 2017). The shift in culture is salient to the current study sample, as most participants were college-educated women. It is plausible to assume that breastfeeding norms within the Black community may be changing among Black, educated women. However, in open-ended questions, participants reported being faced with negative perceptions or attitudes towards breastfeeding. Many noted that wet

nursing and slavery are still affecting breastfeeding behaviors of Black women. Another repetitive theme was that older maternal figures are a source of stigma. Ideas that that breastfeeding is not a “Black” thing and breast milk does not sustain Black infants persists. Within the Black community, new mothers look to matriarchal figures for guidance; generational lessons are passed down (Muse et al., 2021; Otarola et al., 2021). Older maternal figure perspectives are influenced by experienced discrimination, racism, and stereotyping. During their time, Black women breastfeeding perpetuated the idea of a “mammy” and faced disparaging comments. Additionally, companies began to market formula to Black women as a representation of high economic status during their time (Freeman, n.d.). Based on advertising, Black women started to believe that only lower-class women breastfed because they could not afford formula. Given the historical instances that older Black women endured, common perceptions of breastfeeding are often negative. Continued breastfeeding education within the Black community can assist in alleviating these stigmas and misconceptions.

Discrimination has been shown to contribute to poor health outcomes and behaviors (Carter et al., 2017; Mouzon et al., 2017). Conversely, in this study, discrimination was not predictive of breastfeeding behaviors. The lack of significance may be indicative of the strength Black women possess. Overcoming multiple acts of racial discrimination and bias speaks to the resilient nature of Black women. Although sometimes seen as a negative trope, the “strong Black women” schema speaks to the ability of Black women to overcome psychosocial and structural stresses of life (Abrams et al., 2014; Nelson et al., 2016). Resilience was demonstrated within the current study,

as participants were able to successfully breastfeed, even when faced with instances of perceived discrimination.

WIC is an essential avenue for educating lower-income minority women on the benefits of breastfeeding. Although WIC recipients have reported negative feedback on breastfeeding, many WIC programs will provide mothers with breastfeeding materials (DeVane-Johnson et al., 2017). Within the current study, 42 out of 44 (95%) WIC recipients reported initiating breastfeeding upon returning home from labor. Additionally, 86% noted that breastfeeding education was covered in prenatal appointments. Developing programs in connection with WIC is a viable option to ensure that lower-income women have equitable prenatal care. Education ensures that women challenged by social determinants, such as low-income, housing challenges, stress, and racism are provided with adequate information.

Utilizing the SEM framework for this study has demonstrated how multiple level factors influence health behaviors. Similar to previous studies, social support can positively influence self-efficacy (McCarter-Spaulding & Gore, 2012). Encouraging social interactions provide Black women with the support and confidence to successfully breastfeed. Social support can reduce the negative impacts of stress and potential barriers. Combined, social support and self-efficacy may reduce the effects of discrimination and the hardships of a non-accommodating work environment.

Although not a significant predictor, in qualitative responses, cultural norms were reported to influence breastfeeding perceptions and act as a potential barrier for Black women (DeVane-Johnson et al., 2018; Kim et al., 2017). Negative cultural norms can have an adverse impact on a Black woman's attitude and confidence pertaining to

breastfeeding. Taking in negative opinions can cause a Black woman to feel inadequate as a breastfeeding mother or lack confidence in her decision.

An interaction between the organizational level and interpersonal level was also demonstrated within the study. Due to systemic discrimination in health care, Black women sought additional social support from birth workers. Doula and midwives can act as advocates and support persons to ensure Black women receive the best possible care and are provided with proper education. Additionally, legislation and policies can greatly affect one's individual behaviors. Policy level variables pertaining to maternity leave can affect breastfeeding self-efficacy. Mothers returning to work may lack the confidence to maintain a feeding schedule while working outside of the home. Although not all predictors in the study were significant for breastfeeding practices, interactions between levels of the SEM are evident. In addition to the stress of motherhood, Black women are faced with psychosocial, social, and cultural barriers which can influence breastfeeding behaviors. To fully address the disparity, it is important to reduce the macro-level inequities that impact behavior.

