

Intention to Breastfeed and Intervention in the African American Community

Cynethia Bethel-Jaiteh, MSN, APRN, CPNP, CLC

Northern Kentucky University

Abstract

The World Health Organization and the American Academy of Pediatrics recommend that all infants should be breastfed. Breastfeeding rates have improved after global and national initiatives over the last 25 years. However, breastfeeding rates are still low. Breastfeeding is unusually low for African American women. A quality improvement project was initiated in a community health center to identify African – American women’s breastfeeding intention and initiation within a breastfeeding friendly environment. The theory of planned behavior guided the breastfeeding promotion initiative. Twenty pregnant African-American women completed the Infant Feeding Intention questionnaire, received prenatal care in a breastfeeding supportive environment and received information about breastfeeding. There was an increase of breastfeeding. However, there was a decrease in intention to breastfeed after delivery of the infant. If healthcare staff know that African Americans are interested in breastfeeding, then more emphasis can be on breastfeeding education and support.

Intention to Breastfeed and Intervention in the African American Community

Introduction

The evolution of human beings and breastfeeding overlap from Mesopotamia, Ancient Egypt, Greek, Roman and traditional Japanese Empires to assure the healthy survival of infants by feeding with human milk from mothers (Papastavrou, Genitsaridi, Komodiki, Paliatsou, Midw, et al., 2015). Breastfeeding is the perfect and safest source of infant nutrition and has a profound effect on health. A review of the literature has shown that breastfeeding has known health benefits and is linked to favorable health outcomes for children and women. Infants who are breastfed have a significant reduction in risks of lower respiratory tract diseases, asthma, gastroenteritis, otitis media, atopic dermatitis, obesity, diabetes, childhood leukemia, sudden infant death syndrome, and necrotizing enterocolitis (Duijts, Jaddoe, Hofman, & Moll, 2010; Ip et al., 2007; Metzger & McDade, 2010; Sullivan et al., 2010). Maternal benefits include lower risks for diabetes, hypertension, hyperlipidemia, postpartum depression, breast and ovarian cancer (Ip et al., 2007; Horta & Victoria, 2013). Thus, breastfeeding reduces specific health outcomes and aids societies by lowering healthcare cost (Bartick & Reinhold, 2010).

Despite these positive contributions to populations and the society, the industrialization of humanity has led to frequent institutional barriers to breastfeeding across the spectrum of most communities. Accordingly, fewer women are breastfeeding. Nevertheless, there is a marked disparity among the African American community (Centers for Disease Control and Prevention, 2017). With the advent of research depicting positive health outcomes of breastfeeding and the deflating statistics of breastfeeding

mothers, supporting breastfeeding is recognized as a public health goal by many countries, including the United States (United Nations Children's Fund, 1990).

Problem Description

Breastfeeding is any breastmilk at all with the addition of any food, non-human milk or liquid. Exclusive breastfeeding is defined as only breast milk without solids, water, or other fluids in the infant's diet (Labbok, 2007). According to Healthy People 2020, 81.1 % of infants born in 2013 were ever breastfed (CDC, 2016). Infants who were exclusively breastfed at three months were significantly lower at 51.8%. Breastfeeding rates are below target for the Healthy People 2020 national goal of 81.9 %.

Over 15 years ago, the Surgeon General issued a call to action to reduce racial and ethnic disparities in breastfeeding (U.S Department of Health and Human Services, 2011). Nonetheless, breastfeeding initiation rates among African American are approximately 20% lower than their counterparts (CDC, 2015). In six states including Kentucky, the prevalence of initiation has been less than 70 % (Office of Disease Prevention and Health Promotion, 2015). Increasing present a challenge for healthcare providers. Health care providers and nurses are challenged to play a crucial role in breastfeeding initiation and continuation rates.

Available Knowledge

Understanding breastfeeding attitudes, beliefs and experiences of a population is vital to recognizing breastfeeding behavior occurrences (Vari et al., 2013). Reasons why women choose not to breastfeed nor have the intention to breastfeed include cultural norms and research suggests that social atmosphere influences breastfeeding. The opinions and

support of the healthcare provider, father, mother, and other relatives influenced breastfeeding intention of African American women (Bentley et al., 1999; Cottrell & Detman, 2013). In addition, breastfeeding initiation of African American mothers was positively associated with a mother who was breastfed as an infant and who had breastfed a previous infant (Meyerink & Marquis, 2002).

