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Low breastfeeding rates among African Americans: An exploration of intent to breastfeed among

African American mothers

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Abstract

Title: Low breastfeeding rates in African American women: An exploration of intent to breastfeed among African American mothers.

Background/objective: Breastfeeding is a public health requirement based on the documented short-term and long-term medical benefits for babies. Breastfeeding has medical, psychological, and financial benefits for mothers. Despite documented benefits and only a few contraindications to breastfeeding, disparity persists in the African American population. African Americans (AA) are considered an at-risk group for many of the acute and chronic conditions that are believed to be preventable or decrease by breastfeeding.

Objective: To assess breastfeeding intent in African American women enrolled in group prenatal care/centering and traditional prenatal care.

PICO: In AA women between the ages of 18 and 45 years receiving prenatal care in the city of Atlanta, how does group prenatal care compare to traditional one-to-one prenatal care, on rates of breastfeeding, post breastfeeding intervention?

Methods: Study participants in centering and the routine care groups were given a self-developed pre-survey followed by breastfeeding education/intervention class. The centering group received breastfeeding intervention in a group setting. The routine care group received breastfeeding intervention one to one. Both groups were given a post-survey after the breastfeeding intervention. The post survey is limited to the same questions from the pre-survey.

Results: A total of 26 participants completed the breastfeeding intervention and post-survey. Eleven participants were from the centering group, and 15 participants from the routine care group. Participants in both groups showed increased learning; however, the participants in the centering group showed higher learning. An independent sample t-test was conducted to

compare the mean scores for patients in centering and routine care. There was no significance difference in the mean scores for centering ($M = 95.45$, $SD = 8.02$) and routine care ($M = 90$, $SD = 10$; $t(24) = -.332$, $p = .743$, two-tailed).

Discussion: Based on the findings group prenatal is a promising tool to increase breastfeeding the AA women. Next step is implementing strategies to improve social support for breastfeeding for mothers not enrolled in centering or group prenatal care.

Title

Low breastfeeding rates in the African American women: An exploration of intent to breastfeed among African American mothers. The author desired to assess breastfeeding intent for patients enrolled in centering/group prenatal care and traditional prenatal care. Breastfeeding intent was assessed through presurvey, followed by a breastfeeding class and post survey. The author is an advanced practice provider and observed low breastfeeding rates among the African American (AA) patients in southwest Atlanta. The clinical practice site is a federally qualified health center (FQHC). This FQHC provides primary care for the medical disadvantage and groups that are considered high risk for many preventable medical conditions. As a certified nurse midwife assessing how mothers plan to feed their babies, and providing breastfeeding information is routinely done. The author's observation is consistent with national trends. In 2011, data from the U.S. Department of Health and Human Services showed an overall improvement in the initiation rates of breastfeeding, however, African American mothers, when compared to White mothers, have 50% lower breastfeeding rates at birth, six and 12 months even after controlling for income and educational level ("U.S. Department of Health and Human Services," 2011).

Among ethnic groups in the United States AA have the lowest rates of breastfeeding initiation and duration at six and 12 months. While no ethnic group is meeting the Healthy people 2020 goals of breastfeeding duration at six months which is 61 % and 12 months 34 %, exclusive breastfeeding at three and six months are 46% and 26 %. Asian mothers are the only ethnic group meeting the Health people 2010 goal of breastfeeding initiation at 81.9 %, followed by certain subgroups of Hispanic mothers. Healthy people 2020 breastfeeding categories are:

ever breastfeed, breastfeeding at 6 and 12 months. African Americans breastfeeding rates at 59.7%, 27.9%, and 12.9 % for ever breastfed, breastfeeding at 6 and 12 months. Breastfeeding is beneficial to all mother- baby dyads; however, the benefits may be exponentially greater for the AA mother baby dyad. African Americans are disproportionately affected by adverse health outcomes, which may be improved with an increase in breastfeeding (Jones, Power, Queenan, & Schulkin, 2015).

Two methods of prenatal care are offered at clinical practice site routine care and centering. The Doctor of Nursing Practice study desires to assess if methods of prenatal care affect rates of breastfeeding at the clinical practice site. Participants were given a pre survey about breast feeding, followed by breastfeeding education then a post survey.

Problem Statement

The Benefits of breastfeeding are well documented in the literature. Breastfeeding is beneficial for infants, mothers, and the community (Jones, Power, Queenan, & Schulkin, 2015). Infant nutrition is a public health issue necessitating the U.S. department of Health and Human Services to address breastfeeding objectives for mothers every ten years (Jones, Power, Queenan, & Schulkin, 2015). Infants who are breastfed have reduced rates of infections such as otitis media, gastroenteritis, diarrhea, and respiratory tract infections requiring hospitalizations. Breastfeeding decreases the risk of childhood obesity, leukemia, and sudden infant death syndrome (Victora et al., 2016).

Infants who were breastfed had higher performance in intelligence testing in childhood and adolescence (Louis-Jacques et al., 2017). Breastfed infants have lower rates of childhood leukemia and lymphoma, lower rates of adolescence and adulthood obesity, and a 30% reduction in type 1 diabetes, 40 % reduction in type 2 diabetes (American Academy Pediatrics, 2012).

Breastfeeding reduces maternal mortality and morbidity rates. Breastfeeding decreases maternal mortality long-term by lowering the risk of breast and ovarian cancers, metabolic syndrome, hypertension, type 2 diabetes mellitus and cardiovascular disease (Gupta, Perrine, Chen, Elam-Evans & Flores-Ayala, 2017; Louis-Jacques, Deubel, Taylor & Stuebe, 2017). The immediate benefits of breastfeeding for mothers are: decreased postpartum hemorrhage, rapid uterine involution, increase child spacing due to lactational amenorrhea, reduced rates of postpartum depression and decrease rates of neglect and abuse perpetuated by mothers (AAP, 2012). Breastfeeding is considered one of the highest impact interventions, and if rates increase, 823,000 deaths would be prevented annually among children in 75 high mortality, low income and middle-income countries (Gupta, Chen, Elam-Evan & Flores-Ayala, 2017). Despite the numerous benefits of breastfeeding, breastfeeding remains low globally. The World Health Organization (WHO) global, the national target is to increase exclusive breastfeeding (EBF) by 50% in infants under six months ("World Health Organization," 2017; Gupta, Chen, Elam-Evan & Flores-Ayala, 2017).