Study findings demonstrate that theory alone does not fully explain individual behaviors. Given the high percentage of breastfeeding participants, we expected intention to be predictive of breastfeeding behaviors. Furthermore, study participants reported high levels of discrimination; yet mothers chose to breastfeed in spite of discriminatory actions. In addition to theories, researchers should take into account additional social and environmental factors that can impact behaviors.

Limitations

Convenience sampling method was used for the current study, which increases the likelihood of introducing selection bias. The primary recruitment sites and restrictions placed on participation eligibility may have contributed to the small sample size. Additionally, the COVID-19 pandemic was a potential obstacle to recruitment and questionnaire completion. Participants may have also faced potential barriers and facilitators that were not mentioned or examined in the survey, which impacted their infant feeding choices. Despite the survey being open to eligible participants across the state, many resided within Davidson County, Tennessee. With such high prevalence rates, further analysis should be conducted to determine if there are specific facilitators mediating breastfeeding initiation among Black women. Additionally, analysis on a larger and more evenly distributed sample should be conducted to determine if breastfeeding rates vary by county or region.

A primary source of recruitment was through social media groups. According to the literature, membership in social media groups can act as a breastfeeding promoter (Asiodu et al., 2015; Robinson et al., 2019). Given that study participants were social media group members, this may explain high levels of self-efficacy and breastfeeding rates. Study results may vary in the general population. Lastly, within the demographic section of the questionnaire, the missing participant information is likely a result of a technical error within the system. A group of participants in sequential order (ex. 135-143) had the same pattern of missing and answered demographic questions. The pattern indicates that an error occurred within this time, which caused questions to either not be displayed or skipped.

Chapter IV: Dissertation Summary

Public health officials consider breastfeeding to be the optimal choice for infant feeding practice as it provides health benefits to not only the infant but the mother as well. (Satcher, 2001). Breast milk provides an infant with nutrients and antibodies for proper development and is a protective factor against certain illnesses (Section on Breastfeeding, 2012). Moreover, it has been found to reduce the likelihood of infant mortality (Ware et al., 2019), which impacts Black infants at much greater rates (Mathews et al., 2015). Increasing breastfeeding rates among Black mothers could facilitate the reduction of several racial disparities with higher prevalence rates within the Black community. Explorative studies such as this add to the growing body of research focusing on maternal and infant racial disparities.

The purpose of article 1 was to examine the use of social media as a form of breastfeeding social support for Black women. A total of six articles were included in the scoping review of the literature. Results indicate that social media breastfeeding groups provide mothers with informational, social, and emotional support. Breastfeeding support groups provided mothers who may lack a strong in-person support network; the online interactions were methods for receiving information and sharing breastfeeding experiences.

The primary themes which emerged from the literature were self-efficacy, empowerment, and community. Articles within the scoping study note that the various forms of support provided to Black breastfeeding mothers increases their confidence in their breastfeeding abilities. Additionally, mothers were provided with information and encouragement to overcome breastfeeding challenges. Participants within included

studies used the term “empowered” to describe their decision to breastfeed.

Encouragement and information provided by their breastfeeding peers allowed them to overcome feelings of self-doubt.

Lastly, mothers noted the sense of community within online breastfeeding groups. Women within the Black community discussed existing levels of stigma surrounding breastfeeding. Since some Black mothers may lack familial breastfeeding role models, online communities provided a needed resource. Moreover, online breastfeeding groups specifically for Black women provided a “safe space” where women of shared cultural experiences and realities could support one another. Black breastfeeding communities also demonstrate the cultural/generational shift within the community, as more Black mothers are becoming educated on the importance of breastfeeding.