Intention is a strong predictor of initiation to breastfeed. Older age, positive attitudes, subjective norms and perceived behavior control were associated with intent to breastfeed (McMillian et al., 2008). In another study, Bai, Wunderlich, and Fly (2011) determined that the most significant predictor to exclusive breastfeeding was the subjective norm for African Americans mothers and their family members and those societal beliefs contributed to their subjective norm.

Spencer and Grassley (2013) conducted an integrative review of African American and breastfeeding that included 17 quantitative and 20 qualitative studies published between 1994 and 2011. The disparity of breastfeeding information, factors affecting African Americans prenatal breastfeeding intentions, decisions regarding initiation and duration, and interventions that prolong breastfeeding were discussed. Four studies in the integrative review (Beal, Kuhlthau, & Perrin, 2003; Crizzo-Lizzo, 2006; Kaufman, Deenadayalan, & Karpati, 2010; Lewallen & Street, 2010) reported a lack of breastfeeding education and recommendation by healthcare providers to breastfeed. The factors positively affecting African American women's intention to breastfeed were identified as positive attitude by the woman, family members' support of breastfeeding, attending prenatal breastfeeding group and the presence of confidence and breastfeeding self-

efficacy in studies by Alexander, D, & Furman, 2010; Bentley et al., 1999; Mickens, Modeste, Montgomery, & Taylor, 2009; Persad & Mensinger, 2008. The review noted several factors that influenced the decision not to breastfeed among African American mothers such as returning to work, perception of inadequate milk supply, embarrassment of breastfeeding, and being more comfortable with bottle feeding (Alexander et al., 2010; Avery, Zimmermann, Underwood, & Magnus, 2009; Kaufman et al., 2010).

Given the disparity, there is a developing body of research describing breastfeeding promotion interventions in minority women. Support groups for African American women, providing individual support and mentoring, developing a positive social marketing campaign with African American women breastfeeding, increasing support in the workplace and increasing the availability of healthcare providers who can provide breastfeeding support to African American women are breastfeeding interventions that be valuable (Ringel-Kulka et al., 2011).

Chapman and Perez-Escamilla (2012) identified and evaluated the effectiveness of breastfeeding interventions in 18 randomized trials targeting minority women. The interventions that were successful in improving breastfeeding rates were peer counseling, breastfeeding teams, breastfeeding clinic appointments, group prenatal breastfeeding classes and hospital /WIC policy changes.

Conceptual Framework

The Theory of Planned Behavior implies that the attitude towards a behavior, subjective norm, and perception of control leads to intention to initiate an action (Ajzen, 1991). Attitude refers to the positive or negative feelings about the behavior. Attitudes

towards the behavior are a function of belief in the behavior. Subjective norm is the perceived social pressure to complete the action and is a function of one's beliefs that are formed by the influence of others in one's life. Perceived behavioral control is the extent to which people believe that they can perform the behavior. Intention reflects the plan to perform the behavior. According to the theory, intention is a direct precursor of behavior and perceived behavioral control with intention can be used to predict behavioral attainment (Ajzen, 1991).

Attitude, subjective norm, or perceived behavioral control needs to be affected to change behavioral intention. Subjective norms are one's perceptions or assumptions about others' expectations of certain behaviors that one will or will not perform. For African Americans, breastfeeding is not a subjective norm. Most African American women do not breastfeed and may not expect others to breastfeed. Since attitude is based on one's views on the possible outcomes of performing the behavior, lack of knowledge influences the attitude about breastfeeding. If perceived behavioral control is based on apparent ease or difficulty in achieving an action and breastfeeding is believed to be difficult, a woman would less likely breastfeed. According to the theory, the lack of perceived behavioral control can explain the failure to perform a behavior when attitude and subjective norms are encouraging (Ajzen, 1991).