A cost analysis compared optimal breast-feeding (OBF) and suboptimal breastfeeding. Optimal breastfeeding is defined as 90% of mothers exclusive breastfeeding (EBF) each child for six months and continuing for 12 months. Breast milk is insufficient as the only source of infant nutrition after six months. Mothers should continue to offer breastmilk after complementary foods are added after six months. Suboptimal breastfeeding rates were associated with an excess of 2,619 maternal deaths, 721 child deaths, \$13 billion in medical cost, and \$1.2 billion in non-medical cost (Louis-Jacques et al. 2017). According to American Academy of Pediatrics (AAP), this \$13 billion excludes parental absenteeism from work or adult death from disease acquired in childhood such as asthma, type 1 diabetes or obesity related conditions (2012).

Breastmilk is considered the complete form of nutrition for infants, including preterm and sick newborns (cdc.gov, 2014). Breastfeeding should be the option for feeding newborns except in certain rare cases (cdc.gov, 2014). Infants with galactosemia a rare genetic metabolic disorder, infants born to mothers with HIV, untreated tuberculosis, infected with human T cell lymphotropic virus type 1 and 2, mothers using illicit drugs, mothers receiving chemotherapy and radiation therapy should not breastfeed (cdc.gov, 2014). The Healthy People 2020 goals for breastfeeding rates: ever breastfeed at 81.9 %, breastfeeding at six months, 61 %, and breastfeeding at 12 months, 34 % (Jones et al., 2015).

Breastfeeding rates in Georgia are 70% for ever breastfeeding, 40 % for breastfeeding at six months, and 20.7 % for breastfeeding at 12 months. The exclusive breastfeeding rates for Georgia are 27.3% at three months and 14.5% at six months ("CDC.gov," 2016). The Health People (HP) target is to increase ever breastfeed at birth, six months and 12 months respectively to 81.9%, 60.6%, and 34.1 % respectively. HP 2020 goals are to increase exclusively breastfeeding at three and six months to 46.2% and 25.5% respective ("HealthPeople2020," 2011).

The goals of this DNP project is to provide evidence-based information to study participants and their support system about the benefits of breastfeeding. The DNP project hopes to facilitate the acceptance of breastfeeding and increase breastfeeding rates in the African American participants receiving prenatal care in the selected clinic. This author sought to achieve these goals by teaching study participants: the benefits of breastfeeding and practice breastfeeding techniques, how to maintain milk supply, use a breast pump, clean breast pump, identify early and late signs of baby feeding cues. Participants were empowered to be an advocate of self and newborn on the labor & delivery and postpartum units. Participants were

encouraged to do skin to skin immediately after birth and ask staff not to do the first bath until after initial breast feed. Participants were encouraged to ask the nursing staff to aid with newborn positioning and latch at the breast as needed. The student investigator hopes to promote a social breastfeeding network through center/group prenatal visits. Study participants were given information about breastfeeding community resources and common breastfeeding challenges and how to resolve potential breastfeeding issues.

Clinical question

In African American women between the ages of eighteen and forty-five years receiving prenatal care in a large metropolitan area in the southeast United States, what is the effect of group prenatal care compared to traditional one-to-one prenatal care, affect rates of breastfeeding, post breastfeeding intervention?

Review of the Literature

Search Strategy

A literature search was conducted using the following databases: CINAHL/ CINAHL Plus, Cochrane Library, Science Direct, EBSCO, and PubMed. International and national websites related to breastfeeding were searched for definitions and evidence. The search terms used included: exclusive breastfeeding, African American, socioeconomic status, disparity, minorities, group prenatal care/centering pregnancy. Search parameters included peer reviewed articles from 2010-2017, African Americans, full term infants, and studies published in the English language. Studies that did not focus on African American mothers and mothers with preterm infants were excluded.

Initial searches identified 6,156 articles with breastfeeding and minorities. The search was narrowed to only African Americans with full term infants and healthy pregnancies. Articles without large representation of the AA women and preterm infants were excluded; 25 studies were reviewed for relevance. After a closer review of the abstracts, ten studies were selected based on inclusion and exclusion criteria. Additional searches were done, which yield nine articles of the previously searched data base. After a closer review, of the nine additional articles, seven articles were selected based on inclusion and exclusion criteria.

Five studies were graded as high quality, 12 articles were from moderate to low quality evidence. Appraisal of the evidence was conducted using Grading of Recommendations Assessment, Development, and Evaluation (GRADE). GRADE defines the quality of evidence when making recommendations. The quality of the evidence reflects the extent to which confidence in an estimate of the effect is adequate to support recommendations. GRADE approach begins with the study design; rigorous observational studies provide stronger evidence than uncontrolled case studies and randomized trials without important limitations constitute high quality evidence. Observational studies without special strengths or important limitations constitute low quality evidence. GRADE offers four levels of evidence quality: high, moderate, low and very low; randomized control trials RCT are considered high quality and observational studies are considered as low-quality evidence (Guyatt, Oxman, Kunz, Falck-Ytter, & Schunemann, 2008).

Synthesis of the Evidence

Four studies found that African American women who participated in group prenatal care (GPC)/centering in pregnancy had improved breastfeeding rates, including higher rates of initiation and duration (Tanner-Smith, Steinka & Lipsey, 2013; Klima, Norr, Vonderheid &

Handler, 2009; Sheeder, Yorga & Kabir-Greher, 2010; Herberlein, et al, 2016). All four studies supported that centering pregnancy/group prenatal care is promising in improving breastfeeding rates in African Americans. Evidence from some studies may contain bias due to not using a true experimental design.