The scoping study demonstrates that belonging to an online breastfeeding community can have a positive impact on breastfeeding behaviors. In all six of the included articles, mothers reported meeting or exceeding their breastfeeding goals. Many credited their breastfeeding success to the encouragement and support they received from their online community. The results of the scoping review indicate that utilizing social media breastfeeding groups can better inform subpopulations, such as Black women, on the benefits of breastfeeding. It can also be used as a promotion tool to improve breastfeeding rates.

Article 2 focused on facilitators and barriers that influence breastfeeding behaviors among Black mothers residing in the state of Tennessee. Based on the social ecological model, a quantitative survey was developed to explore micro and macro-level variables of breastfeeding. The constructs of the questionnaire were composed of

intrapersonal, interpersonal, organization, cultural predictors based on existing literature and research.

The main intrapersonal variables within the study were self-efficacy and infant feeding intentions. The interpersonal level focused on the availability and quality of social support provided by one's social network. The interpersonal level also focused on the additional support and assistance of a birth worker. The organizational level explored the participant's work environment. The community level focused on cultural and social norms as well as discrimination. Lastly, the policy section focused on current breastfeeding legislation in the state of Tennessee. The social ecological model was chosen as the framework for this study to not only examine the immediate surroundings of Black mothers in Tennessee but also explore upstream variables which may impact infant feeding decisions.

Study findings indicate that intrapersonal and interpersonal level factors have the greatest impact on participants' breastfeeding behaviors. Additional domains such as organizational and cultural variables were found to have no statistical significance on breastfeeding initiation and duration rates. Self-efficacy and social support impacted breastfeeding initiation and duration. Participants with higher prenatal self-efficacy and social support were more likely to initiate breastfeeding within one hour and were more likely to breastfeed longer than participants with lower scores. Additionally, the aid of a birth worker was determined to positively influence breastfeeding practices. Participants who reported having a birth worker were more likely to initiate breastfeeding, and those with a midwife were shown to have increased odds of breastfeeding for greater lengths.

The results of the current study appear to be similar to previous research, as self-efficacy and social support are important facilitators to breastfeeding initiation for Black women. Through increased confidence and support, Black women are more empowered in their choice to breastfeed as well as in their breastfeeding abilities. Study findings demonstrate the impact that positive interactions can have on a Black woman's mental, emotional, and physical health.

Prospective barriers such as work environment, discrimination, and negative perceptions of breastfeeding in the Black community were not significant in the study. One assumption could be that facilitators such as social support and self-efficacy are mediators in the relationship between the aforementioned barriers and breastfeeding behaviors. Although it was not included in the main results, a bivariate analysis showed a negative relationship between social support and an item from the discrimination in medical settings scale. As social support increases, DMS scale scores decrease. Positive social support can potentially help to reduce the adverse effects of perceived discrimination and other negative interactions. Black women, along with the support of a strong community, have the resilience to overcome historical traumas and systemic discrimination. The lack of significance may also be explained by positive attitudes and intentions towards breastfeeding. With many participants choosing to breastfeed, they may be considered breastfeeding champions with great intent to breastfeed despite negativity or challenges.

During the recruitment process, I was met with enthusiasm from many participants. There were shared sentiments that this type of study is needed and important for the Black community. The warm reception demonstrates that Black women are

willing and interested in participating in research studies, despite many outlets reporting the lack of minority research participation (Brown Speights et al., 2017; Hughes et al., 2017). Also, the dissemination of research pertaining to maternal and infant health disparities are a growing topic of interest among Black women (Chinn et al., 2021; Oribhabor et al., 2020). Additionally, I believe it is important as researchers to examine our recruitment methods. If the primary method of recruitment is through channels that are rarely available to or frequented by minorities, participant numbers will be sparse. It is possible to increase the participation of people of color through culturally appropriate advertisement and engagement within racial minority community spaces for recruitment. Actively meeting communities where they are can increase medical/research trust.