Specific Aims

The World Health Organization recommends that all infants should be breastfed and the American Academy of Pediatrics recommends that babies should be breastfed exclusively for at least six months. The World Health Organization (WHO) and the United

Nations Children's Fund (UNICEF) have set out strategies needed to increase initiation and duration of breastfeeding globally. These strategies includes the promotion of breastfeeding, protection of the mother's ability to breastfeed, and increase support to mothers for breastfeeding (WHO/UNICEF, 1990). The United States Baby-Friendly Hospital Initiative (BFHI) was developed in 1997 and incorporated the ten steps to successful breastfeeding, which are designed to assist the hospital in providing the choice and opportunity to breastfeed (Baby-Friendly USA, 2010). Breastfeeding rates are still low, and there is a breastfeeding disparity among the African American community. In addition, there is no standard of care to improve breastfeeding outcomes in the office setting.

A breastfeeding friendly practice is an environment where staff promotes and supports breastfeeding (Meeks & Hatcher, 2017). Promotion and support from healthcare providers in a breastfeeding friendly environment can give women a place to find information and seek assistance for breastfeeding problems. Community health care centers provide affordable, comprehensive, coordinated patient-centered care aimed at improving the health outcomes of low-income populations. The promotion and support of breastfeeding provide the community health center an opportunity to positively influence the health of infants and their mothers and reduce health disparities.

The purpose of the quality improvement project was to provide prenatal breastfeeding promotion and education and examine breastfeeding intention in African American women at a community health center. The project aimed to determine whether

there is an increased intention to breastfeed in pregnant African American women in a breastfeeding friendly environment.

The goals were to promote and support women in making an informed decision regarding newborn feeding practices and encourage breastfeeding as the best choice for infant nutrition by achieving and maintain a breastfeeding friendly environment, facilitate the acceptance of breastfeeding as the social norm for infant feeding and establish the health center as a resource for breastfeeding women. The objectives were:

- The providers will introduce infant feeding in the first trimester and promote breastfeeding to delivery.
- The women's health department will provide appropriate breastfeeding educational resources for patients.
- The staff will encourage attendance of both parents at prenatal breastfeeding classes.
- All staff will encourage exclusive breastfeeding and avoidance of supplemental formula.
- The office will provide a supportive environment (including a lactation room) and positive feedback for breastfeeding mothers
- The health center will maintain a list of community resources related to breastfeeding (e.g., breast pump rental locations)
- The health center will provide staff education to maternal childstaff regarding breastfeeding

Methods

African American women who were pregnant and attended a community health center were identified through convenience sampling by the nursing staff of the Women's health department of the health center; the goal was 40 expectant mothers. Inclusion criteria were African American women 18 years old to 45 years old who were pregnant and at least ten weeks pregnant but less than 36 weeks pregnant without any medical problems that may prevent or interfere with breastfeeding. The maternal exclusion criteria

include HIV diagnosis, taking antiretroviral meds agents, taking chemotherapy agents, diagnosed with untreated active tuberculosis, illicit drug usage and first-time mothers with breast augmentation. The mother's information was not used if an infant was hospitalized or diagnosed with galactosemia. The breastfeeding intervention was conducted at a community health center in the women's health department where most patients served are African American.

Process for Implementation

The women's health department was modified to support a breastfeeding friendly environment. The breastfeeding friendly environment included: 1) the provision of supportive nursing staff and health providers (two nurse practitioners) who encourage breastfeeding, 2) creation of a private lactation area 3) quick accessibility of breastfeeding educational materials such as breastfeeding flipbooks in each exam room 4) breastfeeding promotional materials in the lobby and 5) breastfeeding class. Educational topics utilized included but not limited to 1) the benefits of breastfeeding, 2) myths about breastfeeding, 3) tips on how to breastfeed. The educational topics were also discussed in an hour long prenatal breastfeeding group session or in individual prenatal breastfeeding instructional sessions. The participants were asked to attend the class at a designated time, outside the routine prenatal visits.

Staff preparation included participation in an on-line breastfeeding promotion and support course titled, "Ten Steps to Successful Breastfeeding". Three medical assistants, one nurse, and two nurse practitioners of the women health department completed the course during the recruitment period of the breastfeeding quality improvement. The course

was structured in 15 modules and was completed at the staff's pace. The assigned team members in the department had access to the modules 24-hours a day through a personal access code. They had one month to complete the course in preparation for the breastfeeding promotion initiative.

