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### Breastfeeding Initiatives in Rural Kentucky: an Action Research Approach To Improving Public Health

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Breastfeeding Initiatives in Rural Kentucky:  
An Action Research Approach to Improving Public Health

Presented in Partial Fulfillment of the  
Requirements for the Degree of  
Doctor of Occupational Therapy

Eastern Kentucky University  
College of Health Sciences  
Department of Occupational Science and Occupational Therapy

Mallory D. Ratliff  
2015

**EASTERN KENTUCKY UNIVERSITY  
COLLEGE OF HEALTH SCIENCES  
DEPARTMENT OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL THERAPY**

This project, written by Mallory D. Ratliff under direction of Doris Pierce, Faculty Mentor, and approved by members of the project committee, has been presented and accepted in partial fulfillment of requirements for the degree of

DOCTOR OF OCCUPATIONAL THERAPY

CAPSTONE COMMITTEE

  
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Faculty Mentor

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5/11/15  
Date

**EASTERN KENTUCKY UNIVERSITY  
COLLEGE OF HEALTH SCIENCES  
DEPARTMENT OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL  
THERAPY**

Certification

We hereby certify that this Capstone project, submitted by Mallory D. Ratliff, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the project requirement for the Doctor of Occupational Therapy degree.

Approved:

Christine Myers 5/11/15  
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### Executive Summary

**Background:** Breastfeeding has numerous health benefits for infants, mothers, and society. Kentucky currently ranks 48<sup>th</sup> in the nation in overall breastfeeding rates.

**Purpose:** The purpose of this study was to determine what occupational therapists might offer to teams involved in neonatal and postpartum care in order to increase the incidence of breastfeeding among eastern Kentucky women.

**Theoretical Framework.** The Public Health Model to Violence Prevention has components that were adapted for this study's action research design in order to impact occupational engagement of breastfeeding among diverse populations, including identifying the problem, determining who is at risk for occupational injustices and related supports, implementing and monitoring the program, and ensuring other organizations follow suit in compliance with evidence-based practice.

**Methods.** A series of three focus groups were held over three months in which stakeholders brainstormed objectives and project ideas. Projects were monitored and a final analysis was performed of objectives met and future steps.

**Results.** Stakeholders determined that there was a lack of awareness of current breastfeeding services in eastern Kentucky. A "Lunch and Learn" meeting was held for healthcare providers and a breastfeeding resource pamphlet was provided to healthcare providers so that they could distribute them to families in need of breastfeeding assistance.

**Conclusions:** Action research methods are beneficial in assisting teams in developing objectives to improve breastfeeding awareness. Ongoing analysis will be required to determine long-term impact on overall breastfeeding rates in the region.

### **Acknowledgements**

Special thanks to my husband, children, and loving family that supported me throughout the research process. This project would not have been possible without the encouragement of my husband to pursue my dreams. Special thanks to the stakeholders involved in this project - thanks for your honesty, time, and commitment during the focus groups. You are all making a difference in the health of Kentucky's families.

Thanks to Jan Johnson, RD for her contribution, data analysis, and recommendation to become a Certified Lactation Specialist. This research project would not have been as successful without your assistance. I appreciate Treana Pack, RN for her support and encouragement of hospital staff to participate in this research study. Special thanks to Dr. Doris Pierce and Dr. Christine Myers for encouraging me to pursue and establish occupational therapy's role in breastfeeding support and guiding me throughout the research process. Thanks to the Occupational Therapy Department at Eastern Kentucky University for enabling me to become the occupational therapist that I am today.

To the current and former breastfeeding mothers in Kentucky, thank you for your contribution to the health and wellness of our state. As the saying goes, the days are long, but the years are short.

BREASTFEEDING INITIATIVES

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EASTERN KENTUCKY UNIVERSITY  
COLLEGE OF HEALTH SCIENCES  
DEPARTMENT OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL THERAPY

CERTIFICATION OF AUTHORSHIP

Submitted to (Faculty Mentor's Name): Dr. Doris Pierce

Student's Name: Mallory D. Ratliff

Title of Submission: Breastfeeding Initiatives in Rural Kentucky: An action based Approach to Improving Public Health

*Certification of Authorship: I hereby certify that I am the author of this document and that any assistance I received in its preparation is fully acknowledged and disclosed in the document. I have also cited all sources from which I obtained data, ideas, or words that are copied directly or paraphrased in the document. Sources are properly credited according to accepted standards for professional publications. I also certify that this paper was prepared by me for this purpose.*

Student's Signature: Mallory Ratliff, OTR/L

Date of Submission: May 8, 2015



Breastfeeding Initiatives in Rural Kentucky:  
An Action Research Approach to Improving Public Health

Mallory D. Ratliff

Eastern Kentucky University

May, 2015

### Overview

Breastfeeding offers numerous benefits for mother and baby and should be considered a priority for the health of communities as opposed to a parenting choice (American Academy of Pediatrics, 2012). Occupational therapists have a place in breastfeeding support, public health promotion, and guiding performance patterns (Pitonyak, 2014).