Given the low breastfeeding rates of Black women in Tennessee, findings from the current study provide potential facilitators which should be explored. Incorporating social support and self-efficacy into prenatal care and breastfeeding initiatives across the state may help to increase breastfeeding initiation rates among Black mothers. Additionally, providing Black mothers with information on birth workers and how they provide advocacy and support during their birthing experience is essential. Low-income women may benefit from the information, as they may be eligible for programs that provide the services of a doula or a midwife. Study findings show that given adequate confidence and support, Black women in the state of Tennessee are able to overcome barriers and initiate breastfeeding. Continued efforts should be made to address the disparity and develop interventions to improve breastfeeding rates.

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APPENDICES

Appendix A: Binary Regression Model with Main Predictor Interactions

Binary Logistic Regression Model with Interactions for Breastfeeding Initiation

Variable	<i>B</i>	SE	OR	<i>p</i>	95% CI	
					Lower	Upper
Step 1						
Prenatal self-efficacy by social support	0.075	0.032	2.117	0.018	0.872	0.987
What is the highest education level you have completed? * prenatal self-efficacy				0.015		
Highest education level (Diploma/GED) by prenatal self-efficacy	0.047	0.143	1.048	0.741	0.721	1.262
Highest education level (Some college) by prenatal self-efficacy	0.104	0.044	0.902	1.110	0.827	0.983
Highest education level (Associates) by prenatal self-efficacy	0.001	0.045	1.001	0.974	0.914	1.090
Highest education level (Bachelor's) by prenatal self-efficacy	0.115	0.036	0.892	1.122	0.831	0.957
You feel like a doctor or nurse is not listening to what you were saying by prenatal self-efficacy	-0.068	0.029	.934	0.018	1.012	1.133
Midwife by social support	0.631	0.315	1.879	0.045	0.287	0.986
Infant feeding intentions by social support	-0.057	0.036	0.945	0.119	0.986	1.136
What was your relationship status during most pregnancy/delivery? * social				0.203		

support						
Relationship status (single) by social support	-0.436	0.359	.647	0.224	0.766	3.125
Relationship status (in a relationship) by social support	0.596	0.493	1.815	0.226	0.21	1.447
Relationship status (married) by social support	0.255	0.266	1.290	0.339	0.46	1.306
Relationship status (divorced) by social support	9.397	17863.54	12052.170	1.000	0.000	
Constant	-0.946	0.733	.388	0.197		

**Appendix B: ORDINAL LOGISTIC REGRESSION MODEL WITH MAIN
PREDICTORS**

*Ordinal Logistic Regression Model for Variables Predicting
Breastfeeding Duration*

					95% CI	
Variables		Estimate	SE	<i>p</i>	Lower	Upper
Threshold	BF Length (0-3 months)	1.102	1.020	0.280	-0.898	3.103
	BF Length (4-6 months)	1.831	1.027	0.075	-0.183	3.845
	BF Length (7-12 months)	2.958	1.044	0.005	0.912	5.004
Location	Prenatal self-efficacy	0.192	0.066	0.003	0.063	0.321
	Social support	-0.576	0.319	0.071	-1.201	0.048
	Treated w/ less courtesy	-0.484	0.405	0.232	-1.276	0.309
	Treated w/ less courtesy (reference)	0 ^a				
	Dr/nurse not listening	0.235	0.424	0.579	-0.597	1.067
	Dr/nurse not listening (reference)	0 ^a				

Note. BF = Breastfeeding. ^a0 = Reference groups.

Appendix C: RESEARCH QUESTIONNAIRE WITH CONSENT BLOCK

Information and Disclosure Section

Purpose: This study is designed to assess perceptions, attitudes, barriers and facilitators that influence Black mother's decision to initiate breastfeeding who live in the state of Tennessee. Participants will be mothers who live in the state of Tennessee. Study findings may be used to inform the development of culturally appropriate interventions to increase breastfeeding.

Description: Participants will be recruited through social media outlets. Participation is voluntary and will not be compensated. Participant responses will be collected through a private online survey. No Identifiable information will be given.

Duration: Survey completion should take no longer _20_ minutes.