Measures

Breastfeeding intentions were measured using a Likert scale on a five-item Infant Feeding Intention (IFI) questionnaire, e.g., I am planning to only formula feed my baby (will not breastfeed at all, and I am planning to breastfeed my baby or at least try (Appendix A). The scale was administered three times: before breastfeeding friendly environment and education, approximately two weeks before due date but after the breastfeeding education and at the six-week postpartum visit. The nursing staff or researcher administered the questionnaire while the women were at the health center or via telephone. A unique number that was placed on each questionnaire identified each participant and questionnaires were numbered in sequence for accuracy of the data. No questionnaire was associated with a participant. The IFI scale is valid and reliable to assess intentions to initiate and sustain breastfeeding. A pilot study and construct validity samples included women from low, moderate and high education levels and major ethnic groups, Cronbach's coefficient alpha value of 0.90 (Nommsen-Rivers & Dewey, 2009). Therefore, IFI can be used to assess intentions to initiate breastfeeding in a diverse population within the U.S.

The IFI scale consists of five questions about breastfeeding intention and the intended duration of breastfeeding. The 5-point Likert scale' total score ranges from 0 to

16. The lower the score indicates an intention to not breastfeed at all while a 16 indicates very strong intentions to provide breast milk as sole source of milk for first six months.

Demographics were collected such as age, marital status, income level, the number of previous children, and prior breastfeeding exposure.

Analysis

Basic statistical tests were used to analyze the results. Frequencies, medians, and other descriptive statistics were carried out on the demographic data to analyze the sample. Spearman Rho correlation tests were conducted to determine if there is a relationship between the baseline IFI scales and any demographic variable. The sign test was conducted for each question from baseline IFI to IFI 2 and baseline IFI to IFI 3 to compare the infant feeding intentions. The infant-mother dyad was assessed for breastfeeding initiation at the six-week postpartum visit. The data were analyzed using Minitab 17 Statistical Software. The alpha level for significance testing was set at 0.05. Statistical analysis and interpretation were completed with the assistance of the Northern Kentucky University Burkhardt Consulting Center (Highland Heights, KY).

Ethical Considerations

African American pregnant women are a vulnerable population because of potential risks to their unborn babies. As part of a minority population, they may also feel coerced to participate in the project. Therefore, this project was guided by the ethical principles of respect for persons, beneficence, and justice. Participants were not harmed, and minimal risks were foreseen such as peer pressure, embarrassment, and frustration. Experiences among the participants were justifiable, and all interactions with the participants were to

promote and support breastfeeding. However, the infant feeding choice was the decision of the mother and was accepted. The University Institutional Review Board (IRB) granted approval of the project. The community health center granted permission for the quality improvement project. During recruitment, the participants were given an informed consent. The women could withdraw at any time. The participants were aware of others involved in the project while participating in the breastfeeding education groups. However, all identifiable private information was confidential and secured; data was password protected on a computer and paper copies was placed in a locked cabinet.

Results

Twenty pregnant African-American women were recruited to participate from a community health center. Three women had a miscarriage at five months gestation, one moved away, and three women did not have a scheduled six-week postpartum check-up at the health center or were not able to be contacted by telephone.

Age	Number	Percent
18-20	3	15%
20-25	7	35%
26-30	5	25%
31-34	1	5%
35-40	4	20%

Job	Number	Percent
Student	1	5%
Part time & student	1	5%
Part-time	4	20%
Full-time	6	30%
Unemployed	8	40%

Household	Number	Percent
Single, never married	16	80%
Married or same sex domestic partner	2	10%
Divorced	2	10%

Income	Number	Percent
Less than \$20,000	15	75%
\$20,000-\$40,000	3	15%
\$40,000-\$60,000	2	10%

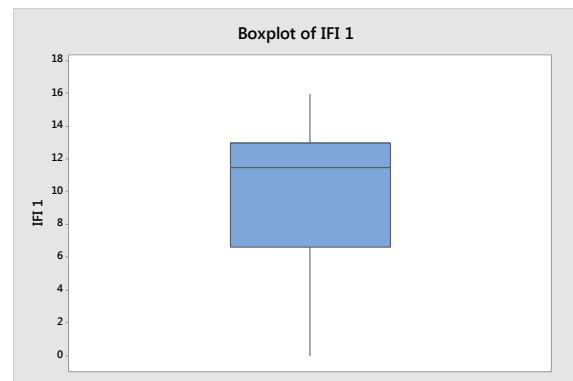
Children	Number	Percent
0	8	40%
1	3	15%
2	4	20%
3	2	10%
5	1	5%
More than 5	2	10%