A systematic review of the literature by Byerley & Hass, regarding group prenatal care for high risk pregnant women, found that African Americans benefited from GPC/centering which was demonstrated by increase breastfeeding and decreased preterm births (2017). This study is a mixture of high to low quality studies. A total of 37 studies were included 8 RCTs, 23 non-randomized studies, and six case reports.

Kliman, Norr, Vonderheid, & Dandler (2009), found that women in the centering groups attended prenatal visits, gained significantly more weight, and more likely to initiate some breastfeeding. Women in centering had an exclusive breastfeeding rate of 40% compared to 31.2% in the routine care group at discharge (Kliman et al., 2009). This study had 22 different groups of mainly African American women at 98% participated in the centering pregnancy. The average centering class size was 5.5 to 10 participants per group. All providers and assistants involved in CP were trained at a workshop sponsored by the National Centering Pregnancy and Parenting Association. All women were eligible for centering if they were less than eighteen weeks gestation and planned on continuing prenatal care at the site. Mothers who choose not to be involved in the program had routine prenatal care. One hundred and ten women completed centering pregnancy with only 61 analyzed delivering at the university hospital and two hundred and seven women delivered in the routine prenatal care group during the project time frame from December 2004- October 2006. Participants were given an 11- items scale with 30 questions about their experiences.

Sheeder, Yorga, & Kabir-Greher (2010) review of the literature, found that 88% of participants who used a group model care were breastfeeding at discharge. An electronic search was conducted for descriptive, cross-sectional cohort and RCT studies. All studies used centering pregnancy as a group-based model; eleven articles were selected. Studies were a combination of three non-experimental, seven quasi-experimental, and one experimental. Five of eleven studies had 79-100% sample participants were African Americans.

Tanner-Smith, Steinka-Fry, & Lipsey (2013) found that women in CP were more likely to report exclusive breastfeeding at six weeks postpartum visit compared to women in the individual care group. Tanner-Smith, Steinka-Fry, & Lipsey used a quasi-experimental research design with a sample of 794 women receiving care by either group (n=486) or individual format (n=308). Sample participants were selected from four sites in Tennessee: site A (n=425), B (n=192), C (n= 109) & D (n=68). The number of African Americans in sites A, B, C &D (321, 3, 54, and 48). Site D showed that women in CP were more likely to report exclusive breastfeeding at six weeks postpartum visit compared to women in the individual care group. Not all data from the sites were available to be analyzed.

The evidence suggests that African Americans with higher breast-feeding self-efficacy score and more knowledge about breastfeeding were more likely to breastfeed. Brockway, Benzies, & Hayden, (2017) used a systematic review with meta-analysis and meta-synthesis of 9 RCTs and three quasi- experimental design to explore the theoretical link between breastfeeding self-efficacy and increased breastfeeding rates. Sample sizes for studies range between 71- 781 health mothers and full-term infants. Results showed that mothers in the intervention groups had higher breastfeeding self-efficacy (BSE) score and were more likely to breastfeed at two months.

Also, exclusive breastfeeding increased by 10% in the intervention groups. The evidence showed that an increased BSE score was associated with improved breastfeeding rates.

Eastin & Sharm (2015) used social cognitive theory (SCT) to predict breastfeeding in the African American women. A cross sectional design study was used to utilized construct of social theory: knowledge of breastfeeding; expectations about initiation and duration of breastfeeding; self-efficacy in overcoming barriers to breastfeeding initiation and duration; and self-control in breastfeeding initiation and duration. A sample of 238 African American women was given a 50 items questionnaire about the social theory construct. Findings were congruent with Brockway, Benzies, & Hayden findings that African Americans with higher breast-feeding self-efficacy score and more knowledgeable about breastfeeding were more likely to breastfeed (2017).

A randomized controlled community-based trial to improve breastfeeding rates among urban low-income mothers by Pugh, Serwint, Frick, Nanda, Sharps, Spratz, & Milligan (2010) utilized a sample of 328 mothers, the intervention group n=160 and the usual care group n =168. The sample was from two urban hospitals. Participants were eligible for special Supplemental Nutrition for Women, Infants, and Children. Breastfeeding was self-reported at six, twelve, and twenty-four weeks. The interventions included: daily hospital visits from breastfeeding support team, two home visits, telephone support, and 24- hour pager access. Mothers exposed to breastfeeding support team had a significant increase in breast feeding rates in the first six weeks at 66.7 % compared to the usual care group at 56.9%. Breast feeding rates were similar in both groups at twenty-four weeks. This study concluded that the increased in breastfeeding at six weeks was due to intervention. The intervention had no impact on breastfeeding rates after 24 weeks. Based on GRADE, this study is considered high quality evidence. This study was well

designed using an RCT. The results from this study may not be applicable outside the study group.

The literature is replete with information on barriers to breastfeeding. The evidence is suggestive of disparity in breastfeeding support despite the evidence showing that women who receive peer counseling support experience higher breastfeeding rates (Sriraman, & Kellman, 2016; Spencer, & Grassley, 2013; Miller, Louis-Jacques, & Hernandez, 2017; Baumgartel & Spatz, 2013).

A study by Sriraman, & Kellams, 2016: African American women and breastfeeding, the evidence highlighted many barriers to breastfeeding such as prenatal factors, providers' knowledge, attitude, and beliefs about breastfeeding; sociocultural influences, hospital/maternity care postnatal factors and how health care providers can be helpful in reducing breastfeeding barriers.

Spencer & Grassley, 2013 used an integrative literature review of 37 articles, including qualitative and quantitative methods of diverse designs. Results showed a disparity in information regarding breastfeeding given by health care providers; factors affecting prenatal breastfeeding intentions; factors affecting initiation and duration of breastfeeding; and community and institutional intervention related to breastfeeding.