This study sought to identify what occupational therapists within the medical and community systems could offer stakeholders involved in breastfeeding support and neonatal care. Action research methods were utilized to allow stakeholders in a rural community in Kentucky to decide what objectives could benefit their area. A series of three focus groups were held over the course of three months. Stakeholders determined that the major objective of the research should be to increase knowledge of current breastfeeding resources. A “Lunch and Learn” class was offered to healthcare professionals, as well as a breastfeeding resource pamphlet developed. This brochure was given to healthcare providers so that they could provide these resources to mothers who were experiencing difficulties with breastfeeding. The team determined that the objective was met and projects were successful. Study limitations included a short research duration that could not determine the impact upon breastfeeding rates and inclement weather that may have minimized potential stakeholder participation.

## **Nature of Project and Problem Identification**

### **Introduction**

Becoming a parent changes family dynamics, as well as the types of occupations in which family members engage. One of the first occupations that infants and mothers co-experience in their new journey is the occupation of feeding. Feeding difficulties could mean problems in the years following infancy. Even low-risk, premature infants in the first year of life with feeding difficulties have demonstrated lower psychomotor abilities, lower rates of maternal affectionate touch, and higher rates of maternal intrusiveness on 1 year follow-up evaluations (Silberstein et al., 2009). Approximately 50% of all infants and young children will have feeding difficulties (Rommel, De Meyer, Feenstra, & Veereman-Wauters, 2003). In Appalachia, an area noted to be high in health disparities (Griffith, Lovett, Pyle, & Miller, 2011; UHF, 2012), children are at an even greater risk for poor health outcomes (Griffith, et al., 2011). Occupational therapists are challenged to provide interventions that allow for occupational engagement for clients and minimize health disparities (American Occupational Therapy Association, 2011). This is consistent with Healthy People 2020 initiatives to “achieve health equity, eliminate disparities, and improve the health of all groups” (U.S. Department of Health and Human Services, 2008, p.1).

The overarching problem and need for research is that, among breast-feeding, low income mothers, there exists a lack of access to resources and information resulting from health disparities (Balcazar, Suarez-Balcazar, Taylor-Ritzler, & Keyes, 2010; Haskins, 2006). This lack of access to breast-feeding resources and support among low income mothers, along with cultural beliefs, may be contributing to the poor health outcomes of the low income population (Bailey, Pain, & Aarvold, 2004; U.S. Department of Health and Human Services, 2011b).

In 2012, Kentucky was 44th in the nation in overall health status, based upon high rates of obesity, smoking, and diabetes (United Health Foundation, 2012). According to reports, Kentuckians rank 40th among states for rates of obesity and 41st for individuals with diabetes (UHF, 2012). Rural Appalachia is considered a region of health disparities due to poverty, overall poor health status, and even lower health statuses for diverse sub-populations, including African Americans (Griffith, et al., 2011; UHF, 2012). Griffith and colleagues (2011) found incongruence among self-reported health status and actual health status among Appalachian people. Although 74% of Appalachians reported good health, 65% reported being sedentary, 24% were hypertensive, and 73% were obese (p. 232), all factors associated with poor health outcomes. It is recommended that “high priorities for programs targeting health disparities in rural Appalachia should be those that target one’s perception of health and/or one’s perception of health risk behaviors” (Griffith et al., 2011, p. 325). Further in Kentucky, 15.3% of the population aged 16 to 64 is considered to be disabled, one of the highest rates in the nation (Brault, 2010). This high ratio of individuals with disabilities also places Kentuckians at high risk for health disparities.

There has been research seeking to improve the rates of breastfeeding education and outcomes in rural populations of other countries. Kumar, Agarwal, and Swami (2006) examined socio-demographic factors impacting breastfeeding rates recorded for mothers within urban slums in Chandigarh, India. It was found that illiterate or just literate mothers having home births were at a much higher risk for delayed breastfeeding initiation. The authors proposed through their study that encouraging low-income women in India to give birth in hospitals, as opposed to home birth, would increase the opportunity for health education, and therefore increase the rate of breast-feeding among this population. In America, this may prove to be an

ineffective solution as 99.1% of births currently take place in hospitals (MacDorman & Menacker, 2010). Research indicates that among mothers of premature infants, latch directly to the breast in the first few day post-partum was associated with higher breast-milk feeding outcomes at discharge, adding that the earlier breast-feeding is initiated, the better the outcomes are (Pineda, 2011). We must take breastfeeding education within rural populations of the United States a step further in order to be effective in improving breastfeeding rates.

The key to preventing occupational injustice for low-income mothers in America could lie in early health education that provides accurate knowledge and support to families (Bailey et al., 2004; Dewey, 2003; Ingram & Johnson, 2004). Ingram and Johnson (2004) found an increase in breastfeeding rates in an intervention group receiving family education, specifically focused towards the grandmothers and fathers of infants. At eight weeks post-partum, significantly more mothers in the intervention group reported continued breast-feeding, citing similar or better support from their family following the training.