Education	Number	Percent	Experience	Number	Percent
Some high school, no diploma	6	30%	Never breastfed or know anyone who breastfed	4	20%
High school graduate or GED	8	40%	Know someone who breastfed	8	40%
Some college	2	10%	Breastfed for less than a week	2	10%
Associate	3	15%	Breastfed for more than a week but less than a month	1	5%
Bachelor	1	5%	Breastfed for more than a month	5	25%

All the women completed the first Infant Feeding Intention (IFI) scale. At baseline, 25% of the women had the intention only to feed their babies formula, 25% were unsure if they will be breastfeeding and 80% planned to try to breastfeed. More than half of the women had intentions to be breastfeeding at one-month-old and three months old (55%) while only 45% had intentions to be breastfeeding at six months old. The median baseline IFI scale was 11.5 (6.63, 13). The Spearman Rho correlation tests do not contain evidence of non-zero correlation. There was no significance between any of the demographic variables and baseline IFI scores.

IFI Pre-Intervention Score Summary

Minimum	0
1 st Quartile	6.63
Median	11.5
3 rd Quartile	13
Maximum	16



Thirteen participants completed the IFI scale – at baseline and before delivery. Six women attended the breastfeeding class and obtained a breastfeeding guidebook for African-American women. Most of the women did have an increased intention to breastfeed from

IFI #1 and IFI #2 (53%). There was an increase in the median to 13 (6.63, 13). However, there was no statistically significant change in intention to breastfeed ($p = .5488$).

Thirteen participants, not all the same women from above, completed the IFI scale at baseline and after the delivery. At the average infant age of 2 months, most women had less intention to breastfeed (76.9%, $p=.0117$). There was a negative change in the median score with a median score of 0.5. The statistical significance was with the intention to only formula feed/will not breastfeed at all ($p = .0313$), breastfeeding without using any formula or other milk at three months old and at six months old ($p = .0117$). However, two women were breastfeeding at follow-up, and an additional five women breastfed their infants for a short length of time before the follow-up. The shortest duration was twodays, and the longest was six weeks.

Discussion

The breastfeeding-friendly environment depends on staff education, breastfeeding knowledge, attitudes, and promotion of breastfeeding. The theory of planned behavior implies that the attitude toward a behavior, subjective norm and perception of control leads to intention to breastfeed. The breastfeeding friendly environment may have increased the intention to breastfeed. During the pregnancy, promotion of breastfeeding provides an opportunity to become familiar with the concept of breastfeeding, gain a positive attitude about breastfeeding and normalize it as an infant feeding choice. Prenatal breastfeeding classes affect attitude but also assist women in determining the effort it would require being successful at breastfeeding. Perceived behavioral control is one of the precursors of intention, and the belief that one cannot be successful in breastfeeding can hinder

initiation. Healthcare staff needs the knowledge and skills to promote breastfeeding and be a support to pregnant women. Education to maternal- child staff regarding breastfeeding is instrumental to the breastfeeding friendly environment. Attitude, social norm, and perceived behavior control are influenced by providing prenatal breastfeeding education and creating a breastfeeding-friendly atmosphere. An intercession that affects all variables should increase intention to breastfeed.

The providers introduced infant feeding by the second trimester and promoted breastfeeding to delivery. The women's health department provided breastfeeding educational resources to women. Attendance of both parents at prenatal breastfeeding classes was encouraged. All staff encouraged exclusive breastfeeding and avoidance of supplemental formula. The office provided a supportive environment including a lactation room and positive feedback for breastfeeding mothers or women who wanted to breastfeed. The health center maintained a list of community resources related to breastfeeding (e.g., support groups). The health center provided staff education to maternal-child staff regarding breastfeeding. More than half of the women did have an increased intention to breastfeed after the exposure to the breastfeeding friendly environment and education. Research demonstrates that African American women reported an increase in breastfeeding awareness, perceived support and self-efficacy with institutional and individual interventions (Johnson, Kirk, Rosenblum & Muzik, 2015).