Miller, Louis-Jacques, & Hernandez (2017) used a qualitative approach to investigate African American women's' experiences in a baby friendly hospital. A purposive sample of 20 women was selected and interviewed using a semi-structured questionnaire. The three emerging themes were: 1. Appreciation of the long-term relationship with care givers, which allowed for discussion about breastfeeding. 2. Latch problems post discharge to lead advocacy for continuity

of care. The hospital started providing a free weekly latch clinic and support group. Mothers were able to meet with International Board Certified Lactation Consultant (IBCLC) in a group setting. 3. Mothers placed a priority on infants' autonomy. Mothers who placed a priority on infants' autonomy were more likely to feed more formula and more pacifier usage. Mothers needed infants to be able to self-soothe and remain calm when separated from their parents.

Baumgartel & Spatz conducted a descriptive study of the Special Supplemental Nutritional Program for Women, Infants, and Children (WIC) (2013) found inconsistency between WIC's policies that encourage breastfeeding versus practice that favors formula. Information was used from other studies that used WIC participants from different states. WIC participants had lower breastfeeding rates when compared to mothers, not WIC eligible. WIC allocates only 0.6 % of its budget to breastfeeding initiatives. In Maryland, WIC participants who received peer counseling support experienced higher breastfeeding rates. A retrospective study in Missouri showed a positive response to a peer counselor. A study in North Carolina, WIC showed a racial disparity in breastfeeding rates and support services. WIC offices in areas with a large Black population were least likely to provide breastfeeding services, including peer counseling. Despite the benefits of peer counselor programs on breastfeeding rates among disadvantage women, only 16.7% of WIC service delivery sites offer peer counselors.

DeVane-Johnson, Woods-Giscombe, Thoyre, Fogel, & Williams (2017), integrative literature review of factors related to breastfeeding in African American women, used 48 peers reviewed articles from 1990-2015. These articles were a combination of qualitative, quantitative, and mix-methods. Three Themes were identified explaining human milk feeding disparity. 1. Social characteristics of women least likely to feed human milk include low socioeconomic

status and single. 2. The woman's perception of human milk feeding and 3. The quality of lactation education provided by health care providers- limited breastfeeding education (2017).

Some studies showed evidence of African American mothers breastfeeding. This finding is inconsistent with the reported norm of African Americans with low breastfeeding rates.

Lundquist, Barfield, and Elo (2015) found that AA women in the military have higher rates of breastfeeding initiation and duration when compared to African Americans who are civilians.

A qualitative study to understand nativity difference in breastfeeding behaviors among middle class AA and African born women found that African born women were more likely to continue with breastfeeding for a longer duration when compared to AA mothers (Fabiya, Peacock, Herbert-Beirne, & Handler, 2016).

Gross, Davis, Anderson, Hall, & Hilyard 2017, used a qualitative study with a sample size of 11 African Americans who breastfeed for a longer duration for the national average for African Americans. This qualitative study was conducted in 2 phases. Phase 1- focused groups were held with WIC breastfeeding peer counselors to gain their perspective on breastfeeding in low-income African American women they serve. Phase 2- a semi-structured individual interviews conducted with low-income African American from the WIC program. Participants were recruited by snowball technique from three local health districts in Georgia. Flyers were distributed to WIC breastfeeding peer counselors and their health clinics. While each participant's breastfeeding experience was unique, commonalities existed. The overall feeling that "there is not a lot of us," meaning black women who breastfeed. Four themes emerged from the data: deciding to breastfeed, initiating breastfeeding, breastfeeding long-term, and breastfeeding support emerged from participants' advice on opportunities to improve breastfeeding education and support for African American women. Hospital staff educating

mothers about breastfeeding was found to have a positive influence on breastfeeding. Family support was essential to successful long-term breastfeeding. African American women can successfully breastfeed if provided with breastfeeding education and social support. Study limitations a small sample size and use of purposive sampling of low income African American women.

Lundquist, Xu, Barfield, & Elo (2015) retrospective study analyzed cohort data of women all races. The findings were breastfeeding was more prevalent in African Americans in the military than the civilian counterpart. The Breastfeeding gap between Blacks and Whites was reduced significantly in the military setting.

Fabiyi, Peacock, Herbert-Beirne, & Handler (2016) qualitative study used to explore the differences, in perceptions surrounding breastfeeding initiation between the US and non-US born Blacks. A purposive sample of 20 Black middle-class mothers from central Ohio, N=10 Americans born and N=10 African born mothers. Interview questions were developed using the theory of planned behavior, semi-structured format. Finding: at the time of the interview, African American mothers were more likely to stop breastfeeding compared to African born mothers.

Conceptual/Theoretical Framework

The theory used to guide the DNP project is the Theory of Planned Behavior (TPB) develop by Icek Ajzen in 1980. The TPB provides a framework for understanding people's behavior and psychological determinants. TPB has been used as the underlining theory for studying a variety of health decision making behaviors and the development of health promoting behaviors (Polit & Beck, 2017). The Theory of Reasoned Action (TRA) gave rise to the Theory

of Planned Behavior. The TPB resulted due to the limitations of the TRA in addressing behaviors over which people have incomplete control (Ajzen, 1991). The essential factor for both the TPB and TRA is the individual specific intention to perform a given action. The intent is being assumed to capture the motivational forces that influence behavior. The intent is an indication of how hard people are willing to try and the amount of effort they are planning to exert, to act. Usually, the stronger the intention to engage in the practice (breastfeeding), the more likely it is to be performed (Ajzen, 1991).

The theoretical framework, TPB, was used to examine the psychosocial practices which are facilitators or barriers to breastfeeding in African American (AA) mothers. Breastfeeding is a health promoting behavior (AAP, 2012). The TPB was used to motivate AA mothers to consider breastfeeding and or increase breastfeeding (behavior) at the site of clinical practice in southwest Atlanta.

Key Concepts

The TPB states that behavioral achievement depends on both motivational (intention) and ability (behavioral control). TPB identifies three types of beliefs- behavioral, normative, and control. The six constructs of TPB together represent a person's actual control over the desired behavior. The six constructs are behavioral intent, attitudes, subjective norms, social norms, perceived behavioral-control, and perceived power.