In 2011, the Surgeon General's *Call to Action to Support Breastfeeding* (U.S. Department of Health and Human Services, 2011a) identified actions that are necessary in order for America to improve breastfeeding rates. Active support recommendations for families, communities, health care organizations, employers, research and surveillance, and public health infrastructure are seen as crucial for making breastfeeding easier for mothers. Actions recommended by the Surgeon General include providing support to mothers and ensuring education and training in breastfeeding is provided for all health professionals who work with women and children in health care. It is also important to strengthen current guidelines and future opportunities for conducting research on breastfeeding. Identified barriers include lack of knowledge, negative cultural views of breastfeeding, social norms, and lack of education among health professionals.

Participatory action research aimed at health care education and support for families meets the Surgeon General's call to action by enabling communities to tailor programs to the unique needs of the Appalachian population.

Women from low-income areas may benefit from occupational therapy's unique knowledge of feeding strategies for at-risk infants. Low-income mothers may ignore healthcare professionals' breastfeeding recommendations and instead seek out advice from family and friends when facing problems, fearing ridicule from healthcare professionals (Heinig et al., 2006). Culturally sensitive healthcare professionals could be crucial in providing assistance in a non-threatening way (Black & Wells, 2007).

### **Purpose and Objectives**

The purpose of this qualitative study was to determine what occupational therapists might offer to teams involved in neonatal and postpartum care in order to increase the incidence of breastfeeding among eastern Kentucky women. Using an action research approach, it was determined what interventions and supports would be beneficial for teams if implemented within a local hospital and/or county health department setting. Stakeholders included the researcher, hospital staff, community health department staff, and breastfeeding mothers. Over the course of three focus group meetings, stakeholders collaboratively determined what interventions and supports were specifically needed, created goals, and set steps to meet their goals.

### **Theoretical Framework**

The Public Health Model to Violence Prevention (Centers for Disease Control and Prevention, n.d.; Jennings, Kahn, Mastroianni, & Parker, 2003) has components that can be adapted to correlate with occupational therapy and this study design to impact occupational engagement among diverse populations, including identifying the problem, determining who is

at risk for occupational injustices and related supports, implementing and monitoring the program, and ensuring other organizations follow suit in compliance with evidence-based practice (see Appendix for specific steps of the approach).

In this study, we used action research within a series of focus groups in order to identify the problem, complete a needs assessment, develop strategies to increase the incidence of breastfeeding, and provide hospital education. Programs aimed at public health initiatives and wellness have proven to be successful in improving health and reports of life satisfaction (Jackson, Carlson, Mandel, Zemke, & Clark, 1998). Action research provides community members with a means to problem-solve and work together through each of these project stages.

### **Significance of the Study**

In low income areas, women may be at an even greater risk for reduced breast-feeding rates associated with misconceptions, negative expectations, and lack of support (Bailey et al., 2004). Women in rural Kentucky are part of many diverse populations, marked by predominately lower socio-economic status, lower education rates, and being less likely to have health insurance (Short, Oza-Frank, & Conrey, 2012). Breast-feeding rates have been found to be lowest in low-income areas, especially among diverse populations including those who identify as African-Americans, Multiracial, and American Indian (U.S. Department of Health and Human Services, 2011b). While rates are increasing in Kentucky, only 61.3% (up from 59.4% in 2013) of women have identified as ever breastfeeding, the third lowest rates in the nation. Of these women, only 9.6% are following the American Academy of Pediatrics' (2012) guidelines recommending exclusive breastfeeding for six months (National Center for Chronic Disease Prevention and Health Promotion, 2014). Children from areas reporting the lowest rates

of breastfeeding and the lowest incomes also experience the highest rates of obesity and lowest reported health status (2011b, p. 9-12).

According to Smith and Alston (2010) women are often identified as having a minority status, despite the fact that they compose a higher percentage of the population in most areas. The oppression and discrimination experienced by women in healthcare has negative consequences for overall family health, dynamics, and children's health (Haskins, 2006). The occupations of mothers are important to establishing appropriate identity and meaningfulness in this role (Siebers, 2010). In cultures that do not value breastfeeding, it would be difficult to enhance health outcomes without challenging cultural views of breastfeeding and appropriate mothering. Occupational therapists working collaboratively with teams may offer key insights that are based in their unique cultural competencies (Black & Wells, 2007). Providing education in a culturally acceptable way supports individuals to be more open and able to make evidence-based decisions regarding how to best feed their children. By examining the unique challenges, discriminations, and alienation of this population, we can determine if occupational injustices are contributing to poor health outcomes, both on an internal and external level (2007).

The American Occupational Therapy Association's Practice Framework (2014) states that the domain of occupational therapy is "*achieving health, well-being, and participation in life through engagement in occupation*" (p. S4). It is important to recognize that we can support health outcomes through the engagement in culturally relevant, meaningful activities. Activities of daily living and instrumental activities of daily living, such as child rearing, are given meaning through an individual and cultural contribution to overall health and well-being (2014). Healthy People 2020's goals for breastfeeding are that it is to be attempted by 81.9% of mothers, continued by 60.6% of women at 6 months, and that 34.1% of women are still breastfeeding at



12 months. Healthy People 2020's goals for exclusive breastfeeding through three months of age are 46.2% and 25.5% at 6 months of age (U.S. Department of Health and Human Services, n.d.). As previously reviewed, Kentucky's initiation rate of 61.3% is far behind Healthy People's 2020 goals of breastfeeding for maternal, infant, and child health. While occupational therapy literature is limited in this area, there is a large volume of multidisciplinary research documenting the benefits and implications of breastfeeding.