Recommendations and Implications

There was an increase of breastfeeding intention after the breastfeeding friendly environment and education. If healthcare providers know that African Americans are

interested in breastfeeding, then more effort to educate about breastfeeding can occur. However, efforts to minimize breastfeeding disparities in the African American community will likely require multi-layered interventions. Bai and Wunderlich (2011) suggest that closing the gap in breastfeeding rates among races requires a tailored comprehensive approach that considers ethnicity of the women. Breastfeeding promotion needs to focus on improving attitude and subjective norm in African American women. Educating mothers on the health benefits of breastfeeding can be the first step to improve attitudes. As more women breastfeed and the community becomes supportive of breastfeeding, the society will consider breastfeeding as the sole source of nutrition for newborns.

Unfortunately, there was a sharp decrease in breastfeeding intention postpartum. The decline in the plan to breastfeed is not surprising because the early postpartum period is a challenging time. In addition, breastfeeding intentions inadequately predict the duration of breastfeeding up to 6 weeks postpartum (Wambach, 1997). Overall, more research is needed on African American women breastfeeding attitudes, intentions to breastfeed, current support systems and interventions.

Strengths and Limitations

A strength of the study was that the real intentions of African American women to breastfeed were captured at baseline. African-American women are less likely to initiate and sustain breastfeeding. Although they may have the intention to do so, other factors, affect the ability to breastfeed. The sample size of this study limits generalization. The use of the IFI scale at the six-week postpartum visit may not have been administered at the

most appropriate time. It may have caused an additional decrease in the score (intention to breastfeed) because of the wording of the scale and the timing of the follow-up. Although all staff involved in the study had to complete an online training on breastfeeding, there was no standard approach to discussions about breastfeeding from the staff to the participants. There were also staff changes. Therefore, not all the staff had the same breastfeeding knowledge during the entire quality improvement process. The sampling may have caused bias because women who may have had a small interest in breastfeeding choose to participate.

Conclusion

A standard process of breastfeeding promotion in the office is vital to increasing breastfeeding rates. However, efforts to minimize breastfeeding disparities in the African American community will likely require multi-layered interventions. Breastfeeding promotion needs to focus on improving attitudes and subjective norms. Educating mothers on the health benefits of breastfeeding can improve their perception and healthcare staff's role in providing the needed information about breastfeeding appears to be a common theme. Group prenatal breastfeeding education has shown to be an effective intervention and breastfeeding clinic appointments appear promising. Overall, more research is needed on African American women breastfeeding attitudes and interventions experienced by African Americans only. One of the challenges for women is to continue breastfeeding once they have learned about breastfeeding and have left the supportive environment of the hospital. The health-care system needs to provide a substantive support system.

Breastfeeding professionals can carry mothers through the perceived problems of the first few weeks.

The breastfeeding promotion initiative has inspired continued effort to promote breastfeeding at the community health center. Breastfeeding promotion will be directed to all pregnant patients with the collaboration of the Women, Infant and Children program staff, women health department and support of the administration. Development of a breastfeeding policy will help maintain a breastfeeding environment. In addition, certified lactation counselors and healthcare providers within the health center will start providing breastfeeding education at a specific prenatal visit. Also, group breastfeeding class is being reevaluated as a good source of breastfeeding information for patients at the health center.

Other Information

Funds from the American Academy of Colleges of Nursing and the Centers of Disease Control evidence-based project partnership was used to purchase the breastfeeding modules for the professional development of the staff, prenatal breastfeeding educational material for the participants and breastfeeding material such as posters and brochures to change the atmosphere to promote breastfeeding. A local hospital paid the salary of the Lactation Consultant who taught the breastfeeding classes. The funding organizations did not have any role in design, implementation, interpretation or reporting.