1. Attitude- is the degree to which a person has a favorable or unfavorable assessment of the behavior of interest.
2. Behavior intention- is the motivational factors that influence a given behavior, the stronger the plan to act, the more likely the behavior will be achieved.

3. Subjective norms- is the perceived approval and disapproval of behavior by peers and family.
4. Social norms- are the practices typical for a group, standard practice.
5. Perceived power- the perceived factors that may enable or hinder the performance of desired behavior. Perceived Power contributes to a person behavioral control over the elements.
6. Perceived behavioral control- the perception of ease or difficulty of performing the behavior of interest. Perceived behavior varies across situation and actions, which results in different opinions on behavior control depending on the situation (Ajzen, 1991).

Application

The Theory of Planned Behavior (TPB) will be used to guide the development of survey questions about barriers, facilitators to BF, guide necessary educational needs about breastfeeding and hopefully increase breastfeeding rates in African American population at the site of clinical practice. The TPB maintains that intention to perform a behavior is the primary factor for action and that intention is influence by attitudes, subjective norms, perceived social pressure to act, and perceived amount of control, one should perform the behavior in the presents for facilitators and barriers (Wamback & Riordan, 2016). The constructs of the TPB have shown to predict intentions to breastfeed and perceived behavioral control and intentions have shown to predict BF behavior (Kim, Fiese & Donovan 2017).

The construct attitude includes the facilitators and barriers to breastfeeding. Some of the obstacles to BF identified by the literature are breast pain, lack of social support, latch problems, time commitment, and bottle-feeding culture (Kim, Fiese & Donovan, 2017). Some examples given for facilitators are mothers' knowledge about the benefits of breastfeeding.

The construct subjective norm: Breastfeeding is natural vs. unnatural, community support or lack thereof, family support or lack thereof, provider support or lack of support, adequacy or inadequacy of breastfeeding education, maternal medication status, diet status, health status, and social habits are some examples of subjective norms. Cases of perceived behavioral control- ease or difficulty with breastfeeding, work, school, and time consumption (Kim, Fiese & Donovan 2017). The theory of planned behavior provides a framework for understanding people's behavior and its psychological determinants (Beck & Polite, 2017).

Implementation and Evaluation

Subjects

Participants were eligible for study involvement if identified as African American women between the ages of 18 and 45 years, and English speaking. Mothers were excluded from study involvement if they did not identify as AAs, non-English speaking, younger than 18 and older than 45 years old. Other exclusion criteria are any conditions that prohibit breastfeeding, such as human immunodeficiency virus and active tuberculosis infection.

The total targeted convenient sample size was 40 participants: 20 participants for the routine care group and 20 participants for the centering group. Group selection was conveniently based on how participants chose to have prenatal care. Two methods of prenatal care are offered at the clinical practice site: centering and routine/traditional care. Mothers in the routine care group were from one location and the centering/group, prenatal care, was from another location, which is a 30 minutes commute from the routine care group. The two sites involved in the project are apart of the same FQHC. The routine care group targeted sample size was achieved, consented, and completed the pre-survey.

Routine care and Centering care

Routine obstetric care is the traditional way of doing prenatal care, one provider with one patient. Care is given in the privacy of the patient room. The time frame for this visit can range from 15 to 45 minutes. Patients receive a total of 10 routine visits. Visits ideally would start at 6-10 weeks gestation, followed by a visit every four weeks until 28 weeks. The visits become more frequent after 28 weeks to every two weeks until 37 weeks, then weekly until delivery of the newborn.

Centering pregnancy is prenatal care done in a group setting. Centering brings together 8-10 women all with the same due dates and within two weeks. The groups are made up of people from different ethnic groups, age, and socioeconomic status. Centering follows the ten prenatal visits. However, each visit is 90 minutes to two hours long, which gives women more time with their provider. In centering, mothers are engaged in their care; mothers are empowered to take their weight, blood pressure, and record their own health data. Each mother gets private time with a provider for fetal and maternal assessments. Mothers are free to socialize while assessments are in progress. Once assessments are over, provider and support staff form a circle with mothers and support personnel. Health snacks are provided at each session, and everyone, including support people, can partake (<http://www.centeringhealthcare.org/what-we-docentering-pregnancy>).

The provider leads a facilitative discussion and interactive activities designed to address important and timely topics, also leaving room to discuss what is important to the group. Centering materials help mothers and providers ensure that everything from nutrition, common discomforts, stress management, labor and delivery, breastfeeding, and infant care are covered in the group (<http://www.centeringhealthcare.org/what-we-docentering-pregnancy>).

Recruitment

Participants for study involvement were recruited from two locations within the FQHC. The routine care group was from the main center, and the centering group was from another location. At the time of the study, only one location was offering centering pregnancy. The student investigator printed a list of patients scheduled to be seen on recruitment days. Recruitment days were from September to December 2018. The file was scanned for potential participants who met the inclusion criteria. The medical assistants and practical license nurses (LPN) were not involved in the project but were instrumental in identifying potential study participants. Potential participants were approached for study involvement as they waited to be seen by a provider. Potential participants would have their intake information and vital signs collected by the medical assistant, and while waiting to be seen by a provider, they were approached for study involvement. Potential participants were informed of the purpose, procedures, risks, benefits, and alternatives to study participation. Potential participants who volunteered for study involvement were consented and given the pre-survey, at the time volunteered. All potential participants were approached and consented in the privacy of the patient's room behind closed doors to maintain confidentiality. Potential study participants were recruited at any point of entry for obstetric care. Admission to care included confirmation of pregnancy visits and routine return obstetric visits (robs). The target sample size was achieved and consented for study involvement.