IRB Details: Protocol Title: Perceptions, attitudes, barriers, and facilitators that influence the decision to initiate breastfeeding for Black women living in Tennessee.

Primary Investigator: Chanell Haley, PI Department & College: Health and Human Performance, College of Behavioral and Health Sciences, Middle Tennessee State University

Faculty Advisor: Dr. Chandra R. Story

Protocol ID: 21-1041 2q Approval Date: 02/24/2021 Expiration Date: 02/28/2022

Here are your rights as a participant: Your participation in this research is voluntary. · You may skip any item that you don't want to answer, and you may stop the experiment at any time.

Risks & Discomforts: Risk is no more than expected from using the computer/internet or having a discussion about breastfeeding

Benefits: The benefits to the participant will be contributing their voice to an underserved population to inform future health interventions.

Identifiable Information: You will NOT be asked to provide identifiable personal information.

Compensation: There is no compensation for this research study.

Confidentiality: All efforts, within reason, will be made to keep your personal information private but total privacy cannot be promised. Your information may be shared with MTSU or the government, such as the Middle Tennessee State University Institutional Review Board, Federal Government Office for Human Research Protections, if you or someone else is in danger or if we are required to do so by law.

Contact Information: If you should have any questions about this research study or possibly injury, please feel free to contact Chanell Haley by telephone [615-974-8687](tel:615-974-8687) or by email ch7s@mtmail.mtsu.edu OR my faculty advisor, Dr. Chandra Story, at chandra.story@mtsu.edu. You can also contact the MTSU Office of compliance via telephone ([615 494 8918](tel:615-494-8918)) or by email (compliance@mtsu.edu). This contact information will be presented again at the end of the experiment.

I have read this informed consent document pertaining to the above identified research

☐ Yes

☐ No

The research procedures to be conducted are clear to me

☐ Yes

☐ No

I confirm I am 18 years or older

☐ Yes

☐ No

I am aware of the potential risks of the study

☐ Yes

☐ No

I understand that my participation is voluntary and consent to participate in the study.

☐ Yes

☐ No

Please provide responses to the following questions as they pertain to your **most recent** pregnancy/delivery

Do you identify as Black? (examples: African American, West Indian, African, Afro-Latina)

☐ Yes

☐ No

Were you residing in Tennessee during your most recent pregnancy/delivery?

☐ Yes

☐ No

For each statement, please select how you intended to feed your infant prior to your most recent delivery

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I intended to only formula feed my baby (No breastfeeding at all)	☐	☐	☐	☐	☐
I intended to at least give breastfeeding a try	☐	☐	☐	☐	☐
I intended to breastfeed my infant for 1 month	☐	☐	☐	☐	☐
I intended to breastfeed my infant for 3	☐	☐	☐	☐	☐

months					
I intended to breastfeed my infant for 6 months	☐	☐	☐	☐	☐

During your most recent pregnancy, were you provided with any educational information on breastfeeding from your health care provider?

- ☐ Yes
- ☐ No
- ☐ I am unsure

Was your health care provider (examples: nurse practitioner, physician, physician assistant) Black/African American?

- ☐ Yes
- ☐ No

For your most recent pregnancy/delivery, did you have a midwife?

- ☐ Yes
- ☐ No

For your most recent pregnancy/delivery, did you have a doula?

☐ Yes

☐ No

Why did you choose to have a midwife and/or doula as part of your birthing experience?

After your most recent delivery, did you try to breastfeed your infant within one hour of birth?

☐ Yes

☐ No

When discharged, did the hospital provide you with free infant formula?

☐ Yes

☐ No

Once you were home, did you decide to initiate or continue breastfeeding?

- ☐ Yes
- ☐ No

What factors influenced your decision to breastfeed? (please select all that apply)

- ☐ Health benefits
- ☐ Great support system
- ☐ Confidence/self-efficacy
- ☐ Bonding experience
- ☐ Other _____

Are you currently breastfeeding?