References

1. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211. doi: 10.1016/0749-5978(91)90020-T
2. Baby-Friendly USA. (2010). Guidelines and evaluation criteria for facilities seeking baby-friendly designation. Sandwich, MA. Retrieved from <http://www.babyfriendlyusa.org/get-started/the-guidelines-evaluation-criteria>
3. Bai, Y., Wunderlich, S., & Fly, A. (2011). Predicting intentions to continue exclusive breastfeeding for 6 months: A comparison among racial/ethnic groups. *Maternal and Child Health Journal*, 15(8), 1257-1264. doi: 10.1007/s10995-010-0703-7.
4. Bartick, M., & Reinhold, A. (2010). The burden of suboptimal breastfeeding in the U.S. *Pediatrics*, 125(5), E1048–E1056. <http://dx.doi.org/10.1542/peds.2009-1616>
5. Bentley, M., Caulfield, L.E., Gross, S.M., Bronner, Y., Jensen, J., Kessler, L.A., & Paige, D.M. (1999). Sources of influence on intention to breastfeeding among African American women at entry to WIC. *Journal of Human Lactation*, 15(1), 27-34. doi:10.1177/089033449901500109
6. Centers for Disease Control and Prevention. (2017). Racial and geographic differences in breastfeeding-United States, 2011-2015. *Morbidity and Mortality Weekly Report*, 66(27), 723-727. doi:10.15585/mmwr.mm6630a5
7. Centers for Disease Control and Prevention (2016). Breastfeeding report card: Progressing toward National breastfeeding goals. United States, 2016. Retrieved from <https://www.cdc.gov/breastfeeding/pdf/2016breastfeedingreportcard.pdf>
8. Centers for Disease Control and Prevention, U.S. Department of Health and Human Services. (2015). Breastfeeding among U.S children born 2002-2012: CDC national immunizations surveys. Retrieved from http://www.cdc.gov/breastfeeding/data/nis_data/index.htm
9. Chapman, D. & Perez-Escamilla, R. (2012). Breastfeeding among minority women: Moving from risk factors to interventions. *Advances in Nutrition*, 3, 95-104. doi: 10.3945/an.111.001016

10. Cottrell, B., & Detman, L. (2013). Breastfeeding concerns and experiences of African American mothers. *Maternal Child Nursing, 38*(5), 297-304. doi:10.1097/NMC.0b013e31829a5606
11. Duijts, L., Jaddoe, V.W., Hofman, A., & Moll, H. (2010). Prolonged and exclusive breastfeeding reduces the risk of infectious diseases in infancy. *Pediatrics, 126*(1), e18-e25. doi:10.1542/peds.2008-3256
12. Horta, B., Victora, C. (2013). Long-term effects of breastfeeding: A systematic review. World Health Organization. Retrieved from http://biblio.szoptatasert.hu/sites/default/files/Longterm_effects_of_breastfeeding_WHO2013.pdf
13. Ip, S., Chung, S., Raman, G., Chew, P., Magula, N., DeVine, D., . . . Lau, J. (2007). *Breastfeeding and maternal and infant health outcomes in developed countries*. (Evidence Report/Technology Assessment Number 153). AHRQ Publication No. 07-E007. Rockville, MD: Agency for Healthcare Research and Quality. Retrieved from <https://archive.ahrq.gov/downloads/pub/evidence/pdf/brfout/brfout.pdf>
14. Johnson, A., Kirk, R., Rosenblum, K., & Muzik, M. (2015). Enhancing breastfeeding rates among African American women: A systematic review of current psychosocial interventions. *Breastfeeding Medicine, 10*(1), 45-62. doi: 10.1089/bfm.2014.0023
15. Labbok, M. (2007). What is the definition of breastfeeding? La Leche International. Retrieved from <http://www.lalecheleague.org/ba/feb00.html>
16. McMillan, B., Conner, M., Woolridge, M., Dyson, L., Green, J., Renfrew, M., Bharj, K., & Clarke, G. (2006). Predicting breastfeeding in women living in areas of economic hardship: Explanatory role of the theory of planned behavior. *Psychology and Health, 23*(7), 767-788. <http://dx.doi.org/10.1080/08870440701615260>
17. Meeks, J., & Hatcher, A. (2017). The breastfeeding friendly pediatric office practice. *Pediatrics, 139*(5), e20170647. doi: 10.1542/peds.2017-0647
18. Metzger, M & McDade, T. (2010). Breastfeeding as obesity prevention in the United States: A sibling difference model. *American Journal of Human Biology, 22*(3), 291-296. doi:10.1002/ajhb.20982