### **Literature Review**

Described in *Occupational Therapy Practice Framework: Domain & Process* (AOTA, 2014) as an instrumental activity of daily living, child rearing is a valued occupation for people choosing to have children. As part of this broader area of occupational engagement, parents are required to master feeding and eating in child rearing - typically one of the very first occupations engaged in by a new mother and infant. It is important that these first experiences of feeding for the infant and mother are positive and beneficial for the health of the family. The implications of breastfeeding success for society and our culture are very critical.

Evidence-based physical and occupational therapy feeding interventions have been reviewed in recent literature (Garber, 2013; Howe & Wang, 2013). While occupational therapy research is limited, Pitonyak (2014) has published guidelines for occupational therapists in regard to their role in breastfeeding promotion. Occupational therapists may offer families assistance in establishing roles and routines that are conducive to breastfeeding. Occupational therapists should expand their knowledge and skills in infant feeding and eating in order to address this important need of families. Therapists are also called to advocate for breastfeeding at the local, regional, state, and national level. By promoting breastfeeding policy, we can influence societal norms and impact policy development. Not only is this an excellent way to

advocate for clients, but it is also a way to advocate for and establish our professional role in this area.

Studies have shown that most pediatricians may be uneducated about the importance of breastfeeding (Freed & Clark, 1995). It is beneficial for occupational therapists and other medical professionals with experience of breastfeeding and medical knowledge to act as representatives in relaying important information to mothers. Research shows that a pregnant woman's view of her family and healthcare provider's opinion on breastfeeding impacts her choice on how to feed her infant (Odom et al., 2014). Mothers are most likely to breastfeed when they believe that their family members and health providers prefer for them to strictly breastfeed. Healthcare providers should be aware of their influence upon a mother's feeding choices.

There are numerous established studies demonstrating the benefits of breastfeeding and successful breastfeeding projects (American Academy of Pediatrics, 2012; Davis, Stichler, & Poeltler, 2012; Grossman et al., 2009; Pineda, 2011; Wolf, 2003). The American Academy of Pediatrics (2012) recommends exclusive breastfeeding for the first six months of life due to its association with "reduced incidences in children of acute illnesses such as diarrhea, ear infections, pneumonia, and meningitis, lessened occurrence of chronic diseases and conditions such as sudden infant death syndrome (SIDS), obesity, childhood leukemia, asthma, and lowered IQ" (Wolf, 2003, p. 2000). Systematic reviews and meta-analyses performed by the World Health Organization (2007a) found consistent benefits of breastfeeding, such as lowered risk of diabetes, obesity, high blood pressure, cholesterol, and increased IQ. Infants that had been exclusively breastfed for greater than six months were noted to have intelligence quotients (IQs) that were 3.8 points higher on intellectual assessments (Jedrychowski et al., 2012). The longer

the duration of breastfeeding, the greater the increased difference in IQ points can be found. However, it should be noted that any duration of breastfeeding is associated with higher cognitive development. These differences have been found to be sustained through preschool age. In countries outside the United States, breastfeeding also continues to be indicated despite the presence of maternal or infant disease, such as HIV infection (Kindra, Coutoudis, Esposito, & Esterhuizen, 2011).

There are also many studies that demonstrate the health benefits of breastfeeding for lactating mothers (Collaborative Group on Hormonal Factors in Breast Cancer, 2002; Bentley-Lewis, Levkoff, Stuebe, & Seely, 2008; Schwartz et al., 2009; Sibolboro Mezzacappa, & Endicott, 2007; Stuebe, Rich-Edwards, Willett, Manson, & Michels, 2005). Dr. Ruth Lawrence (Godfrey & Lawrence, 2010) identifies several benefits of long-term breastfeeding throughout the literature, including lower rates of depression, coronary heart disease, diabetes, and breast cancer (p. 1598). While breast cancer, the second leading cause of death among women (Ekwueme et al., 2014), is associated with many different risk factors, risk was reduced by 7% for every twelve months of breastfeeding (Pechlivani & Vivilaki, 2012).

In addition to these documented health benefits, there is also a financial incentive for mothers to breastfeed. Women from rural communities may be influenced by the Women Infants and Child (WIC) subsidy program which provides free formula for families in financial need, in that women working for more than two months and receiving benefits from WIC has been associated with lower rates of breastfeeding initiation and continuation (Flower et al., 2008). There is a high cost to the state for providing formula to families through the WIC subsidy program as well. Breastfeeding mothers that receive assistance from the WIC program save the program \$478 in WIC costs and Medicaid expenditures during the first six months of

the infant's life (Montgomery, 1997). While breastfeeding itself is not completely free due to costs of equipment, supplies, and time, it is estimated that it saves a family from \$714 to \$3,163 in the first year of an infant's life, depending on type of formula required (Bonyata, 2011). This is in addition to wages lost due to missed work resulting from the extra hospitalizations and/or doctor visits. The financial savings for families and federal subsidy programs are significant over many years of intervention.