Potential Participants in the centering group were approached as a group for study involvement, and there were four of these groups. Each group had 8-10 members registered. Group attendance varies from three to ten members in addition to support persons. One group had two participants not meeting the inclusion criteria. The purpose, risks, benefits, and alternatives to study participation were discussed. Participants who volunteered consented and

clarifications were given if needed. Participants were given the pre-survey at the time of consent. Consent for the centering group took place in the privacy of the centering room behind closed doors, to maintain confidentiality for all, consent forms are kept at sites of clinical practice in a locked cabinet drawer.

The centering groups were approached on Thursdays from September to November. Centering held two sessions, a morning section from 9 am to 11:30 am, and an afternoon session from 1:30 to 3:00 pm. Four centering groups approached for study involvement were grouped 46,47,48 and 49. The targeted sample size was not achieved, volunteers for study involvement and was consented. Only one group had two people not meeting the inclusion criteria, and one group no one wanted to participate.

Setting

The quality improvement breastfeeding project took place at a federally qualified health ambulatory center (FQHC) in southwest Atlanta. This FQHC has many locations and a mobile unit, which facilitates remote medically underserved areas to have access to high-quality, low-cost health care. This FQHC provides primary care, obstetrical and gynecological, adult medicine, dental, infectious disease, podiatry, behavioral health, prescriptive assistance program, and referral to a specialist as needed. In 2018, approximately 152,000 patients were seen, and 2600 obstetrical patients as well. This total includes patients from all locations. Two locations of the many locations were chosen to be a part of the quality improvement project. The locations involved in the project have the highest volume of obstetrical patients, and centering is offered only at one location. This health center provides preventative and maintenance care to patients from all age groups from newborn to death. This FQHC offers affordable care for the indigent, uninsured, underinsured, and a large immigrant population from various parts of the globe. Most

patients receiving care at this facility are African Americans. This site provides an excellent opportunity to recruit the population on interest.

The routine care group was from the site that gets most of the obstetrical patients. Patients can experience longer than the usual wait times, and patients may present later than the usual grace period for a scheduled appointment. This site can have staffing challenges at times. Study Participants for the centering group was from the same FQHC, but one of the many satellite clinics within the same organization. This satellite clinic was the only site at the time of the project, which offered centering/group prenatal care. The group was comprised of a study participant and other clients who declined participation or didn't meet the inclusion criteria. The sites were chosen because they have the highest volume of AA mothers who are the population of interest. The centering site is adequately staffed; patients are usually on time and show up for scheduled appointments. Staff members at the centering site are very supportive of centering and actively recruit new obstetric patients to centering.

Instrument/Tools

A student investigator developed survey was used to measure breastfeeding knowledge and intent to breastfeed. The survey consisted of 10 questions with three-four close-ended answer choices. Each question was awarded 10 points for the correct answer; the total points for all ten questions are 100 hundred the highest possible score. A higher score represents more knowledge or increased learning. The survey questions were developed from evidence from the literature and the Center for Disease Control and prevention (CDC). Question one assessed breastfeeding history; any answer chosen was awarded 10 points. Question three assessed breastfeeding intent. Questions 2,6,7,8 and nine assessed breastfeeding knowledge. Questions 4,5 and10 assessed the social facilitators and barriers to breastfeeding. Participants received

mandatory points for questions 1, 4, and 5. The survey was administered pre and post the breastfeeding intervention/education. The survey was administered in a paper and pencil format. Cronbach's alpha was used to measure the reliability of the tool, which was found to have low reliability.

Evaluation Intervention & Data Collection

Study participants were given an SI developed breastfeeding education class. The breastfeeding education was developed from the literature and Centers for Disease Control and Prevention. The breastfeeding education took 45 minutes to be completed for one session for both the routine care and centering groups. Each participant for the routine care group received one breastfeeding session lasting 45 minutes for 15 participants, 15 different times.

Breastfeeding education was done on different days and times and in person by the SI. The centering group, three different groups, received breastfeeding education for 45 minutes per session for one session for the group. Study participants were given this survey pre and post breastfeeding intervention.

The breastfeeding education focused on the composition of breastmilk, benefits of breastfeeding, required time frame for breastfeeding, when to add complementary foods, barriers to breastfeeding, how to assess infant's breastmilk intake, signs of adequate and inadequate breastmilk intake, graphic depiction of different sizes of newborn stomach in the first weeks of life, milk storage and thawing, pump and breast care, and how to continue breastfeeding after returning to work and school.

The student investigator completed the project implementation and collected pre and post surveys for both groups. The first centering/group prenatal care group, group 47, which met from 9:30 am to 11:30 am, was approached for study involvement. Six of seven participants consented

and completed the pre-intervention survey on September 20, 2018. October 2018, participants completed the breastfeeding intervention with the post survey. The breastfeeding class/intervention was completed in 30-60 minutes. The student investigator was available to group 47 from October to November 2018 for additional questions and answers if participants desired.

Centering group 46 meet on the same days as group 47, but in the afternoon from 1:30 to 3:30 pm. Potential participants consented and completed presurvey in September 2018. Breastfeeding education was taught with the completion of the post survey in October 2018. The student investigator was available from October-November 2018 for additional questions and concerns if desired by study participants.

Centering group number 48, three potential participants approached on 09/27/2018 in the morning session for study involvement. Three participants consented and completed the pre-intervention survey. In October 2018, group number 48 completed the breastfeeding intervention and post intervention survey.

Centering group number 49, approached October 2018, in the afternoon session for study involvement, all potential participants declined study involvement. Only three clients showed up that day for centering. That class had 11 people enrolled.

Potential participants for the routine care group was approached for study involvement as they wait in the privacy of the room to be seen by a provider. After each participant has consented and presurvey completed, the student investigator completed the breastfeeding intervention at the next scheduled appointment while study participant waited in the room to be seen by the provider. The breastfeeding class was done for everyone in the routine care group at different times. The target sample size was achieved from September 2018 to October 2018. All

breastfeeding intervention was completed in one session and took 30 to 60 minutes to be completed; surveys took less than 5 minutes to be completed. Study participants received the contact information for the student investigator for questions and followed up as desired. Some days all participants scheduled to return to the clinic for appointments show up and are on time. At times participants may miss the next two scheduled appointments or arrive one hour late for scheduled appointments. The Student investigator collected all pre and post surveys. The student investigator taught all breastfeeding intervention/classes. Participants received no incentives for participation. Both the intervention (centering group) and the control group (routine care group) received the same breastfeeding education. All identifying data for both groups were kept in a locked drawer and will be shredded after data is analyzed.

