

A Needs Assessment for Breastfeeding Students in Higher Education in the State of Kansas

By

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November 7, 2019

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Abstract

In the United States, breastfeeding rates continue to rise, however, they remain below the nationally targeted goals (Centers for Disease Control and Prevention, 2016). The need to provide expressed breastmilk during periods of separation from an infant due to employment or school attendance can be a barrier to successful breastfeeding. Students and post-doctoral students who breastfed during their academic programs have few legal protections in the academic setting and limited research has exclusively focused on unique demographics of this population. The purpose of this needs assessment project was to assess the barriers to continued breastfeeding in the higher education setting, to determine the policies and accommodations for breastfeeding students among the Board of Regents facilities in the state of Kansas, and to provide recommendations to promote and facilitate breastfeeding among the student population in the academic setting. An online questionnaire was voluntarily completed by 16 representatives of the 32 accredited higher education facilities in Kansas. Data analysis focused on describing the following areas: lactation policies for students, dedicated lactation facilities and amenities, campus on-site lactation support, and staff and student education. Results demonstrated that most of the schools did not have a written lactation policy; however, nearly every school had dedicated lactation space(s) available for students to express breastmilk. Results regarding the types of education provided to staff and students, available lactation accommodations, and future lactation space and policy planning varied among facilities. The results from this project were consistent with other studies demonstrating that educational institutions are improving lactation accommodations for students; however, there is significant variation in planning and implementation of these services. A summary and recommendations were provided to facilities at the completion of the project.

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A Needs Assessment for Breastfeeding Students in Higher Education in the State of Kansas

In the United States, breastfeeding rates are rising; however, they continue to remain below the World Health Organization (WHO) and Healthy People 2020 goals. Approximately 81% of mothers initiate breastfeeding, 50% are breastfeeding at six months, and 30% continue to breastfeed some at one year; however, exclusive breastfeeding rates are under 20% at six months of age (Centers for Disease Control and Prevention, 2016). Literature supports that parents who receive community support have improved breastfeeding rates and duration (Haroon, Das, Salam, Imdad, & Bhutta, 2013). Although breastfeeding rates have increased in the United States, there continues to be significant disparities in breastfeeding rates among minority women, women of lower socioeconomic status, women with less formal education, and younger women in the United States (Albrecht, Wang, & Spatz, 2017).

The need to provide expressed breastmilk due to employment or school attendance can be a barrier to initiating and sustaining breastfeeding and shortened breastfeeding duration (Albrecht et al., 2017). Most of the research regarding mothers who express milk while away from their infant(s) has been focused on mothers in the workforce. Limited research has exclusively focused on breastfeeding mothers in the higher education setting. While both employed women and students face some of the same challenges while being separated from their infants, such as maintaining adequate milk supply, student mothers often have fewer legal protections and increased breastfeeding barriers when compared to employed women (Bostick, Albrecht, Baghdadi, Haley, & Spatz, 2016).

Additionally, the demographics of the student population have changed over the past 20 years, with increasing numbers of students classified as “non-traditional”. Of the 17 million individuals pursuing higher education, almost 74% have at least one non-traditional

characteristic, which includes caring for a child or single parenting (Nadworny, 2018). This is relevant because there continues to be significant disparities among the breastfeeding rates of women in certain minority groups, women of lower socioeconomic status, and women with less education (Bartick et al., 2017). With the changing student demographics, many student mothers may identify with one or more of these minority characteristics. Providing early breastfeeding support and continued support for parents and their infants is critical to improving breastfeeding disparities and improving breastfeeding outcomes (Binns, Lee, & Low, 2016). While separation from their infant and expression of milk is challenging for many mothers, students may face the additional challenges of the lack of appropriate facilities for breastmilk expression and lack of supportive policies that provide protections to employees (Dinour, Pope, & Bai, 2015).

Improving support systems for new mothers is critical to achieving the Healthy People 2020, WHO, and American Academy of Pediatrics (AAP) goals for breastfeeding during the first year of life. Advanced practitioners are called to educate and promote policy change for students in the academic setting, to further the research relating to barriers and supportive measures on college campuses, and to increase breastfeeding rates and duration within the student population (Albrecht et al., 2017). In addition to developing policy change, advanced practitioners in family practice settings, pediatric clinics, women's health, and student health centers are vital for providing support and promoting breastfeeding education from a clinical perspective.

Statement of Problem

Undergraduate, graduate, and post-doctoral students who breastfeed during their academic program have limited legal protections in the academic setting. The Affordable Care Act (ACA) provides breastfeeding protections to many working mothers, but the ACA does not extend the same protections to students as it does to employed women (Bostick et al., 2016).

Students are not employees of the academic facility; therefore, ACA employment protections are not extended to protect students. However, students are protected by Title IX, which is a federal law that provides protections for students from discrimination ("Know your rights: breastfeeding," n.d.). Title IX provides legal protections and requires accommodations for students with disabilities, including childbirth and sex-related conditions. The U.S. Department of Education encourages educational institutions to provide an area dedicated for pumping and milk storage, but official lactation policies are often non-existent and on-site lactation facilities are limited or difficult to access. Additionally, students may struggle with the lack of support from administration, professors, and peers. In a study of 139 educational institutions, only 3.8% had a formal lactation policy addressed in the student handbook and 54.7% had a designated lactation space available for students (Bostick et al., 2016).

Currently, there is a lack of information that specifically addresses students and breastfeeding accommodations and campus support among the higher education facilities in the state of Kansas. Supporting lactation in the educational setting and promoting breastfeeding provides benefits for babies and mothers nutritionally, physically, emotionally, and financially. The purpose of this Doctor of Nursing Practice (DNP) project was to conduct a needs assessment to determine what policies, accommodations, and support has been implemented among the higher education facilities in the state of Kansas. The information gained from this DNP project will assist in future planning recommendations and implementation of interventions for student parents who need to provide their own milk for their infants.

Review of Literature

Research articles to support this project were identified by using CINAHL, PubMed, and Google Scholar databases. The keyword searches for this integrative review included:

breastfeeding, students, lactation policy, breastfeeding Affordable Care Act, student mothers, university breastfeeding policy, employment and breastfeeding, Title IX accommodations, community breastfeeding support. This review was limited to studies within the previous ten years, with preference given to literature within the previous five years. Articles addressing student accommodations outside of the United States were excluded. Common themes among the literature included: the benefits of breastfeeding, breastfeeding among students in higher education, and community breastfeeding support. See Appendix G for literature review matrix.

Benefits of Breastfeeding

To improve maternal and infant outcomes, mothers and caretakers are encouraged to provide human milk for infants. The AAP encourages breastfeeding for the first year of life and beyond and the WHO encourages breastfeeding for two years or longer (World Health Organization, 2017). Breastfeeding is critical for cognitive and health development of infants and mothers. It helps with immune system functioning and protection against acute and chronic diseases. Breastfeeding particularly helps with decreasing pneumonia and diarrhea illnesses, which are two major causes of death in infants (World Health Organization, 2017).

Breastfeeding appears to provide protection from Type I diabetes and Type II diabetes, improved performance on cognitive and intelligence tests, and reduction in childhood obesity (Binns et al., 2016). Additionally, benefits to breastfeeding mothers include a reduced risk of ovarian and breast cancers, increased post-partum weight-loss, improved postnatal depression, and reductions in hypertension and cardiovascular disease, Type II diabetes, and decreased hyperlipidemia (Binns et al., 2016; World Health Organization, 2017). The benefits of breastfeeding include significant financial benefits to individuals, organizations, and society. Suboptimal breastfeeding rates could result in 3,340 maternal and pediatrics deaths per year, \$3

billion in additional medical costs, and \$14.2 billion associated with premature death (Albrecht et al., 2017; Binns et al., 2016).