There are also healthcare-related costs associated with the absence of breastfeeding. Research has shown that insurance cost was estimated to be between \$331 and \$475 more per never-breastfed-child than breastfed child in the first year of life alone due to associated illnesses and hospitalizations (Ball & Wright, 1999). A more recent case study of Louisiana estimated that \$216,103,368 could be saved and 18 infant deaths prevented annually in that state through 100% implementation and follow-thru of optimal breastfeeding guidelines (Ma, Brewer-Asling, & Magnus, 2013). Nationwide compliance at a 90% rate of breastfeeding recommendations would be associated with \$13 billion in healthcare savings and the prevention of hundreds of infant deaths (Bartick & Reinhold, 2010). With the sky-rocketing healthcare costs in America, interventions focused in this area could assist in lowering healthcare expenditures and illness in both mother and child.

It is often a misconception of families that formula-feeding is an equal alternative to breastfeeding that is without risk (Hormann, 2010; Tarrant, Sheridan-Pereira, McCarthy, Younger, & Kearney, 2013). The risks and precautions of using formula should be reviewed with all parents as they decide how they will feed their infants. While liquid formula is sterile, the most common type of formula used, powdered infant formula, opens the door to a wide range of contamination issues. It is recommended foremost that all water used for formula preparation

is boiled to 70° C prior to use in order to reduce bacterial contamination (Hormann, 2010; WHO & Food and Agriculture Organization of the United Nation, 2007). The infant formula industry has fought against WHO recommendations with the arguments that excessive heat will decrease nutrients in formula, increase the risk for scalding, and will cause milk to clump – reasons that are not supported by the literature (Hormann, 2010; WHO & FAO, 2007). Most people consider unclean water to be the major risk associated with dangers of formula-feeding from powdered infant formula; however, the dangers go beyond clean water and into the formula powder itself. In 2000, an outbreak of bacteria-contaminated powdered infant formula in Belgium resulted in 12 infant deaths (van Acker et al., 2001). Various other studies document the dangers of contaminated powdered infant formula (CDC, 2002; International Food Safety Authorities Network, 2005). Given the manufacturing techniques and technology of modern powdered infant formula, it does not seem possible to commercially produce powdered infant formula that is without a contamination risk (IFSN, 2005). While it may not be an option to produce and provide sterile powdered infant formula to infants, the World Health Organization and Food and Agriculture Organization of the United Nations (2007) developed guidelines for safe preparation and handling of powdered infant formula for healthcare providers. Much of the responsibility for contaminated formula lies with formula-manufacturers with poor safety analyses (Infant Nutrition Council, 2009), however, it is recommended that parents that choose to formula-feed their infants take steps to follow the safety guidelines to greatly reduce the risk that their infants may become sick (WHO, 2007b). The WHO guidelines on safe manufacturing, preparation, and storage of powdered infant formula use this document to further reiterate their recommendations that infants be breastfed for optimum health and minimal risk of bacterial contamination (WHO & FAO, 2007).

Risks of using powdered infant formula are also related to the in-home preparation and care of formula-fed infants. It is critical that formula be prepared using the exact amount of water specified in the directions in order to prevent illness or, in extreme instances, death of the infant (Coodin & Gabrielson, 1971). Too much or too little water results in an imbalance of nutrients, of which a long-term imbalance could be deadly (1971). In research examining amount of time infants feed and receive emotional care from their mothers, it was found that exclusively formula-fed infants received the lowest amount of emotional care time from their mothers and exclusively breastfed infants received the highest amount of emotional care time from their mothers (Smith & Ellwood, 2011). This may account for higher cognitive performance of breastfed infants reported in numerous other studies (Drane & Logemann, 2000; Jedrychowski et al., 2012; Tawia, 2013). All bottle feeding parents need education regarding standard infant feeding patterns and portion control in order to avoid overfeeding infants. Typical feeding patterns and infant stomach capacity may be overlooked by formula-feeding mothers, resulting in the over feeding of infants. Formula-fed infants are more at risk of being overfed, which may be contributing to rising obesity rates, especially for children with a low socioeconomic status (Gibbs & Forste, 2014). By providing too much formula, it can inhibit an infant's typical feeding cycle, hunger cues, and satiation cues in the brain. Infants who are predominately formula-fed are 2.5 times more likely to be obese at 24 months, compared to predominately breastfed infants. Breastfed babies are less likely to be overfed and have healthier weights. Families should be made aware of all the risks of formula-feeding. Instruction in feeding patterns of infants, proper formula preparation, and bottle sterilization should be given to all formula-feeding mothers prior to leaving the hospital (WHO & FAO, 2007). Occupational

therapists involved in the post-partum care of infants could provide education regarding these safety guidelines and WHO recommendations.

The top reasons that a mother may choose to formula-feed her infant is based upon her views that formula-feeding is more convenient, more socially acceptable in public, and is a family tradition (Tarrant et al., 2013). In order to support mothers during pregnancy and the post-partum period, occupational therapists have a role in educating mothers to combat views of the perceived advantages of formula-feeding. Education could be provided regarding techniques to demonstrate the advantages of breastfeeding vs. formula-feeding, as well as to provide social support/training for boosting a mother's confidence for breastfeeding in public. Occupational therapists can enable mothers to embrace family traditions while incorporating new traditions, roles, and routines that are conducive to breastfeeding goals (Pitonyak, 2014).