Components of Analysis

The data for the DNP project was analyzed using the Statistical package for the Social Sciences (SPSS) version 25. Descriptive statistics and group comparison tests were used to analyze the data.

Statistical Tests

For this DNP project, the total sample size was 26 participants, 11 from the centering group and 15 from the routine care group. Participants from centering made up 42.3% and routine care made up 57.7% of study participants. The target sample size of 20 participants for the routine care group was achieved. The routine care group 20 participants were consented and filled out the presurvey; however, only 15 participants completed the breastfeeding education and the post survey. Among the routine care group, two participants delivered before the breastfeeding intervention. One participant completed the presurvey then withdrew from the

study. Two participants have not completed the breastfeeding intervention and posted breastfeeding survey to date.

The centering prenatal care group, 14 of the potential 20 participants, were consented and completed the pre-intervention survey. One participant was dropped from the study because she no longer met the inclusion criteria due to newly diagnosed Human Immunodeficiency Virus (HIV). One participant delivered before the breastfeeding intervention. Eleven participants completed the breastfeeding and post-intervention survey.

Demographics

Participants level of education, for the total sample N=26, 64.4 % were in high school, and 34.6 % were in or completed college. The percentage of participants with a history of children was 57.7 % compared to 42.3 % for a history of no children. Fifty-four percent of participants had no breastfeeding history, and 46.2 % breastfed previously. Employment history at the time of study involvement was 19.2 % employed and 80.8 % unemployed.

Centering group participants, N=11, 81.8% were in or have completed high school, and 18.2% were in or have completed college at the time of the study. Participants in the routine care group, N=15, 53.3 % were in or have completed high school, and 46.7 % were in or have completed college at the time of the study.

Participants in centering, N=11, 72.7% had no previous breastfeeding history; 27.3 % of participants had a history of breastfeeding at the time of the study. Routine care group, N=15, 40 % had no breastfeeding history, while 60 % had a history of breastfeeding at the time of the study.

Centering participants at the time of the study, N=11, 45.5% had a history of children and 54.5 without children. Routine care participants, N=15, 66.7% have a history of children, and

33.3% will be first time mothers. Centering participants in the group, N=11, 9.1 % were employed, and 90.9 % were unemployed at the time of the study. Routine care group, N=15, 26.7% were employed, and 72.3 % were unemployed.

Among the total sample, participants ranged in age from 18 to 36 with a mean age of 24 years (SD = 5.23 years). Among the centering group, participants ranged in age from 18 to 35 with a mean age of 21 (SD = 4.60). Among the routine care group, participant ranged in age from 18 to 36 with a mean age of 26 (SD = 5.01).

Among the total sample, participants pre-intervention scores range from 50 to 100 with a mean score of 79.23 (SD = 13.54), a score of 70 was at the 25th %tile, 80 is at the 50th %tile, and 90 is at the 75th %tile. The post-intervention ranged from 70 to 100 with a mean score of 92.31(SD = 9.51), a score of 80 is at the 25th %tile, 100 is at the 50th %tile and 100 at the 75th %tile

In the preintervention sample N=26, the scores ranged from 50-100 compared to the postintervention sample N=26 the scores ranged from 70-100, the valid percent went from 15.4 to 53.8 % which is more than 3x the preintervention percentage. The modal score for the preintervention sample is 80, while in the postintervention group the modal score is 100.

An independent sample t-test was conducted to compare the mean scores for patients in centering and routine care. There was no significance difference in the mean scores for centering (M = 95.45, SD = 8.02) and routine care (M = 90, SD = 10; $t(24) = -.332$, $p = .743$, two-tailed).

Among the total study participants N = 26, 100% believed that breastfeeding is healthy pre and post breastfeeding intervention. Centering group N = 11, 90 % would consider breastfeeding, while routine care group N = 15, 93.3 % would consider breastfeeding per

intervention. Total participants $N = 26$, 100% would consider breastfeeding post intervention. One hundred percent of study participants believed that support from family, partner, and friends would help with breastfeeding. The centering care $N=1$, pre-intervention 27.3 % were aware of feeding requirements for the newborn on day one of life. The postintervention score was increased to 90%. Routine care group, $N=15$, only 40 % of study participants were aware of the required amount of breastmilk per feeding for the first day of the life of the newborn. The post intervention score went up to 80 % post intervention.

Participants in centering, $N = 11$, 100% were knowledgeable about the recommended time requirement for exclusive breastfeeding pre and post breastfeeding intervention. Participants in the routine care, $N=11$, 93.3 % were knowledgeable about exclusive breastfeeding requirement and 100% post breastfeeding intervention. Participants in centering, 100% believed it is possible to breastfeed and return to work and school pre and post intervention. The routine group, $N=15$, 86.7 % pre-intervention, and 100% post-intervention believed it was possible to return to work and school while breastfeeding.

Discussion

The reliability of the tool low, this could be a result of using a convenient homogenous sample. The sample size was small, and the survey had a small number of questions.

In African American women between the ages of eighteen and forty-five years receiving prenatal care in the city of Atlanta, how does group prenatal care compare to traditional one-to-one prenatal care, affect rates of breastfeeding, post breastfeeding intervention? The difference in groups means scores were not found to be statistically significant. Equal variances assumed the sig value was greater than the alpha .05 (.743>.05) the null hypothesis was accepted. Although study findings lack scientific significance, the findings were clinically significant. The post

intervention scores of total participants, $N = 26$ increased. The preintervention scores ranged from 50-100 compared to the postintervention scores ranged from 70 -100; the valid percent went from 15.4 to 53.8 %, which is more than 3x the preintervention percentage. The mean score for the preintervention is 79.23, $SD = 13.54$, while in the postintervention group the mean score is 92.31, $SD = 9.51$. Study participants showed increased learning on knowledge-based questions about the amount of breastmilk needed by the newborn day one of life and duration of exclusive breastfeeding.