In the United States, breastfeeding rates continue to rise, but remain below the WHO and Healthy People 2020 goals – especially among minority and lower socioeconomic populations. In the United in 2015 (the most recent report card), approximately 83.2% of mothers initiate breastfeeding, 57.6% are breastfeeding at six months, and 35.9% continue to breastfeed at one year. However, exclusive breastfeeding rates remain under 25% at six months of age. These breastfeeding rates have all increased compared to 2014 data (Center for Disease Control and Prevention, 2018). Healthy People 2020 maternal, infant, and child health targets 21.1 to 24 (MICH**-21.1-MICH-24) include: increase the number of infants ever breastfed to 81.9%, increase the number of exclusively breastfed infants at six months of age to 60.6%, increase the number of infants breastfed at one year to 34.1%, increase the number of infants who are exclusively breastfed through three months to 46.2%, increase the number of infants who are exclusively breastfed through six months to 25.5%, increase the number of on-site workplace lactation programs to 38.0%, decrease the number of infants who receive formula supplementation within the first two days of life to 14.2%, and increase the number of births occurring in facilities that provide lactation supportive care to 8.1% (Center for Disease Control and Prevention, 2018). Globally, 40% of infant are breastfed exclusively for six months; of the 194 nations evaluated by the Global Breastfeeding Scorecard, only 23 nations have exclusive breastfeeding rates above 60% (WHO, 2017).

The state of Kansas is one of four states in the United States to exceed national breastfeeding rates, exceed the Healthy People 2020 goals, and improve in the four core measures of breastfeeding rates at initiation, three months, six months, and one year.

Unfortunately, there continues to be disparities among minority groups in Kansas and regionally. African-American or black infants are 10% less likely to have been breastfed and infants born in southeast (rural) Kansas are 20% less likely to be breastfed than infants in northeast (suburban/urban) Kansas. As previously stated, in addition to health benefits, breastfeeding provides significant financial benefits to individuals and the community. In Kansas, if 90% of infants were breastfed for one-year 22 maternal deaths and seven infant deaths could be prevented, and \$27 million in medical expenses could be saved every year (Kansas Breastfeeding Coalition, n.d.).

Literature demonstrates that infants born in Baby-Friendly Hospital Initiative (BFHI) facilities are more likely to be breastfed at birth and have longer breastfeeding duration (Baerug et al., 2016; Kramer et al., 2001; Merten, Dratva, & Ackermann-Liebrich, 2005). Compared to the national average of 27.6%, almost 41% of infants born in Kansas are born in a BFHI facility (Kansas Breastfeeding Coalition, n.d.). Four years ago, 0% of Kansas infants were born at BFHI facilities.

Breastfeeding Among Students in Higher Education

Breastfeeding accommodations and support have primarily focused on women in the workplace. However, there is limited research on the unique demographic of individuals who comprise the student population. The CDC (2016) cites that mothers returning to work, not receiving enough information about breastfeeding, and poor access to professional breastfeeding support as significant barriers for breastfeeding. Literature demonstrates that students are often faced with physical or psychological barriers when returning to school and student mothers are more likely to cease breastfeeding after they return to school (Dinour et al., 2015; West, Power, Hayward, & Joy, 2017). Over the past 30 years, student populations have continued to diversify

with increased racial, ethnic, and socioeconomic demographics; women now account for 56.7% of the enrolled student population (Dinour et al., 2015). Additionally, breastfeeding rates among some ethnic, racial, and socioeconomic populations are lower at initiation and duration than in the overall population. The lack of resources and support may pose increased barriers to breastfeeding initiation and duration among student women of those populations. College students with exposure to breastfeeding were more likely to view breastfeeding positively and more likely to attempt to breastfeed; however, overall students were more likely to view formula feeding as a more practical or convenient way to feed their infants (Jefferson, 2017).

The lack of space and time for milk expression are often cited as barriers to continued breastfeeding. Bostick et al. (2016) found that there were limited policies addressing student lactation accommodations, limited access to hospital grade pumps, and inadequate space for milk expression. A recent study demonstrates that campuses are including lactation space as part of their infrastructure planning; however, there continues to be significant variation in lactation accommodations for students (Henry-Moss, Lee, Benton, & Spatz, 2019). Support from a person's place of employment, the university, and from peers helps to increase breastfeeding duration (Albrecht et al., 2017; Attanasio, Kozhimannil, McGovern, Gjerdingen, & Johnson, 2013). There is a gap in literature addressing specific social and community support that is most beneficial to student mothers; however, social support appears to be a critical factor in breastfeeding duration, especially for mothers who must express milk for their infant(s) (Albrecht et al., 2017; Dinour et al., 2015; McInnes & Chambers, 2008).

The enactment of the ACA extended legal protection to many working mothers. The ACA ensures appropriate facilities and time for milk expression. Unfortunately, student mothers who are not employed by a college or university or protected by the ACA are not extended these

protections (Albrecht et al., 2017). Title IX protects students from discrimination based on their sex, which includes protections for pregnant and lactating students, but does not provide specific, uniform accommodations for students. The Department of Education encourages colleges and universities to provide space for milk expression, yet there is legal ambiguity about requiring the implementation of the recommendations ("Know your rights: breastfeeding," n.d.). This results in significant variation among higher education facilities regarding the implementation of formal lactation policies and accommodations available to students (Bostick et al., 2016; Henry-Moss, Abbuhl, Bellini, & Spatz, 2018; Henry-Moss et al., 2019).

Community Breastfeeding Support

Community breastfeeding support increases breastfeeding initiation and duration; it has been well-established that there is a dose-response between breastfeeding education and support and duration of breastfeeding (Perez-Escamilla, Martinez, & Segura-Perez, 2016). The BFHI was developed in 1991, in cooperation between the WHO and the United Nations Children's Fund (Perez-Escamilla et al., 2016). This global program provides standardized guidelines for maternity-care facilities and health care providers, so they can provide new mothers with information and support regarding breastfeeding and safe formula feeding practices. The BHFHI provides the program guide: *Ten Steps to Successful Breastfeeding and the International Code of Marketing of Breast-milk Substitutes* (See Appendix A). This document provides a comprehensive and evidence-based guide for facilities and health care providers caring for mothers and infants ("Step 10: Strives to achieve the WHO/UNICEF ten steps of the baby-friendly hospital initiative to promote successful breastfeeding: The coalition for improving maternity services," 2007). As of 2015, there are more than 20,000 facilities in 152 countries that are designated as "Baby-Friendly" (Cleminson, Oddie, Renfrew, & McGuire, 2015).

Numerous peer-reviewed studies and literature reviews support that the implementation of the BFHI has increased breastfeeding initiation in both the United States and globally (Kramer et al., 2001; Nobari, Jiang, Wang, & Whaley, 2017). The literature suggests that the BFHI practices also increases the duration of breastfeeding. However, women who are employed full-time are less likely to exclusively breastfeed at one-week post-partum and BFHI practices did not appear to provide significant impact on breastfeeding status at one-week post-partum based on their employment status (Attanasio et al., 2013). The impact of BFHI on returning college students was not addressed. In a small study in Georgia, only 10% of students were aware of BFHI (Anderson, Johnson, Motoyasu, & Bignell, 2018).

The last step in the BFHI program addresses the need for the establishment of community support and connection of mothers to breastfeeding resources following hospital discharge ("Step 10: Strives to achieve the WHO/UNICEF ten steps of the baby-friendly hospital initiative to promote successful breastfeeding: The coalition for improving maternity services," 2007). Communities that provide out-of-hospital education and support demonstrate improved breastfeeding duration; however, there is a lack of standardized implementation, tracking, and accurate reporting of breastfeeding duration in the community following discharge from a BFHI designated facility (Munn, Newman, Mueller, Phillips, & Taylor, 2016). There are gaps in the literature regarding the types of the community support that are available to college students or the types of community breastfeeding support that provide the greatest impact on breastfeeding initiation and duration in this population.