- ☐ Yes
- ☐ No

How long did you breastfeed or (have you breastfed) your infant?

▼ 0-3 months ... Longer than 24 months

Why did you choose to stop breastfeeding?

What factors influenced your decision not to breastfeed? (please select all that apply)

- ☐ Medical condition/medication
- ☐ Time/commitment
- ☐ Formula is more convenient
- ☐ Concerned with pain
- ☐ Other _____

For each statement, please choose the answer that best describes how sure you are at performing these breastfeeding tasks

	Not at all sure	Slightly sure	Fairly sure	Very sure	Completely sure
I could make time to breastfeed even when I am busy	☐	☐	☐	☐	☐
I could find out what I needed to know about breastfeeding my baby	☐	☐	☐	☐	☐
I could breastfeed my baby without feeling embarrassed	☐	☐	☐	☐	☐
I could choose to breastfeed my baby even if my partner does not want me to	☐	☐	☐	☐	☐

Please answer for each individual listed,
"How important does your support network think it is to breastfeed your baby?"

	Not at all	A little bit	An average amount	Very much	N/A
Mother	☐	☐	☐	☐	☐
Child's father	☐	☐	☐	☐	☐
Health care provider	☐	☐	☐	☐	☐
Peers/friends	☐	☐	☐	☐	☐

Please answer for each individual listed,
 "Your support network provides emotional support in your decision to breastfeed or formula feed?"

	Not at all	A little bit	An average amount	Very much	N/A
Mother	☐	☐	☐	☐	☐
Child's father	☐	☐	☐	☐	☐
Health care provider	☐	☐	☐	☐	☐
Peers/friends	☐	☐	☐	☐	☐

Please answer for each individual listed,
 "How much does your support network support you if you are experiencing problems with feeding your infant?"

	Not at all	A little bit	An average amount	Very much	N/A
Mother	☐	☐	☐	☐	☐
Child's father	☐	☐	☐	☐	☐
Health care provider	☐	☐	☐	☐	☐
Peers/friends	☐	☐	☐	☐	☐

Please provide a response regarding social support

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
Interacting with other Black mothers has been a source of support in my decision to breastfeed or formula feed	☐	☐	☐	☐

During your most recent pregnancy/delivery, were you working outside of the home?

- ☐ Yes, I worked outside of the home
- ☐ No, I was working from home
- ☐ I was unemployed during that time

Please provide information regarding breastfeeding at your place of employment

	Strongly Disagree	Disagree	Agree	Strongly Agree	N/A
My employer provides "lactation spaces" for breastfeeding mothers	☐	☐	☐	☐	☐
My employer provides breaks for breastfeeding mothers to pump	☐	☐	☐	☐	☐
My employer provides a refrigerator to store my milk supply	☐	☐	☐	☐	☐

How old was your infant once you returned to work?

Please provide information regarding cultural/social norms of breastfeeding

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
Breastfeeding is not normalized in the Black/African American community	☐	☐	☐	☐
There is still a level of stigma surrounding breastfeeding in the Black/African American community	☐	☐	☐	☐
There is a lack of cultural support for breastfeeding in the Black/African American community	☐	☐	☐	☐
Many women in my community (family/peers) are breastfeeding mothers	☐	☐	☐	☐

Please describe any cultural/social norms (unique to the Black/African American community) that may influence a woman's decision to breastfeed or formula feed

Are you aware of the suggested guidelines issued by the Center for Disease Control and Prevention/World Health Organization on safely breastfeeding during COVID-19?

- ☐ Yes, I have seen/read their suggested breastfeeding guidelines
- ☐ No, I have not seen/read the suggested guidelines from these health organizations
- ☐ Yes, but I do not fully trust the information given from these organizations

Were you breastfeeding your infant at any time during the global COVID-19 pandemic?

- ☐ Yes
- ☐ No

Did the COVID-19 pandemic impact your breastfeeding behaviors?