Findings from this study are consistent with the findings from Sriraman & Kellams that sociocultural factors such as family, friend, partner, and provider support can affect breastfeeding (2016). Participants in the centering and routine care groups believed that social support, whether family, partner, or support from friends would help with breastfeeding.

The DNP project found that African Americans are knowledgeable about the benefits of breastfeeding and desired to breastfeed. This finding is consistent with findings from studies done by Gross, Davis, Anderson, Hall, & Hilyard, 2017; Lundquist, Barfield, & Elo, 2014; Fabiyi, Peacock, Herbert-Beirne, & Handler, showed African Americans breastfeeding positive deviance from the reported norms (2016). Forty-six percent of study participants in the breastfeeding quality improvement project had a history of breastfeeding and have plans to breastfeed again and breastfeed for a longer period. This finding is inconsistent with most findings in the literature.

A systematic review of the literature regarding group prenatal care for high risk pregnant women. This study showed that African Americans benefited from GPC/centering, which was demonstrated by increased breastfeeding (Byerley & Hass, 2017). The centering group had the highest post intervention scores, and all participants plan to breastfeed. Study participants

were present at every session with support personnel. The centering environment fosters patient and family/support personnel, thus promoting support for the needs of the mother-baby unit. Each participant in the centering groups received hours of interactive prenatal care and education throughout ten centering sessions. Participants in the routine care group had more missed appointments; less time was spent with the provider, thus less chance for education.

Findings from the study showed that breastfeeding knowledge and having a support system can improve breastfeeding in study participants. The study findings were consistent with findings from Brockway, Benzies, & Hayden that African Americans with higher breast-feeding self-efficacy score and more knowledgeable about breastfeeding were more likely to breastfeed (2017).

Patterns noted participants from the centering group might be influenced subconsciously by others in the group to participate or not participate. There was one group where one potential participant happily declined, and everyone after her declined as well. The centering group had more first-time mothers compared to the routine care group.

Unexpected findings African American mothers were willing to breastfeed and know some of the benefits of breastfeeding for their babies. The unemployment rate was higher in the center group; the overall unemployment rate was over 80%. Base on the study findings employment may or may not be related to low breastfeeding intake in the AA population in southwest Atlanta. African American mothers also believed that it is possible to return to school and to work while maintaining breastfeeding.

Study Limitations

The project findings may be limited to study participants. Study participants are African American women receiving prenatal care in southwest Atlanta. The sample was homogenous; thus, generalizability may be limited. The study utilized a small, convenient sample; thus, findings may lack external validity. Internal validity could be affected due to history, maturation testing, and instrumentation. Participants had pre-exposure to the survey questions (Polit & Beck, 2017). Findings from this study may be limited to patients of similar characteristics and geographic area. Participants in the centering group had preexposure to breastfeeding education. The low reliability of the tool could be related to a small number of questions on the survey.

Practice Implications

The DNP prepared nurse can limit barriers and positively have an impact on healthcare by bridging the gap between research and practice. The DNP prepared nurse can assess the evidence and translate the evidence into practice promptly (Moran, Burson, & Conrad, 2017). The student investigator can apply the project findings to practice when working with African Americans clients at the clinical practice site.

The project findings are that centering/group prenatal care is beneficial to AA mothers. Centering may be one of many tools that can provide breastfeeding knowledge and social support for AA mothers. This method of care has been shown throughout the literature to increase breastfeeding and decrease preterm births, increase visits, and weight gain in the African American mothers (Byerley & Hass, 2017). The centering group showed a higher level of learning compared to the routine care group. Centering should be implemented at all clinical sites providing obstetrical care, particularly at places frequented by AA mothers. All patients should be given the opportunity to be enrolled in centering. Centering is the most likely avenue to get the support system involved in care, thus building social support and encourage a

breastfeeding environment. For mothers who are not interested in centering/group prenatal care breastfeeding, classes/social events that show and support breastfeeding in a positive light should be implemented. Patients should be encouraged to bring their support system to the events.

The potential further scholarship for this project would be to follow up with project participants at 12 and 24 weeks postpartum to assess the initiation and duration of breastfeeding, facilitators, and barriers to breastfeeding success.

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Appendix A. Survey questions

An exploration of intent to breastfeed among African American mothers

Start of Block: Default Question Block

PARTICIPANT NUMBER _____

Q1. Have you ever seen anyone breastfeed a baby?

- no
 - yes
 - unsure/unable to recall
-

Q2. What do you think about breastfeeding?

- Breastfeeding is health
 - Breastfeeding in not healthy
 - Breastfeeding is neither healthy or unhealthy
-

Q3. Would you consider breastfeeding?

- Yes
 - No
 - Unsure/Maybe
-

Q4. What would help you to breastfeed?

- Family support
 - Partner support
 - Support from friends
-

Q5. What factors would prevent you from breastfeeding?

- Breastfeeding hurts
 - breastfeeding is not enough to satisfy my baby
 - I do not want to spoil my baby
-

Q6. How much milk does your baby need at each feeding, day one of life?

- 5 to 7 ml
 - 15 to 30 ml
 - > 30 ml
 - unsure
-

Q7. Is there any risk of not breastfeeding?

- Yes
 - Maybe
 - No
-

Q8. Is there any risk to formula feeding?

- Yes
 - Maybe
 - No
-

Q9. What is the recommended length of time for exclusive breastfeeding?

- 1 month
 - 3 months
 - 6 months
-

Q10. Is it possible for mothers to breastfeed and go back to work/school?

- Yes
- Maybe
- No

End of Block: Default Question Block