Project Aims

This needs assessment project consisted of three aims: (1) to assess the support barriers faced by breastfeeding students in the higher education settings in the state of Kansas, (2) to

identify strategies to improve community breastfeeding support on college campuses, and (3) to provide recommendations for future opportunities to promote improved breastfeeding support and breastfeeding duration among higher education students. The primary outcome of this project was to determine the needs of breastfeeding students in higher education. The secondary outcome was to identify strategies to improve breastfeeding among this population.

Project Questions

1. How many of the 32 accredited Kansas higher education institutions have a formal student lactation policy and what accommodations are addressed within the policy?
2. What are the barriers to providing a supportive breastfeeding environment for breastfeeding students in the higher education setting?
3. What future interventions to support students who breastfeed are needed in the higher education facilities in the state of Kansas?

Definition

Community Breastfeeding Support

Conceptually, breastfeeding support is a system of strategies and resources for mothers to provide their own milk or donor human milk to an infant and support the breastfeeding journey. Operationally, a support program provides specific interventions and tools to improve breastfeeding duration among mothers in a defined setting.

Significance to Advanced Practice Nursing

The Institute of Medicine (IOM) has called on nurses to practice to the fullest extent of their training and education (Institute of Medicine Committee on the Robert Wood Johnson

Foundation Initiative on the Future of Nursing, 2011). Nurses seeking the terminal degree of the Doctorate of Nursing Practice (DNP) are the future leaders in the nursing field and will transform health care delivery systems. Advance practice nurses will guide evidence-based clinical nursing practice, decrease health care costs, and serve as mentors for the future generations of nurses.

As discussed previously, new parents who receive community breastfeeding support are more likely to initiate breastfeeding and provide human milk for their infant(s). Improving the support systems for new mothers is critical to achieving the Healthy People 2020, WHO, and AAP goals for increasing breastfeeding initiation at birth and breastfeeding duration during the first year of life. From a clinical perspective, certified nurse midwives, nurse practitioners, and pediatric nurse practitioners are often essential to the support system for new parents and their infants during the prenatal and early postpartum periods. These providers often initiate breastfeeding support and education during prenatal care and at delivery (Pitts, Faucher, & Spencer, 2015). Advance practitioners in family practice settings, pediatric clinics, and student health centers are also vital for providing lactation support and promoting breastfeeding education during the first year of life and beyond. In addition to clinical support, advanced practitioners are called to promote policy change at a local, national, and international level for mothers who are separated from their infants. This DNP needs assessment addresses the strengths and weakness of support for this defined population and contributes to the understanding of the unique challenges faced by lactating students in the state of Kansas.

Theoretical Framework

This DNP project was guided by the social-ecological theory. The social-ecological theory was first described by sociologists in the 1930's and more formally conceptualized by

Urie Bronfenbrenner in the 1970's. He described a psychosocial theory that demonstrates how an environment shapes an individual. This theory has five spheres: microsystem, mesosystem, exosystem, macrosystem, and chronosystem (Raingruber, 2016). The Centers for Disease Control and Prevention (CDC) depicts a rainbow that surrounds an individual by interpersonal, organizational, community, and policy influences (Centers for Disease Control and Prevention, 2013).

This model is often used for public health initiatives examining the contextual relationships that influence behaviors and how environmental factors influence both individual and community behaviors (See Appendix B). As previously discussed, community support is a strong predictor for successful breastfeeding and breastfeeding duration (Haroon et al., 2013). This project focused on assessing the formal lactation policies, community support, barriers to breastfeeding faced by students, and opportunities to improve support for lactating students in higher education settings in the state of Kansas. This model was chosen for this DNP project because of the role and the significance that community spheres exert in shaping and impacting a person at an individual level.

The Kansas Breastfeeding Coalition (KBC) is a non-profit organization with the mission to "...improve the health and well-being of Kansans by working collaboratively to promote, protect and support breastfeeding." (Kansas Breastfeeding Coalition [KBC], 2014). The KBC provides community support for breastfeeding education, awareness, and promotion, focusing on employers, schools, hospitals, and childcare facilities. The specific areas in which the KBC strives to provide breastfeeding support in Kansas is by helping to build breastfeeding communities and serving as experts in breastfeeding, the organization encourages integrity in

supporting the WHO's International Code of Marketing of Breast-milk Substitutes, and promotes inclusion that eliminates the disparities in breastfeeding (Kansas Breastfeeding Coalition, n.d.).

The KBC has several programs and resources that are dedicated to supporting mothers working outside the home and to breastfeeding students. The KBC has developed and implemented an award program in which employers are evaluated on their achievement of specific criteria levels for supporting employees who are breastfeeding. There are more than 250 recognized employers in the state of Kansas that provide exceptional lactation support to their breastfeeding employees. In addition to employee lactation support, the KBC provides: public breastfeeding support, prenatal education for expectant parents, resources for hospital maternity care practices, coalition building, physician education, child care support and education, community breastfeeding education, and an extensive database of breastfeeding information (Kansas Breastfeeding Coalition, n.d.).

In 2017, the KBC completed a needs assessment survey of the Kansas K-12 education institutions, which focused on the support and accommodations provided to employees in Kansas school districts. The assessment completed by the KBC did not include lactating students or higher education facilities (Kansas Breastfeeding Coalition, n.d.). This needs assessment provides additional information about this specific population and may provide future benefits for parents and infants in Kansas.

Methods

Design

This needs assessment project focused on formal lactation policy, breastfeeding education, student lactation support, and advocacy for lactating students in the higher education

setting in Kansas. A needs assessment determines the needs related to a specific concern, issue, or problem within a defined community (The University of Kansas, 2014). This type of assessment, frequently completed through a survey, provides detailed information to learn more about the specific concern within a group or community, to obtain objective information about the identified concern, to gain additional information of unknown needs, to provide clear documentation of a specific need, and to ensure that planned interventions are in accordance with the needs of the community (The University of Kansas, 2014).

Setting and Sample

The target sample for this DNP project needs assessment was the 32 higher education facilities in the state of Kansas with Board of Regents designation. The breakdown of the facilities included: six state universities, one municipal university, nineteen community colleges, and six technical colleges ("Kansas Board of Regents," n.d.). The eligible facilities are listed in Appendix B. Colleges or universities who are not members of the Board of Regents were excluded.

More than 250,000 students are enrolled in the identified academic programs that range from certificate programs to doctoral degrees. According to the Board of Regents in 2018, of the enrolled students: 65.7 identified as white, 9.9% identified as Hispanic, 6.7% identified as black or African American, and 3.2% identified as Asian. Almost 53.9% of enrolled students identified as female. Student age groups include: under 18 (7.3%), 18-19 years (19.5%), 20-24 years (39.8%), 25-34 years (20%), 35-44 years (7.4%), over 45 years (5.9%). Based on student ages, most students are of childbearing age. More than 64% of students were enrolled as part-time students compared to 36% full-time students ("Kansas Board of Regents," n.d.). Information

regarding non-traditional characteristics, such as parenting, is excluded from the demographic information. The schools that were surveyed include urban, suburban, and rural facilities.

An online survey invitation was sent to a designated representative at each Kansas Board of Regents higher education facility via email/online platform (See Appendix C). Designated individuals included variations of: Title IX coordinator, Vice President of Student Services, Dean of Student Services, human resources specialist, and a nurse. If the organization had multiple campuses, as designated by the Board of Regents, each campus was provided an opportunity to participate in the survey.

Survey and Data Analysis

A 14-question multiple choice and open-ended question survey was designed for this needs assessment project. The KBC, in cooperation with the Kansas Department of Health and Education (KDHE), previously conducted a K-12 needs assessment in the State of Kansas. This DNP candidate used that existing survey resource and tailored the assessment for application in the higher education student population instead of the employee population. This survey also included questions that focused on lactation support planning in higher education settings (Henry-Moss et al., 2019). Participants could select multiple answers that best answer the question. The time approximation for completion of the survey was less than 15 minutes. The survey questions were approved by the DNP committee and the survey tool is included in Appendix D.