- ☐ Yes, I decided to breastfeed longer than originally planned
- ☐ Yes, I decided to breastfeed for a shorter time than originally planned
- ☐ No, my breastfeeding behaviors have not changed due to COVID-19

Have you received any guidance from your healthcare provider about breast milk/breastfeeding and COVID-19?

- ☐ Yes
- ☐ No

Is there anything you would like to share about your experience breastfeeding during COVID-19?

What is your age?

In what year was your most recent delivery?

What is the highest education level you have completed?

- ☐ High school/GED
- ☐ Some college
- ☐ Associates degree
- ☐ Bachelor's degree
- ☐ Graduate degree

What was your relationship status during most pregnancy/delivery?

- ☐ Single
- ☐ In a relationship
- ☐ Cohabiting w/ partner
- ☐ Married
- ☐ Divorced

During your most recent pregnancy/delivery were you a WIC (Women, Infant, Children) recipient?

- ☐ Yes
- ☐ No

How long were you a WIC recipient?

- ☐ 1-2 years
- ☐ 3-4 years
- ☐ 5 or more years

During your most recent pregnancy/delivery, WIC provided breastfeeding information?

- ☐ Yes
- ☐ No
- ☐ Unsure

My most recent pregnancy was my

▼ 1st pregnancy ... Greater than 4th pregnancy

In what Tennessee county (ex. Davidson) did you reside during your most recent pregnancy/delivery?

APPENDIX D: IRB APPROVAL

IRB
INSTITUTIONAL REVIEW BOARD
 Office of Research Compliance,
 010A Sam Ingram Building,
 2269 Middle Tennessee Blvd
 Murfreesboro, TN 37129
 FWA: 00005331/IRB Regn.: 0003571



IRBN007 – EXEMPTION DETERMINATION NOTICE

Wednesday, February 24, 2021

Protocol Title *Perceptions, attitudes, barriers and facilitators that influence the decision to initiate breastfeeding for African American women living in Middle Tennessee*

Protocol ID **21-1041 2q**

Principal Investigator **Chanell Haley (Student)**

Faculty Advisor **Chandra Story**

Co-Investigators **NONE**

Investigator Email(s) **ch7s@mtmail.mtsu.edu; chandra.story@mtsu.edu**

Department/Affiliation **Health and Human Performance**

Dear Investigator(s),

The above identified research proposal has been reviewed by the MTSU Institutional Review Board (IRB) through the EXEMPT review mechanism under 45 CFR 46.101(b)(2) within the research category (2) *Educational Tests, surveys, interviews or observations of public behavior (Qualtrics Survey)*. A summary of the IRB action and other particulars of this protocol are shown below:

IRB Action	EXEMPT from further IRB review***		
Date of Expiration	2/28/2022	Date of Approval: 2/24/21	Recent Amendment: NONE
Sample Size	ONE THOUSAND (1,000)		
Participant Pool	Healthy adults (18 or older) - African American females who have given birth to a live infant		
Exceptions	Online consent followed by internet-based survey using Qualtrics is permitted (Qualtrics links on file).		
Type of Interaction	☒ Virtual/Remote/Online Interview/survey ☐ In person or physical- Mandatory COVID-19 Management (refer next page)		
Mandatory Restrictions	1. All restrictions for exemption apply. 2. The participants must be 18 years or older. 3. Mandatory ACTIVE informed consent. Identifiable information including, names, addresses, voice/video data, must not be obtained. 4. NOT approved for in-person data collection.		
Approved IRB Templates	IRB Templates: Recruitment Email and Online Informed Consent Non-MTSU Templates: NONE		
Research Inducement	NONE		
Comments	The protocol documents were lost during MS-365 transition		

***Although this exemption determination allows above defined protocol from further IRB review, such as continuing review, MTSU IRB will continue to give regulatory oversight to ensure compliance.