As previously stated, approximately 50% of infants and young children will have feeding difficulties (Rommel, De Meyer, Feenstra, & Veereman-Wauters, 2003). These difficulties can occur in at-risk and healthy infant populations (Furman & Minich, 2004). The three greatest barriers to breastfeeding are low maternal confidence, problems with latch or effective milk transfer, and/or perceived insufficient milk production (Dewey, 2003). These are all areas where trained professionals may have an impact. The low rates of breastfeeding in America, or supplementation with formula feeding, have serious complications for our collective health that infants can carry throughout their lives (Dewey, 2003). Occupational therapists, combined with their training of feeding, handling, and psychomotor techniques, are in an optimal position to train and educate other professionals on the importance and implication of breastfeeding. Using a whole team approach, healthcare providers can determine how best to overcome identified barriers and minimize health disparities. Occupational therapists develop collaborative

relationships with clients, which may include other parties, such as caregivers, medical professionals, and stakeholders of the occupational engagement (AOTA, 2014).

## **Methods**

### **Action Research**

Action research is a type of investigation that involves collaborative efforts on behalf of stakeholders to identify areas of need, problems, and how they are affected by them. It may combine qualitative and quantitative measures to enable individuals to stimulate change through transactional methods (Stringer, 2013). Transactional leadership methods focus on the exchanges that occur between leaders and their followers (Northouse, 2013). Taking this a step further, participatory action research involves stakeholders coming together to produce transformational changes within the setting and empower stakeholders (Taylor, Suarez-Balcazar, Forsyth, & Kielhofner, 2006). Transformational leadership engages both leaders and followers, creating a connection that enhances motivation and morality for all stakeholders (Northouse, 2013). One of the principles of participatory action research states that “participatory research generates knowledge that is intended to be used” (2006, p. 623). This is essential to expanding occupational therapy’s role in the domain of promoting breastfeeding in this study. Evidence suggests that programs implemented by a central leader have limited success in resolving issues in personal and public situations (Stringer, 2013). A study by Grossman et al. (2009) found that a three-session educational training aimed at hospital nurses proved to be insignificant in improving breastfeeding exclusivity and was only beneficial at one location which improved breastfeeding initiation rates. This limited success is also associated with guided participation studies to increase breastfeeding outcomes (Pridham et al., 2005).



The basic action research routine used in this study included a continually cycling framework that guided the process: look, think, and act. Action research methods have proven to be successful in raising awareness and solving issues pertaining to particular groups and situations, such as domestic violence (Gustafson & Iluebbey, 2013). Davis, Stichler, and Poeltler (2012) developed an evidence-based program similar to the collaborative style of community-based action research in the well-baby population that proved to be successful in increasing overall breastfeeding rates at that specific hospital. Participatory action research enhanced action research methodology to produce lasting change, empower stakeholders, and guide practice (Taylor et al., 2006). Community-based action research offered problem resolution that built relationships and transformational processes through stakeholder input. The combination of stakeholder input with current evidence-based research is beneficial in overcoming barriers for unique, marginalized populations.

Action research was the methodology for this study. This study was a participatory design implemented within a rural medical and community setting in eastern Kentucky, noted to be high in health disparities. Participatory action research serves to empower participants because individuals involved are motivated to learn and continue learning to problem solve as new needs and barriers arise in the future (Elden & Levin, as cited in Taylor, Suarez-Balcazar, Forsyth, & Kielhofner, 2006). Through this methodology, stakeholders were able to identify what barriers impact their particular situation, consider possible solutions, and act to accomplish collaboratively established goals (Creswell, 2014; Kielhofner, 2006).

### **Project Design**

This project was divided into a series of three focus groups where stakeholders were able to determine barriers to breastfeeding success for families. The researcher also gained

information from stakeholders through email correspondence if they were not able to attend the focus groups. Stakeholders collaboratively developed goals, projects, and steps of this research.

### **Setting**

The primary setting for this action research design was a small community in rural eastern Kentucky. Focus groups occurred at a small hospital near the West Virginia border. This setting was selected based upon the low breastfeeding rates provided through the local WIC office, the need of the community, and close proximity for healthcare providers and families. Other factors included a willingness to participate, occupational therapists and healthcare providers were readily employed in this locations, the fact that 99.1% of births occur in hospitals so that the highest proportion of mothers could be reached (MacDorman & Menacker, 2010), and research suggesting that the initial days of an infant's life are the most critical in establishing a successful breastfeeding relationship (AAP, 2005).

### **Participants**

The research reported here involved community stakeholders including families, a physical therapist, an occupational therapist, occupational therapy assistants, a home health care manager, eight nurses, and a lactation consultant. The Pike County Health Department lactation consultant, Jan Johnson, served as a content expert for the capstone team, as well as a stakeholder. Treana Pack, OB/Pediatric Nurse Manager at Tug Valley Appalachian Regional Medical Center, served as the on-site mentor at this location. In order to be considered for inclusion in the study, participants were required to be interested in improving breastfeeding outcomes for the Appalachian population. Participants were recruited through hospital flyers, established stakeholders, and through the researcher's work at each organization, as well as within the community.