Data analysis focused on the following areas: lactation policies for students, dedicated lactation facilities, student support programs, and staff education. Survey respondents had survey space to provide additional narrative information and feedback. Analysis of the multiple-choice responses (ordinal data) was expressed in frequencies and percentages. The analysis of multiple-

choice questions provided information on the strengths and barriers of support in the Kansas facilities. Narrative data from open-ended questions was analyzed with content analysis for themes. Analysis was completed in an aggregate form using the REDCap™ analysis tool.

Procedure and Data Collection Plan

Following committee and university approval, the DNP needs assessment survey was built and administered via REDCap™ to the Title IX coordinators (or designated individual) of each Board of Regents facility. Each satellite campus designated by the Board of Regents received a separate invitation because accommodations and policies may vary between campuses. Participants contact information was obtained via facility webpage or by the DNP student calling the facility. All identified representatives received a letter of invitation by e-mail explaining the project. A link to the online REDCap™ survey was included in the invitation. A follow-up email was sent approximately four weeks after the initiation of the project, if the survey has not been initiated. Due to limited responses, a third email invitation was sent to potential participants eight weeks after initiating the survey. The DNP student and DNP committee members maintained access to collected information and all steps were taken to ensure the privacy protection of the data.

Human Subjects Protection

Participation in the survey was voluntary and questions were non-invasive. Questions did not include any specific health data from individuals and there was minimal risk involved for participants. There were no personal benefits to the participant for completing the survey and all results were de-identified and aggregated prior to dissemination. An invitation letter detailing the project was provided to participants and participants consented to participation on the first page of the REDCap™ survey (See Appendix E). This survey did not include any personal

information or health information from the individuals participating, except for name and contact information for post-survey contact, as needed for clarification of survey information. This project did not meet the qualifications for a human subjects project and was determined to not need Internal Review Board (IRB) approval.

Results

Demographics

Representatives from thirty-two Board of Regents facilities/campuses were invited to participate in this survey; several campuses had one individual responsible for Title IX accommodations for multiple campuses and could provide survey information for each campus, if desired. Sixteen individuals ($n = 16$, 50%) completed the survey. Titles of the individuals included: Title IX coordinator or Equality, Diversity, or Inclusion Director or similar title ($n = 6$); Vice President of Student Services ($n = 4$); Dean or President ($n = 3$); Human Resources ($n = 1$); Nurse ($n = 1$); and Director ($n = 1$).

Higher Education Facilities

The schools participating were represented by technical colleges ($n = 5$), community colleges ($n = 6$), and universities ($n = 5$). Most of the respondents represented schools with an average student population between 5001-8000 ($n = 4$, 25%). See Figure 1 for higher education facility enrollment. Rural, suburban, and urban schools were all represented in the survey and geographically the schools were distributed throughout the state of Kansas.

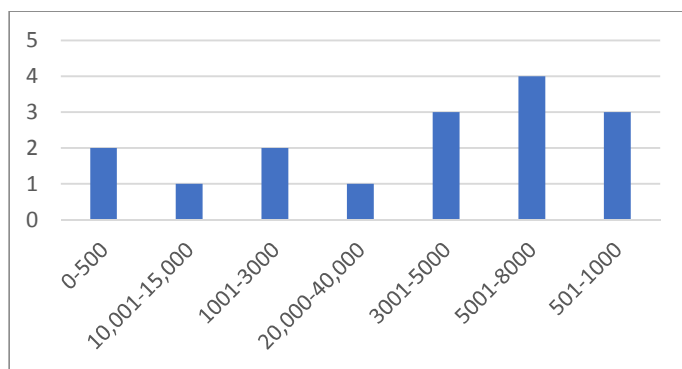


Figure 1. The responses of the number of students enrolled at each school.

Lactation Policy

Most of the schools did not have a written student lactation policy ($n = 11$, 69%). If a facility had a written policy, they were asked to provide a link, if available. Of the policies provided and reviewed ($n = 5$, 31%), most policies covered both pregnancy and lactation-related accommodations. The reviewed policies generally included definition of policy and definition of medical accommodation, locations of lactation spaces, how to request accommodations, and the contact individual(s) for each facility.

Almost every facility reported having designated lactation spaces for students ($n = 15$, 93%). Many of the facilities reported 1-2 dedicated lactation spaces available on campus ($n = 10$, 63%); one facility had 10+ designated spaces for student lactation needs. Of facilities who reported available lactation spaces ($n = 15$), most were designated as permanent spaces ($n = 8$, 53%). Facilities did not report if the spaces were exclusively for students or for staff, students, and/or visitors. See Figure 2 for the number of lactation spaces available for students.

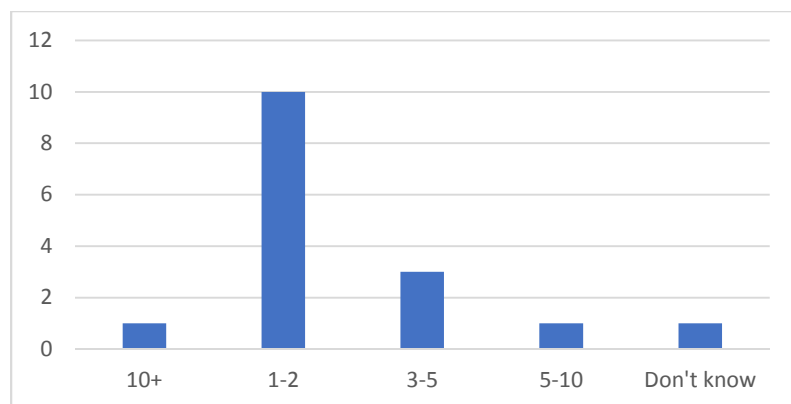


Figure 2. Number of lactation spaces at each higher education facility.

Lactation Space Accommodations

Of the designated lactation spaces available for students, most of the spaces provided locking accommodations ($n = 10$, 67%), while a fewer number of the spaces ($n = 2$, 13%) did not provide a locking mechanism. Majority of the spaces accommodated a single user ($n = 10$, 67%), while a limited number of spaces could accommodate multiple users ($n = 3$, 20%). Of the multi-user spaces, the facilities reported that they contained some form of a privacy barrier. Of the respondents who answered the questions regarding amenities in the lactation spaces ($n = 14$, 44%), the lactation spaces provided the following amenities for students in all lactation spaces: electrical outlets ($n = 10$, 67%), counter or table space ($n = 9$, 60%), access to sink ($n = 4$, 29%), access to soap ($n = 6$, 43%), access to a refrigerator ($n = 4$, 29%), access to a microwave ($n = 2$, 14%), access to lockers or other storage ($n = 1$, 7%), and access to Wi-fi ($n = 13$, 87%). None of the facilities provided access to a hospital-grade pump.

Insurance Coverage for Lactation

When asked about if student insurance provided lactation supplies or support, majority of the respondents selected the unknown option ($n = 13$, 81%) and three facilities stated that supplies and/or lactation support were not included in their student health plan ($n = 3$, 19%). Per

the answerers provided by the survey respondents, none of the facilities indicated that lactation services or equipment were provided by the student health insurance plans (see Figure 3).

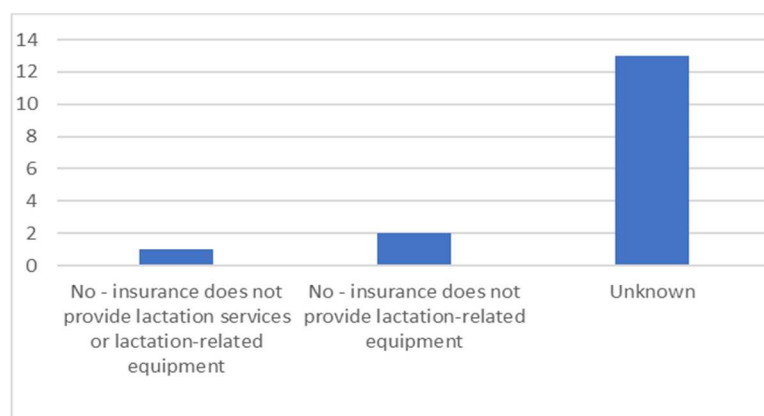


Figure 3. Student insurance benefits for lactation support and supplies.