Summary of the Post-approval Requirements: The PI and FA must read and abide by the post-approval conditions (Refer "Quick Links" in the bottom):

- **Final Report:** The Faculty Advisor (FA) is responsible for submitting a final report to close-out this protocol before **2/28/2022**; if more time is needed to complete the data collection, the FA must request an extension by email. **REMINDERS WILL NOT BE SENT. Failure to close-out (or request extension) may result in penalties** including cancellation of the data collected using this protocol or withholding student diploma.
- **Protocol Amendments:** IRB approval must be obtained for all types of amendments, such as:
 - o Addition/removal of subject population and sample size.
 - o Change in investigators.
 - o Changes to the research sites – appropriate permission letter(s) from may be needed.
 - o Alteration to funding.
 - o Amendments must be clearly described in an addendum request form submitted by the FA.
 - o The proposed change must be consistent with the approved protocol and they must comply with exemption requirements.
- **Reporting Adverse Events:** Research-related injuries to the participants and other events, such as, deviations & misconduct, must be reported within 48 hours of such events to compliance@mtsu.edu.
- **Research Participant Compensation:** Compensation for research participation must be awarded as proposed in Chapter 6 of the Exempt protocol. The documentation of the monetary compensation must Appendix J and MUST NOT include protocol details when reporting to the MTSU Business Office.
- **COVID-19:** Regardless whether this study poses a threat to the participants or not, refer to the COVID-19 Management section for important information for the FA.

COVID-19 Management:

The FA must enforce social distancing guidelines and other practices to avoid viral exposure to the participants and other workers when physical contact with the subjects is made during the study.

- The study must be stopped if a participant or an investigator should test positive for COVID-19 within 14 days of the research interaction. This must be reported to the IRB as an "adverse event."
- The FA must enforce the MTSU's "Return-to-work" questionnaire found in Pipeline must be filled and signed by the investigators on the day of the research interaction prior to physical contact.
- PPE must be worn if the participant would be within 6 feet from the each other or with an investigator.
- Physical surfaces that will come in contact with the participants must be sanitized between use
- **FA's Responsibility:** The FA is given the administrative authority to make emergency changes to protect the wellbeing of the participants and student researchers during the COVID-19 pandemic. However, the FA must notify the IRB after such changes have been made. The IRB will audit the changes at a later date and the PI will be instructed to carryout remedial measures if needed.

Post-approval Protocol Amendments:

The current MTSU IRB policies allow the investigators to implement minor and significant amendments that would not result in the cancellation of the protocol's eligibility for exemption. **Only THREE procedural amendments will be entertained per year (changes like addition/removal of research personnel are not restricted by this rule).**

Date	Amendment(s)	IRB Comments
NONE	NONE.	NONE

Post-approval IRB Actions:

The following actions are done subsequent to the approval of this protocol on request by the PI or on recommendation by the IRB or by both.

Date	IRB Action(s)	IRB Comments
NONE	NONE.	NONE

Mandatory Data Storage Requirement:

All research-related records (signed consent forms, investigator training and etc.) must be retained by the PI or the faculty advisor (if the PI is a student) at the secure location mentioned in the protocol application. The data must be stored for at least three (3) years after the study is closed. Additionally, the Tennessee IRB007 – Exemption Notice (Sta)

Institutional Review Board, MTSU

FWA: 00005331

IRB Registration: 0003571

State data retention requirement may apply (*refer "Quick Links" below for policy 129*). Subsequently, the data may be destroyed in a manner that maintains confidentiality and anonymity of the research subjects. The IRB reserves the right to modify/update the approval criteria or change/cancel the terms listed in this notice. Be advised that IRB also reserves the right to inspect or audit your records if needed.

Sincerely,

Institutional Review Board
Middle Tennessee State University

Quick Links:

- Post-approval Responsibilities: <http://www.mtsu.edu/irb/FAQ/PostApprovalResponsibilities.php>
- Exemption Procedures: <https://mtsu.edu/irb/ExemptPaperWork.php>
- MTSU Policy 129: Records retention & Disposal: <https://www.mtsu.edu/policies/general/129.php>