**Ethical Considerations**

Ethical considerations were minimal as participation was voluntary following full informed consent. Due to the action research methodology, participants were in control of the project process and less likely to be at risk for negative ethical situations (Stringer, 2013). It should be noted that the types of participants included vulnerable populations, such as pregnant women, which required additional safeguards to ensure minimal risk (Creswell, 2014; Mathews-Lopez & Watson, 2004). Appalachian Regional Healthcare's Institutional Review Board (IRB) reviewed and approved this research at their facility. Eastern Kentucky University's IRB accepted Appalachian Regional Healthcare's Institutional Review Board's decision and granted permission for the study to take place through the university.

Ensuring safety and controlling ethical concerns was of the utmost importance of this study. Creswell (2014) states that a valuable way to reduce the risk of exploitation of participants is to include them as collaborators. Participatory research is highly collaborative as all team members are working toward the same mutually-established goal. Although having outlined that risk was minimal, it was necessary to obtain written informed consent from all stakeholders (Creswell, 2014; Workman & Kielhofner, 2006). Participants were informed of research problems, objectives, and outcomes gathered through focus groups and a collaborative process involving delicate procedures that may have brought about embarrassment or stress to members if were uncomfortable with such discussions. Stakeholders that may not have encountered breastfeeding daily (i.e. non-medical professionals) or were joining the group to learn more about the process (i.e. pregnant moms) were considered to be especially at risk. Full informed consent in lay terminology at the beginning of the research study and consistent reminders throughout focus groups was provided to protect all stakeholders.

Throughout the study, no negative risks or side effects were expressed from participants. It is important to note the personal, sometimes taboo, connotation that breastfeeding has developed over the past several decades in America. It was important to openly discuss breastfeeding as an important way to nurture our children, whether done in public or private, and as nothing to be ashamed of. Due to the marginalized population the study was serving, it was important to ensure that all terminology is written in a concise and easy to understand manner. Discussions, such as those that took place in the focus groups and email summaries, took careful consideration as to not use highly medical terminology with the assumption that all stakeholders understand what is occurring. Informational sessions in the beginning of the study were beneficial and appreciated by the stakeholders as we ensured all participants had a basic level of information regarding the benefits of breastfeeding, relaying facts and figures between Kentucky and Healthy People 2020 goals, and ensuring all stakeholders understood why our study was worthwhile.

### **Project Phases**

The major sequence of action research project phases, according to Stringer (2013), was look, think, and act. These phases were considered to be recurring and cycling through action research studies according to team needs and specific situations. Participatory action research (Taylor et al., 2006) was utilized here to guide needs assessments, interventions, and evaluation methods. All stakeholders were considered equal and valuable to program outcomes.

**Look.** This initial phase of capstone project implementation was considered qualitative and involved gathering information, such as what is needed, learning about stakeholder experiences, and clarifying pertinent information. This information came primarily from focus groups, research literature, and email feedback. An important strategy for gathering data related

to participation was focus groups interviews (Luborsky & Lysack, 2006). Focus groups were a necessary and efficient method for all stakeholders to benefit from the participatory action methods. Limitations of focus groups included the short duration of the study, difficulties scheduling groups so that all stakeholders could attend, and the possibility that stakeholders may not have embraced and be fully participatory in a focus group setting. As a facilitator, it was crucial for the researcher to be open and honest with stakeholders and encourage full participation from all team members. Being flexible was the greatest asset to the success of the study.

Stakeholders were able to brainstorm barriers and solutions to breastfeeding success in the region. It was determined that many factors contribute to low breastfeeding rates including low support from healthcare staff, lack of awareness of breastfeeding support services currently available, reimbursement issues with employing staff in the healthcare setting, and misconceptions/misinformation about breastfeeding. Solutions included a “Lunch & Learn” event to be sponsored by the hospital home health store.

**Think.** The next phase involved analysis of variables that were impacting the group’s identified problem issue. Interpretation occurred here using two types of processes: categorizing and selecting key experiences. The information was then written into report format that logically displays what was found through the team analysis. Data analysis occurred at this phase, reflecting upon outcomes through focus groups. It was collectively determined through the group what our goals were and how we would accomplish them in the second focus group.

In the second focus group, stakeholders determined that the greatest barrier to breastfeeding success was the lack of awareness of current breastfeeding services. A mother within the group stated:

When I took my daughter to the pediatrician for her one week checkup, the doctor told me she was not gaining enough weight. He said, “You have till tomorrow to get her to gain weight or we need to supplement with formula.” What I would have appreciated is him saying, “You have one more day to bring her weight up - breastfeeding is very important - here’s who you need to call.” Thankfully, I knew who to call.

Stakeholders felt that it was not beneficial to fight for additional services if community members, especially healthcare providers, were not even aware of the resources there were already in place. The team decided to proceed with the Lunch and Learn event to be held with healthcare providers. A prioritization list of the most important information to be conveyed in the one hour event was compiled by the team members. This event was sponsored by the Appalachian Regional Healthcare Home Store who felt it was important for healthcare providers to be aware that insurance is required to cover breast pumps for no cost to post-partum mothers. The cost of a breast pump should not be an issue for a working mother who is considering breast feeding and healthcare providers should be providing this information to families.