Lactation Education for Staff and Students and Facilitating Breastfeeding Duration

Responses varied regarding how university/college staff was provided education regarding breastfeeding laws and student accommodations (see Figure 4). Responses ranged from none ($n = 2$, 13%) to by request ($n = 9$, 56%), staff meetings ($n = 6$, 38%), provided as part of mandatory education or orientation ($n = 2$, 13%), or other ($n = 5$, 31%). Education regarding accommodations provided to students was primarily by student request ($n = 11$, 69%). Other forms of education included: the student handbook ($n = 5$, 31%), other ($n = 4$, 25%), during student orientation ($n = 4$, 25%), and by student health center staff ($n = 1$, 6%). Several facilities reported that no formal education is provided to students ($n = 3$, 19%). Four universities cited other means of education.

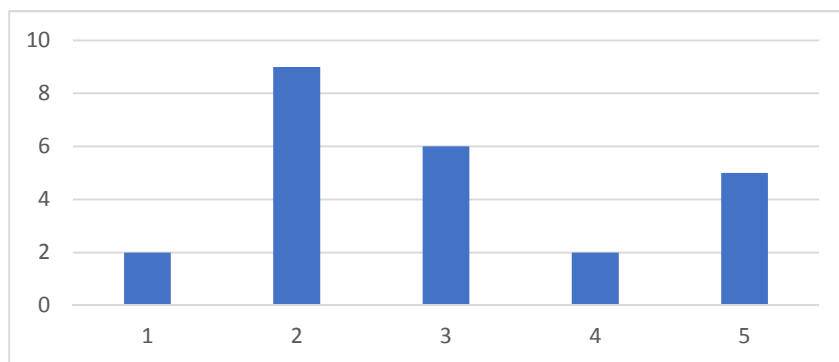


Figure 4. Staff education regarding facilities, breastfeeding policies, accommodations and support.

The primary form of student breastfeeding support was by providing designated lactation expression areas or pumping rooms ($n = 14$, 88%). Other forms of student support included the option for the caregiver to bring the infant to campus for breastfeeding ($n = 2$, 13%) or on-site childcare availability with the option to breastfeed ($n = 1$, 6%). Other options that were selected were no accommodations ($n = 1$, 6%) or other ($n = 3$, 19%). While not selected from the multiple-choice options, one representative provided a free-text answer that students could be allowed to bring their nursing child to class with instructor approval.

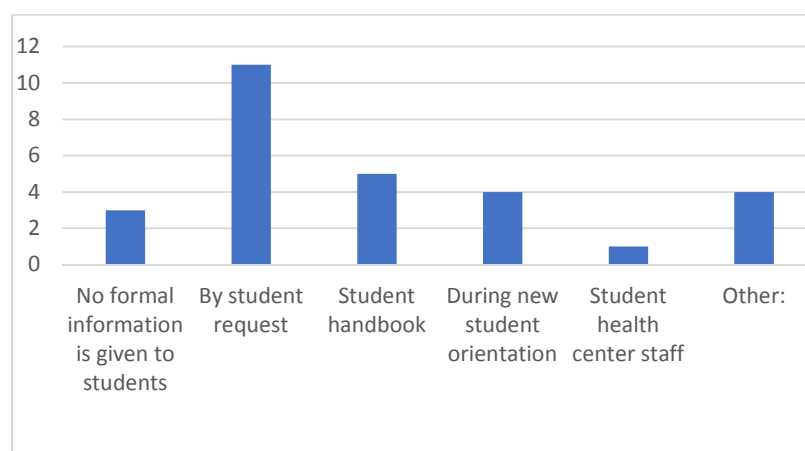


Figure 3. Education provided to students about accommodations and lactation policy.

Only one facility had received a Breastfeeding Employee Support Award (BESA); while most of the facilities had not been awarded a BESA ($n = 15$, 94%). Of the 15 facilities without award designation, none of the respondents indicated that their organization was working toward obtaining award recognition at this time. Of the facilities surveyed, several indicated that their organization was working on future improvements or changes to their current policies ($n = 6$, 38%), while a majority of the schools did not have any current plans for change ($n = 10$, 63%).

Analyzing free-text for reoccurring themes regarding improving current accommodations centered around improving access to additional lactation space ($n = 2$), improving awareness of policies and accommodations ($n = 1$), and formalizing a student lactation policy ($n = 1$). Analysis of staff and student education demonstrated that education or additional education was provided as requested or as needed basis ($n = 2$). Only one facility provides a dedicated Title IX/Pregnant/Parenting specific training. The primary additional accommodations for lactating students including finding additional pumping locations ($n = 3$), breastfeeding educational materials available in lactation rooms ($n = 1$), and unspecified additional accommodations ($n = 1$). Due to the limited responses provided by participants, there was limited free-text analysis for this project.

The survey results from this project showed that among the higher education facilities in the state of Kansas, there have been significant strides in providing lactation space for students who need to express milk while separated from their infant(s). While fewer facilities have implemented a formal lactation policy, several respondents indicated that written policies were being evaluated as part of future facility planning. However, this survey also highlighted that there continues to be wide variations of specific accommodations, such as amenities in pumping rooms, and how education is provided to both staff and students. Lastly, this survey showed that

additional information and resources need to be provided to staff and administrators regarding insurance coverage for student lactation support and supplies.

Discussion

Breastfeeding rates and duration continue to rise, especially in the state of Kansas (Kansas Breastfeeding Coalition, n.d.). With many non-traditional students, including student parents, enrolled in higher education programs it is vital to provide legal protection and support for this demographic of students; however, there has previously been limited research that has focused on this population. As breastfeeding parents are often exempt from many of the legal protections that are provided to employed mothers, it is critical that higher education facilities consider the special challenges faced by student parent(s) (Albrecht et al., 2017; Bostick et al., 2016).

Since the lactating student population is a unique demographic of individuals that has little focused research, especially in the state of Kansas, this project served to provide a baseline assessment of the types of support and education that is available for lactating students in higher education facilities in Kansas. The findings of this project were consistent with other research that has been done on the topic; however, the limitations of the sample size make it difficult to generalize to other populations.

Awareness and planning of lactation accommodations has increased across college campuses, yet there continues to be a wide variation in the implementation among schools (Henry-Moss et al., 2019). While most of the schools provide designated areas for breastmilk expression, the types of accommodations and implementation of accommodations varied significantly between facilities. Kansas facilities frequently reported that they lacked a

formalized lactation policy, yet the number of institutions who did have a formal policy was much higher than the reporting institutions in the cited literature (Albrecht et al., 2017). Compared to Albrecht et al. (2017) where only 4% of the surveyed schools had a written lactation policy, 31% of Kansas facilities surveyed did have a written lactation policy. Several of the Kansas institutions expressed interested in initiating a formal lactation policy and other facilities noted that they planned to improve their current policies in the future.

Literature demonstrated that 55-76% of survey participants had access to at least one dedicated pumping location compared to 93% of the schools in the state of Kansas (Bostick et al., 2016; Henry-Moss et al., 2019). A significant difference of this project compared to Henry-Moss et. al. (2019) was the title or role of participants who were surveyed. The surveys in the literature primarily targeted architecture or facilities planning individuals, while this DNP project focused on human resource or disabilities coordinators. Amenities in pump rooms, such as access to refrigerators, electrical outlets, etc., provided by Kansas facilities and the facilities in cited literature were similar except for multi-user or hospital grade pumps. Kansas facilities report no hospital-grade pumps compared to 12% of other surveyed institutions (Henry-Moss et al., 2018).

Most participating individuals reported that their facilities do not provide insurance benefits for lactation supplies and/or support. However, all schools that provide health insurance coverage in the state of Kansas must meet the minimal standards of the ACA health care plans ("Types of health insurance that count as coverage," n.d.). Health care plans that follow ACA guidelines, including the student health plans in the state of Kansas, are required to provide lactation support, counseling, and supplies during prenatal and postnatal periods ("Breastfeeding benefits," n.d.).