19. Meyerink, R., & Marquis, G. (2002). Breastfeeding initiation and duration among low-income women in Alabama: The importance of personal and familial experiences in making infant-feeding choices. *Journal of Human Lactation*, *18*(1), 38-45. doi: 10.1177/089033440201800106
20. Nommsen-Rivers, L.A., & Dewey, K.G. (2009). Development and validation of the infant feeding intentions scale. *Maternal Child Health Journal*, *13*(3), 334-342. doi: 10.1007/s10995-008-0356-y
21. Office of Disease Prevention and Health Promotion. (2015, Oct). Healthy people 2020: Maternal, infant and child health. Retrieved from <https://www.healthypeople.gov/2020/topics-objectives/topic/maternal-infant-and-child-health/objectives>
22. Papastavrou, M., Genitsaridi, S.M., Komodiki, E., Paliatsou, S., Midw, R., Kontogeorgou, A., & Lacovidou, N. (2015). Breastfeeding in the course of history, *Journal of Pediatric Neonatal Care*, *2*(6), 00096. doi: 10.15406/jpnc.2015.02.00096
23. Ringel-Kulka, T., Jensen, E., McLaurin, S., Woods, E., Kotch, J., Labbok, M., Bowling, M., Dardess, P., & Baker, S. (2011). Community-based participatory research of breastfeeding disparities in AfricanAmerican women. *Infant Child and Adolescent Nutrition*, *3*(4), 233-239. doi: 10.1177/1941406411413918
24. Spencer, B. S., & Grassley, J. S. (2013). African American women and breastfeeding: An integrative literature review. *Health Care for Women International*, *34*(7), 607-625. doi:10.1080/07399332.2012.684813.
25. Sullivan, S., Schanler, R., Kim, J., Patel, A., Trawoger, R., Kiechi- Kohlendorfer, ... & Lucas, A. (2010). An exclusively human milk-based diet is associated with a lower rate of necrotizing enterocolitis than a diet of human milk and bovine milk-based products. *Journal of Pediatrics*, *156*(4),562-567.
doi:[10.1016/j.jpeds.2009.10.040](https://doi.org/10.1016/j.jpeds.2009.10.040)
26. United Nations Children’s Fund & World Health Organization. (1990). Innocenti declaration on the protection, promotion, and support of breastfeeding, Florence, Italy. Retrieved from http://www.who.int/about/agenda/health_development/events/innocenti_declaration_1990.pdf

27. U.S. Department of Health and Human Services. (2011). The surgeon general's call to action to support breastfeeding. Washington, DC; US Office of the Surgeon General. Retrieved from www.surgeongeneral.gov
28. Vari, P., Vogeltanz-Holm, N., Olsen, G., Anderson, C., Holm, J., Peterson, H., & Henly, S. (2013). Community breastfeeding attitudes and beliefs. *Health Care for Women International*, 34, 592-606. doi: 10.1080/07399332.2012.655391
29. Wambach, K.A. (1997). Breastfeeding intention and outcome: A test of the theory of planned behavior. *Research in Nursing and Health*, 20, 51-59. doi: 10.1002/(SICI)1098-240X(199702)20:1

Appendix A

I. Feeding intentions

You may not know exactly what your plans are for feeding your baby, but you may have ideas about what you would like or are planning to do. I am going to read you some statements about feeding your baby and I would like you to please choose the answer that most closely matches your opinion, considering both your current feeding plans and the likelihood that you will carry out those plans.

	very much agree	somewhat agree	unsure	somewhat disagree	very much disagree
1. I am planning to only formula feed my baby (will not breastfeed at all).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I am planning to breastfeed my baby or at least try.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. When my baby is one-month-old, I will be breastfeeding without using any formula or other milk.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. When my baby is three-months-old, I will be breastfeeding my baby without using any formula or other milk.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. When my baby is six-months-old, I will be breastfeeding my baby without using any formula or other milk.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Scoring

For item 1: Very much agree = 0, Somewhat agree = 1, Unsure = 2, Somewhat disagree = 3, and Very much disagree = 4.

For items 2, 3, 4 and 5: Very much agree = 4, Somewhat agree = 3, Unsure = 2, Somewhat disagree = 1 and Very much disagree = 0.

Total score = (mean of items 1 + 2) + (sum of items 3, 4, 5). Thus total score ranges from 0 (very strong intention to not breastfeed at all) to 16 (very strong intentions to provide breast milk as sole source of milk for first 6 months).

Developed by Laurie A. Nommsen-Rivers, PhD, RD, IBCLC
 laurie.nommsen-rivers@cchmc.org
 Cincinnati Children's Hospital Medical Center, Cincinnati, OH