Another project that the team agreed was important to contribute to the objective was to offer healthcare providers a list of community and online resources that they could give to mothers that were struggling with breastfeeding their babies. It was decided that this brochure would include local contacts within Pike County, Kentucky and Mingo County, West Virginia, as well as online resources for mothers that were more comfortable seeking information through the Internet.

**Act.** This implementation phase required stakeholders to formulate actions that resolve issues identified through the analysis phase. Planning took place in this phase with problem prioritization, developing an action plan (where specific procedures were developed), and

identifying suspected outcomes following implementation. Following planning, the actual implementation occurred when the team and researcher took on a more supportive role of offering support, personal nurturing, reflection, assistance, and conflict resolution (Stringer, 2013).

The Lunch and Learn was attended by 13 healthcare providers including an occupational therapist, multiple occupational therapist assistants, a speech therapist, a physical therapist, and nurses from across many pediatric offices and the hospital. This event was presented by the lactation consultant due to her many years of experience with educating healthcare staff and families. Attendees expressed positive thoughts about the meeting and followed up with questions at the end of the session. The breastfeeding resource brochure was distributed during this event. Additional copies were provided to pediatricians' offices, OB/GYN offices, and the pediatric and obstetrics floor within the hospital. The researcher met with pediatric and obstetrical physicians in person to describe the pamphlets and research in order to increase stakeholder buy-in from those individuals.

The next step was reviewing progress between the stakeholders. Stakeholders were able to review the action plan, report on progress, make any necessary modifications, and identify successes through email communication and the final focus group (Stringer, 2013). The last step of this phase was the evaluation of the project which also occurred as a collaborative effort. Issues that were resolved were considered overcome, while issues that continued to persist were subject to ongoing action from stakeholders that remain within the facility.

In the final focus group, stakeholders discussed all the ideas generated, the projects that were accomplished, and reviewed the objectives. It was determined that we had met our objectives of raising awareness of breastfeeding resources successfully by completing our

projects. Issues with the research were also discussed at this time. Stakeholders expressed that, due to the short duration of the research study, we were not able to analyze breastfeeding rates in the community that may rise in the future following the Lunch and Learn and brochure distribution. Analysis of future breastfeeding rates will be ongoing to determine if a lasting impact was made among stakeholders. It should also be noted that inclement weather may have played a factor in the attendees of the focus groups. The second focus group had to be rescheduled once due to snow and, as a result, the date of the final focus group had to be rescheduled as well. Sustainability of the breastfeeding resource pamphlets was considered as a possible issue if each setting were to run out. The nurse manager of the obstetrics and pediatric floor was provided with an electronic version of the document so that additional copies could be printed as needed.

## Procedures

### Timeline of the Study

Date	Meeting Overview
January 20, 2015	First Meeting Review of informed consent Presentation on breastfeeding information Shared experiences with breastfeeding Brainstormed project ideas Set objectives for the future Answered any questions
February 27, 2015	Second Meeting Discussed progress toward goals Identified steps toward meeting objectives Identified specific tasks to be done Answered any questions
March 25, 2015	Lunch and Learn meeting held with healthcare providers Breastfeeding resource pamphlet shared
March 27, 2015	Final Meeting Analysis/Summary of all meetings Identified any issues involved Discussed final progress toward objective



	Determined if goals were met Discussed future plans
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## Resources

Financial resources were considered minimal, but largely included printing costs for the breastfeeding resource pamphlets and documentation supplies for the focus groups. A budget proposal was not developed due to the low cost of the research. General financial resources were paid for at the cost of the researcher. Printing expenses for the breastfeeding resource pamphlet were paid for by the researcher. The use of the facility and conference rooms for focus groups and the lunch and learn was free. The Tug Valley ARH HomeCare Store manager volunteered to pay for the food for the Lunch and Learn as part of their marketing.

## Summary

In conclusion, breastfeeding and the use of breastmilk in infants has numerous health, financial, and societal benefits, most of which are sustained long-term. Kentucky ranks 48<sup>th</sup> in the nation in overall breastfeeding rates. This ranking is 20.6% under national goals for breastfeeding initiation by mothers. The study reported here used action research to assist a rural Kentucky county to improve rates of breastfeeding and minimize health disparities. Three focus groups were scheduled throughout the three month period producing definite short-term changes and potential long-term changes. Stakeholders developed an objective to increase awareness of current breastfeeding services in place. A lunch and learn was held with healthcare providers to provide education of helpful breastfeeding information. A breastfeeding resource pamphlet was also provided to the hospital and pediatrician offices containing helpful local, regional, state, and internet resources for families. Overall, stakeholders felt that the objective was met and research was successful in enabling this community to improve awareness of breastfeeding rates.

Occupational therapists have a role in awareness of community breastfeeding support resources. Mothers and healthcare staff may not be aware of where to turn for breastfeeding assistance. A skilled occupational therapist can educate staff and families on breastfeeding support and refer to the appropriate community resource.

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## Appendix