While a few schools expressed interest in improving and expanding the services that are available to students, many facilities reported that they do not plan to make improvements or changes to their policies or services soon. The findings of this project support the need to increase accessibility to help facilitate breastfeeding and milk expression among college students who are separated from their infant(s), increase standardized education for both staff and students, and solidify student lactation policies that are easy for students and staff to access.

Strengths and Limitations

A strength of this project was the diversity of the student population demographics, the size of the facility, and the geographical location of participating institutions. A limitation of this project was the small sample size. While all Board of Regents facilities were invited to participate in the survey, only half of the identified representatives completed the survey resulting in a limited sample size.

Facilities without (or limited) lactation policies or accommodations could have been reluctant to participate in the survey which could bias the sample; i.e. decrease external validity of results. This survey was well-represented by large universities; these facilities could have stronger written policies and planning in place than community colleges or technical colleges. The geographic distribution of schools in the participating facilities vs. the non-response group were similar. Because specific student demographics other than enrollment (i.e., gender, race, socioeconomic status) were not evaluated in this survey, the variation or similarities in student demographics is unknown.

A limitation of this project was the timing of project implementation phase. The initial proposal included two email invitations; however, the initial invitation was sent during a week that included a federal holiday and the (first) follow-up email was sent to individuals two weeks

prior to the beginning of the fall school semester. Both email invitations generated numerous automatic out of office notifications from potential respondents. The (second) follow-up email was sent to individuals after the beginning of the fall semester and provided a much higher response rate compared to previous email requests. A strength of the project included the online formatting of the survey and the minimal time commitment of the individual completing the survey.

Implications for Research and Practice

This DNP project focused on gathering a baseline assessment of how many schools had a formal student lactation policy and what accommodations or supports were provided under that policy. Results indicated that Kansas colleges have a higher number of facilities with a written policy than reported by other studies (Bostick et al., 2016). Of the schools who do not have a formal policy, several respondents expressed intent to solidify a policy in the future, although no specific timeframes were provided by respondents.

Significant barriers regarding breastfeeding on college campuses identified in this project included the lack of standardized policy, the lack of physical accommodations, and the limited education provided to staff and students. Respondents often selected “unknown” or “other” when answering questions, especially when pertaining to education and insurance coverage of lactation-related services. Information regarding breastfeeding accommodations was often only provided by student or faculty request. Further education regarding the legal rights of student-parents, implementation of a formal education policy, and standardized procedures to raise awareness regarding breastfeeding support for students will be critical for improving breastfeeding support and potentially breastfeeding duration among higher education students in the state of Kansas.

Future improvement interventions could center around providing a tool-kit for administrators to assist with planning and implementing a formal policy for each institution. Facilities could be provided with information about implementing and achieving award designation and recognition through the KBC or through other national organizations. Additionally, standardized education programs could be developed and implemented to educate both staff and students on the benefits of continued breastfeeding and how the facility helps students meet their breastfeeding goals. Education regarding lactation support and supplies provided by ACA approved health insurance plans, such as those offered by universities and colleges, could be provided to both student health centers and the Title IX (or equivalent) representatives. Student health programs could play a larger role in direct breastfeeding planning, support, and education. Often physicians and nurse practitioners are the first point of health care contact for many students and support on-going health care needs for students of reproductive age.

As demonstrated in literature, giving birth in a BFHI facility and increased community breastfeeding support has improved breastfeeding duration. However, this DNP project did not collect data to address whether BFHI initiatives impacted breastfeeding duration among this population. This project also was unable to address the long-term impact of breastfeeding duration based on interventions provided to lactating students on Kansas higher education campuses.

Dissemination of the results from this project will be presented during the DNP public presentation day at the University of Kansas School of Nursing in December 2019. A summary of the findings from this project was emailed to the participating higher education facilities. Additionally, award application criteria from the KBC and educational materials for students,

educators, and administrators from the Pregnant Scholar was provided to the participating facilities. Information from the ACA website regarding health insurance coverage for lactation supplies and support was provided to all participating facilities. Strategies identified for future planning include: cooperation between administrators (or Title IX representatives) with facilities planning committees to improve designated lactation spaces, the involvement and participation of health care providers or lactation specialists during planning and implementation phases of policy and education development, and formal means of communicating new and existing lactation policies to students and staff.

Conclusion

Breastfeeding parents who have community support have increased breastfeeding rates and longer breastfeeding durations (Haroon et al., 2013). The BFHI has increased breastfeeding rates at initiation, but there continues to be challenges with sustaining breastfeeding duration after birth facility discharge. College students providing expressed milk for their infant(s) face many barriers including lack of time, space, and few legal protections. Community breastfeeding support and formal lactation policies aim to increase breastfeeding duration and support among college students. Kansas breastfeeding rates and duration have increased, yet there is limited information regarding breastfeeding among students enrolled in higher education in Kansas. This DNP needs assessment project identified strengths and barriers for breastfeeding in higher education facilities in the state of Kansas, identified strategies to improve community breastfeeding support on college campuses, and provided recommendations for future opportunities to promote improved breastfeeding support and breastfeeding duration among higher education students.

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Appendix A

UNICEF/WHO: The Ten Steps to Successful Breastfeeding

- Have a written breastfeeding policy that is routinely communicated to all health-care staff.
- Train all health-care staff in skills necessary to implement this policy.
- Inform all pregnant women about the benefits and management of breastfeeding.
- Help mothers initiate breastfeeding within one half-hour of birth.
- Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants.
- Give newborn infants no food or drink other than breast milk, unless medically indicated.
- Practice rooming in: Allow mothers and infants to remain together 24 hours a day.
- Encourage breastfeeding on demand.
- Give no artificial teat or pacifiers (also called “dummies” or “soothers”) to breastfeeding infants.
- Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from hospitals or clinics.

Appendix B

The Social-Ecological Model



Appendix C

Kansas Board of Regents Higher Education Facilities
Universities

1. Emporia State University

Emporia, KS 66801 • (620) 341-1200

School Code: 00192

2. Fort Hays State University

Hays, KS 67601 • (785) 628-3478

School Code: 001915

3. Kansas State University

Manhattan, KS 66506 • (785) 532-6250

School Code: 001928

4. Kansas State University Polytechnic Campus

College of Technology & Aviation • Salina, KS 67401 • (785) 826-2640

School Code: 001928

5. Kansas State University Olathe

Olathe, KS 66061 • (913) 541-1220

School Code: 001928

6. Pittsburg State University

Pittsburg, KS 66762 • (800) 854-PITT or (620) 235-4251

School Code: 001926

7. University of Kansas

Lawrence, KS 66045 • (785) 864-2700

School Code: 001948

8. University of Kansas Medical Center

Kansas City, KS 66160 • (913) 588-5000

School Code: 004605

9. Wichita State University

Wichita, KS 67260 • (316) 978-3456

School Code: 001950

10. Washburn University

Topeka, KS 66621 • (785) 670-1010

School Code: 001949

11. COMMUNITY AND TECHNICAL COLLEGES

Allen Community College

Iola, KS 66749 • (620) 365-5116

School Code: 001901

12. Barton Community College

Great Bend, KS 67530 • (800) 748-7594

School Code: 004608

13. Butler Community College

El Dorado, KS 67042 • (316) 321-2222

School Code: 001906

14. Cloud County Community College

Concordia, KS 66901 • (800) 729-5101

School Code: 001909

15. Coffeyville Community College

Coffeyville, KS 67337 • (620) 251-7700 or (800) 782-4732

School Code: 001910

16. Colby Community College

Colby, KS 67701 • (785) 462-3984

School Code: 001911

17. Cowley Community College

Arkansas City, KS 67005-1147 • (620) 442-0430 or (800) 593-2222

School Code: 001902

18. Dodge City Community College

Dodge City, KS 67801 • (620) 225-1321 • Fax: (620) 227-9200

School Code: 001913

19. Flint Hills Technical College

Emporia, KS 66801 • (620) 343-4600

20. Fort Scott Community College

Fort Scott, KS 66701 • (620) 223-2700

School Code: 001916

21. Garden City Community College

Garden City, KS 67846 • (620) 276-7611 • Fax: (620) 276-9630

School Code: 001919

22. Highland Community College

Highland, KS 66035 • (785) 442-6000 • Fax: (785) 442-6100

School Code: 001921

23. Hutchinson Community College

Hutchinson, KS 67501 • (620) 665-3500 • Fax: (620) 665-3310

School Code: 001923

24. Independence Community College

Independence, KS 67301 • (620) 331-4100 or (800) 842-6063

School Code: 001924

25. Johnson County Community College

Overland Park, KS 66210 • (913) 469-8500

School Code: 008244

26. Kansas City Kansas Community College

Kansas City, KS 66112 • (913) 334-1100

School Code: 001925

27. Labette Community College

Parsons, KS 67357 • (620) 421-6700

School Code: 001930

28. Manhattan Area Technical College

Manhattan, Kansas 66503-2499 • (785) 587-2800 or

(800) 352-7575

School Code: 005500

29. Neosho County Community College

Chanute, KS 66720 • (620) 431-2820

School Code: 001939

30. North Central Kansas Technical College

Beloit, KS 67420 • (785) 738-2276 or (800) 658-4655

School Code: 005265

31. Northwest Kansas Technical College

Goodland, KS 67735 • (800) 316-4127

School Code: 005267

32. Pratt Community College

Pratt, KS 67124 • (620) 672-5641

School Code: 001938

33. Salina Area Technical College

Salina, KS 67401-8195 • (785) 309-3100

School Code: 005499

34. Seward County Community College

Liberal, KS 67905 • (620) 624-1951

School Code: 008228

35. Washburn University Institute of Technology

Topeka, KS 66604 • (785) 670-2010

36. Wichita State University Campus of Applied Sciences and Technology

Wichita, KS 67226 • (316) 677-9400

School Code: 005498

Appendix D

Needs Assessment Survey

Question 1

What is the name of your organization/campus location or school code?

Question 2

What is the name, role or position that you hold?

Question 3

For the purposes of contacting you after the survey, as needed for survey clarification, and to share results of the survey, what is your name?

Please provide your e-mail address:

Please provide your telephone number:

Question 4

How many students are enrolled at your campus?

0-500

501-1000

1001-3000

3001-5000

5001-8000

8001-10,000

10,001-15,000

15,001-20,000

20,000-40,000

40,001-50,000+

Question 5

Does your facility or campus have a written lactation policy that specifically addresses students (please provide a link or summary, if possible)?

Yes

If yes, please provide a link or summary, if possible:

No

Other:

Question 6

How many designated lactation space(s) are available for student use?

0

1-2

3-5

5-10

10+

Question 7

What are the characteristics of the lactation space? Select all that apply.

Permanent space

None

Few

Most

All

Locked access

None

Few

Most

All

Single-user

None

Few

Most

All

Multi-user with privacy barrier(s)

None

Few

Most

All

Locking mechanism (ie: key code, manual, etc)

None

Few

Most

All

Electrical outlets

None

Few

Most

All

Table or counter space

None

Few

Most

All

Sink

None

Few

Most

All

Access to soap

None

Few

Most

All

Refrigerator

None

Few

Most

All

Microwave

None

Few

Most

All

Lockers or storage

None

Few

Most

All

Hospital grade pump

None

Few

Most

All

Wi-Fi access

None

Few

Most

All

Question 8

Do student health insurance plans provide coverage for lactation services (i.e.: lactation consultants) or equipment (i.e.: breast pump and supplies)? Please select all that apply.

Yes – insurance provides both lactation services and equipment

Yes – insurance provides lactation services only

Yes – insurance provides lactation-related equipment

No – insurance does not provide lactation services or lactation-related equipment

No – insurance does not provide lactation services

No – insurance does not provide lactation-related equipment

Unknown

Question 9

How is university/school staff educated about breastfeeding laws and student accommodations?

Choose all that apply.

No education is provided

Education is provided by request

Staff meetings or memos

Education is part of mandatory education or orientation

Other:

Question 10

How are students educated regarding policies, accommodations, and available support? Choose all that apply.

No formal information is given to students

By student request

Student handbook

During new student orientation

Student health center staff

Campus lactation support group

Other:

Question 11

What accommodations are provided so that students can continue to breastfeed their infant(s)? Choose all that apply.

Designated lactation spaces for milk expression

Students can bring their infant to class

On-site childcare available for students where student can breastfeed

Caregiver can bring infant(s) to campus to facilitate breastfeeding

No accommodations

Other:

Question 12

Has your organization been awarded a Breastfeeding Employee Support Award?

Yes

No

No, but currently working toward designation or interested in designation

Question 13

What additional lactation accommodations or student support does your institution provide?

Question 14

Does your organization plan to make any future changes or improvements to your current policies or accommodations?

No

Yes

If yes, please describe plans for future accommodations or improvements:

Appendix E

Letter of Invitation

June xx, 2019

Dear xx:

I am Lauren Kenny and I am a Doctor of Nursing Practice student at the University of Kansas. I am conducting a needs assessment project determining what policies, support systems, and resources are available for students who are breastfeeding in higher education facilities in the state of Kansas. The purpose of this project is to assess breastfeeding support in the higher education setting, to determine the policies and accommodations for breastfeeding students among the Board of Regents facilities in the state of Kansas, and to provide recommendations to promote and facilitate breastfeeding among the student population in the academic setting.

An online questionnaire will be administered to the 32 Board of Regents facilities in Kansas. Data analysis will focus on describing the following areas: lactation policies for students, dedicated lactation facilities, campus on-site lactation support, and staff education. A summary and recommendations will be provided to the facilities at the completion of the project. This project will conclude with a written report and public presentation.

There are no personal benefits to the participant for completing the survey. All results will be de-identified and aggregated prior to dissemination. Informed consent will be obtained prior to starting the survey and this survey will not include any personal information or health information.

To participate in this survey, please follow this link: (insert survey link). A consent for survey participation will be included on the first screen. Please contact me at lkenny2@kumc.edu with any questions or concerns and thank you for your participation.

Sincerely,

Lauren Kenny MSN APRN FNP-BC

Appendix F

Informed Consent Letter

(Included on the first screen of the survey link)

June XX, 2019

Dear [XX],

Hello, I am Lauren Kenny, a Doctor of Nursing practice student at the University of Kansas School of Nursing. I am contacting you because of your knowledge of Title IX accommodations and breastfeeding policies and accommodations at your education facility. I am recruiting research participants to help with a needs assessment for breastfeeding students in higher education in the state of Kansas.

Participation involves completing this survey that will take less than 15 minutes. In addition to the survey questions, we will collect your name, title, and university contact information. This information will only be used for clarification of survey responses or follow-up questions.

There are no personal benefits or risks to participating in this study. Participation is voluntary, and you can stop taking the survey at any time. Please indicate below by marking an X if you agree to participate. If you have any questions, please contact Lauren Kenny at lkenny2@kumc.edu or Karen Wambach, my faculty advisor, at kwambach@kumc.edu.

Sincerely,

Lauren Kenny MSN APRN FNP-BC

Appendix G

Literature Review

Citation (author/year)	Design	Setting/Sample	Data Collection	Key Findings	Limitations	Other
(Anderson et al., 2018)	Cross-sectional	Five institutions across the University System of Georgia Students (N=1923) and employees (N=1311)	Online surveys addressing student awareness of breastfeeding support and laws	Students and younger respondents had the least familiarity of the laws supporting breastfeeding Successful breastfeeding may be more dependent on accommodations than mandated laws One-third felt that that institutions provided a supportive environment (men were more likely to report a supportive environment)	Convenience sample The higher parental status of staff compared to students could influence results	Results reflect similar studies of other academic centers
(Attanasio et al., 2013)		Listening to Mothers II national survey	Surveys using propensity score	Full-time employment was associated	Unable to evaluate breastfeeding duration as an	Health policy should focus on

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		N=1573	matching methods	with decreased exclusive breastfeeding at 1 week post-partum BFHI scores had higher breastfeeding at 1 week, but did not impact outcomes based on employment status	outcome and low response rate with duration follow-up survey Risk of recall and social desirability bias	supportive workplace policy and increasing clinical and community support
(Baerug et al., 2016)	Quasi-randomized control	54 Norwegian municipalities N= 3948 (N= 1051 intervention, N=981 control)	Questionnaires about infant feedings, maternal experience and satisfaction, and socioeconomic questions	BFHI initiatives improved breastfeeding until six months of age Women in the intervention group were more likely to exclusively breastfeed and report breastfeeding at five months	BFHI practices were the standard of care Interventions had no effects on the satisfaction scores	Effects did not differentiate across socioeconomic groups Primary outcome was breastfeeding at six months, secondary was maternal breastfeeding experience
(Bartick et al., 2017)	Monte Carlo simulation using hypothetical	Using 2012 breastfeeding rates and recommendations	To decrease limitations, authors used	Racial/ethnic disparities and suboptimal breastfeeding	Interpreted in the context of a model design	Timing of birth (maternal age) impacted

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	cal cohorts		published relative risks to control for confounders Markov-chain Monte Carlo simulation performing 10,000 simulations of 100,000 women	g has higher disease burden Increased otitis media, NEC, child deaths.	Model operates with the assumption that breastfeeding rates remain at a steady state Lack on information about human milk feeding rates among preterm infants Assumption that there is no difference in racial/ethnic differences in mortality once developed a disease	breastfeeding rates and disease burden
(Bostick et al., 2016)	Qualitative	Colleges and universities (n=157)	Phone interviews	Average of 0.39 lactation rooms/students on campus 73% of schools offered information online about lactation spaces and 16% offered	Schools were hand selected and a larger sample size would increase generalizability	

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				<p>additional community resources</p> <p>Only 3.6% of school had an official policy or spaces in their student handbook, but 54.7% had designated lactation spaces available to students</p>		
(Dinour et al., 2015)	Qualitative study	<p>32 women (N=11 students, N=8 staff, N=13 faculty); large suburban university; did not have a state law for workplace breastfeeding</p>	Semi-structured interview; face-to-face 15 minutes	<p>Most frequent disadvantage was time and scheduling</p> <p>Space was a concern for students who often pumped in bathrooms or cars</p> <p>Some faculty reported no barriers to pumping on campus, but students and staff did not</p>	<p>Did not evaluate if views impacted duration of study</p> <p>Only evaluated one university</p> <p>Participants were not asked about their feelings regarding pumping on campus</p>	<p>One third of the participants were students</p> <p>Results were similar to other studies of employed women</p>

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				report that same belief Support from peers was more likely to be reported among faculty vs. students		
(Haroon et al., 2013)	Systematic literature review	RCTs and quasi-experimental studies; 110 studies were included	4600 abstracts reviewed, 372 screened, 110 included	Breastfeeding interventions and promotion increase EBF at 1 day, 1 month, and 1-5 months Interventions did not impact partial breastfeeding rates	Increased risk of bias in the RCTs due to the blinding Variations among the interventions and definitions of the outcomes	Interventions had more impact on those in developing countries vs. developed countries
(Henry-Moss et al., 2019)		Convenience sample Society for College and University Planning N=105 participants/ N=684 contacted	Online survey	Nearly all respondents had lactation space, yet spaces varied significantly among facilities Lack of consistent	Convenience sample vs. a representative sample of institutions in the SCUP	Building designs often viewed from a legal perspective vs. healthy building design

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				<p>approach to space planning created barriers for use</p> <p>Decreasing variability could help improve access for the most vulnerable to early weaning</p>		<p>Other studies report lack of access as barrier; authors found that there was relatively good access to lactations room 70% within 5-7 minutes</p>
(Henry-Moss et al., 2018)		<p>N=151 women who had pumped in the previous 5 years</p> <p>Large academic medical center</p>	Questionnaires	<p>Majority of women (68%) reported reaching their pumping goal</p> <p>57% reported that it was difficult</p> <p>38% stated that their job made it difficult for them to breastfeed as long as they wanted</p>	<p>Subject to recall bias</p> <p>Convenience sample of highly motivated participants</p>	<p>19% of respondents were medical students</p> <p>Many participants had high levels of flexibility with multiple options of locations to pump and store milk</p>
(Jefferson, 2017)	Cross-sectional design	696 college students	Questionnaires	Race and gender contributed	Unable to make predictions	Included men

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		<p>Men and women attending the University of Missouri-Columbia</p> <p>English-speaking, Caucasian or African-American, younger than 45</p>		<p>to attitudes, however, they were not significant in the full model</p> <p>Breastfeeding exposure had stronger association</p> <p>Small improvements in breastfeeding exposure could improve disparity in breastfeeding rates</p>	<p>about breastfeeding initiation</p> <p>Only measured without children and may not predict future attitudes or behaviors</p> <p>Limited to the Midwest region</p>	<p>May have college exposure to breastfeeding education in nutrition, ethics or health courses</p>
(Kramer et al., 2001)	Cluster randomized trial	<p>Thirty-one maternity hospitals and polyclinic in the Republic of Belarus June 1996-December 1997 with a one-year follow-up. Full-term mothers with singleton deliveries (n=17046)</p>		<p>Infants born at the BFHI (intervention) facilities were significantly more likely to be breastfed during the first year</p> <p>These infants were more likely to be breastfed exclusively at three months</p>	<p>Breastfeeding rates may have been much higher due to the economic conditions and the significant cost of formula. Study findings may not be generalized to other countries due to the centralized healthcare</p>	<p>Primary outcome was prevalence of breastfeeding and duration of exclusive breastfeeding at three and six months.</p> <p>Other outcomes were GI tract infection, respiratory</p>

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					system in Belarus and much longer hospital stay which may benefit breastfeeding establishment and support (6-7 days)	tract infection, and atopic eczema in the first year of life. One of the largest breastfeeding studies completed evaluating BFHI practices.
(Merten et al., 2005)	Cross-sectional	Mothers who had given birth in Switzerland (n=3032) and data Total of 2861 infants born in 145 different facilities	Questionnaires	Exclusively breastfed babies accounted for 42% (baby-friendly) vs. 34% (non). Breastfeeding duration was longer in facilities that had compliance with the UNICEF guidelines	Mothers who intended to breastfeed longer could have chosen baby-friendly facilities over non-baby-friendly facilities. Data could have been less accurate as it was retrospective and 24-hour recall was similar for full and some breastfeeding infants.	Children born in the baby-friendly facilities were more likely to be breastfed for a longer time.
(McInnes & Chambers, 2008)	Narrative synthesis of experiences and	Qualitative papers from 1990-2005, updated in 2007	Databases and citation lists	Mothers rated social support as more important	Few studies explored mother's social support	Additional research is needed in certain population

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	perceptions of breastfeeding	(N=2000 references, N=47 included)	English, western countries Key themes extracted and grouped with thematic analysis for concepts	than support received from health care providers Breastfeeding support appeared limited with conflicting advice and poor technique	May not be generalizable	(low-income, adolescent, ethnic, fathers, etc.)
(Munn et al., 2016)	Integrative literature review	N=385 reviewed N= 18 included	Five databased were used for articles from 2010-2015 Measures of health outcomes or breastfeeding outcomes	BFHI increase rates of breastfeeding initiation and exclusivity BFHI practices positively impact outcomes in disadvantaged groups of women	Studies were conducted in the US Barriers/facilitators to implementation were excluded Exclusion criteria could have limited data	No studies discussed the impact of practices on women in rural areas of southeastern regions of the US