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To the Graduate Council:

I am submitting herewith a thesis written by Courtney Wright entitled "Using Phenomenological Methods to Describe Maternal Perceptions of Positive Worksite Breastfeeding Support Experiences Across Various Industries." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Nutrition.

Katherine Kavanagh, Major Professor

We have read this thesis and recommend its acceptance:

Marsha Spence, Sarah Colby, Samantha Ehrlich

Accepted for the Council:
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Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

USING PHENOMENOLOGICAL METHODS TO DESCRIBE MATERNAL PERCEPTIONS OF POSITIVE WORKSITE BREASTFEEDING SUPPORT EXPERIENCES ACROSS VARIOUS INDUSTRIES

A Thesis Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Courtney Jasmine Wright
August 2019

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ACKNOWLEDGEMENTS

I would first and foremost like to thank my advisor, Dr. Katie Kavanagh, for her support during this project. I would also like to thank the members of my committee, Dr. Sarah Colby, Dr. Samantha Ehrlich, and Dr. Marsha Spence, for their guidance and feedback. I would like to thank Dr. Sandra Thomas and the Transdisciplinary Phenomenology Research Group for sharing their knowledge and insight. Finally, I would like to acknowledge the ICAN THRIVE Lab research staff, especially Ainsley Ellington and Rebecca Zuchowski, for their assistance.

ABSTRACT

Background: Since paid maternity leave is uncommon in the United States, mothers who choose to breastfeed often return to work while breastfeeding. Adequate worksite support has been associated with longer duration of breastfeeding and greater job satisfaction; however, many mothers must navigate challenges upon returning to work. Despite recent worksite breastfeeding support improvements such as federal protections and the availability of model worksite breastfeeding support programs, it appears those employed in industry sectors that are traditionally more challenged to support pumping mothers, such as food service and retail establishments, education, and healthcare may continue to experience inadequate workplace support.

Purpose: The purpose was to better understand mothers' positive worksite breastfeeding support experiences in these historically challenging work sectors. Common factors associated with mothers' positive experiences may subsequently be used to develop worksite breastfeeding support materials and help.

Methods: Recruitment occurred via social media and snowball sampling. Participants (n=20) completed open-ended, semi-structured phone interviews. Audio-recorded interviews were transcribed. Significant statements were extracted from transcripts, formulated meanings were developed, and statements were organized into themes. Data collection, analysis, and determination of saturation were guided by phenomenological methodology. Member checking was performed with 10 participants toward the end of the study period by assessing participant agreement with emergent themes and drafted materials.

Results: Common themes that emerged from interview content included: maternal and managerial flexibility in working with suboptimal pumping spaces, ability to negotiate schedule flexibility, formal and informal managerial support, supportive coworkers, and maternal determination to continue breastfeeding. Most (90%) participants “strongly agreed” the themes were consistent with their experiences and 100% “strongly agreed” the drafted materials would help improve worksite breastfeeding support.

Conclusion: Elements of worksite support associated with successful experiences in these sectors may be used to develop a worksite breastfeeding support intervention to better support mothers to continue to breastfeed upon their return to the workforce.

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CHAPTER 1: LITERATURE REVIEW

Introduction

Breastfeeding is recommended as the optimal infant feeding method in the United States (US) and throughout the world.[1] There are various health, economic, and environmental benefits for mothers and infants associated with breastfeeding.[1] Because of these benefits, the American Academy of Pediatrics (AAP) and Healthy People 2020 (HP 2020) recommend breastfeeding exclusively for six months and subsequent breastfeeding with the addition of complementary foods for at least one year.[1,2] Additionally, Healthy People 2020 (HP2020) maternal, infant, and child health objectives aim to "*increase the proportion of employers that have worksite lactation programs*" (MICH-22).[2] Historically, this objective has not been met. The most recent Centers for Disease Control and Prevention (CDC) Breastfeeding Report Card (2018) shows that many of these objectives are now being met.[3,4] However, breastfeeding rates for infants at six months and one year continue to fall short of HP2020 objectives and some research indicates that mothers returning to work in non-traditional settings may continue to face barriers to having adequate time and access to appropriate spaces to express their breastmilk.[5,6]

Benefits of Breastfeeding

Perhaps the most important benefits of breastfeeding are the health benefits to both mothers and infants. Shortly after the birth of an infant, breastfeeding causes uterine contractions that promote maternal healing and reduce the risk of excessive postpartum bleeding.[1] Breastfeeding promotes spacing between pregnancies and a faster return to maternal pre-pregnancy weight.[1] Women who breastfeed may also have a lower risk of developing ovarian and breast cancers and cardiovascular disease.[1,7] Breastfeeding may possibly reduce mothers' risk of developing type two diabetes mellitus, when there has been no history of gestational

diabetes.[1] Similarly, breastfed infants experience many health benefits. Infants who are breastfed have a lower risk of developing gastrointestinal, ear, and respiratory infections than those who are not breastfed. They also have a significantly lower necrotizing enterocolitis risk (in pre-term infants) and a lower incidence of sudden infant death syndrome (SIDS).[1] Breastfeeding may also help regulate infant weight gain rate and lower the risk of future obesity.[1,7] There is also limited evidence that breastfeeding may lower risk of leukemia, atopic disease, and celiac disease.[1]

There are also compelling economic, environmental, and psychological benefits to breastfeeding.[1,7] For example, suboptimal breastfeeding, defined as no breastfeeding or breastfeeding for a duration shorter than AAP recommendations, is estimated to contribute to approximately 721 excess infant deaths, 3340 excess maternal deaths, and 17.2 billion dollars in medical costs annually.[8] In addition, breastfeeding, rather than formula feeding, can reduce formula manufacturing associated costs and environmental waste.[1] In addition to lower infant feeding costs when compared with formula feeding, breastfeeding can lead to fewer missed days of work and it produces very little water, energy, and paper waste.[7] Breastfeeding can also contribute to feelings of maternal bonding with an infant and may reduce the risk of postpartum depression.[7] Overall, breastfeeding has been shown to be beneficial in a variety of ways.[1,7]

Breastfeeding Rates

Although national rates of breastfeeding initiation (83.2%), exclusively breastfeeding through 3 months (46.9%), and any breastfeeding at 12 months (35.9%), as well as the proportion of employers with worksite lactation support programs (49.0%), all meet or exceeds the HP2020 objectives target rates, the rates of exclusive or any breastfeeding at 6 months remain below their respective targets (Table 1).[2,3] Breastfeeding cessation before twelve months,

Table 1. Healthy People 2020 Breastfeeding Objectives and Current US Rates: Adapted from the Centers for Disease Control and Prevention's 2018 Breastfeeding Report Card[3]

Healthy People 2020 Objective	**Target rate**	**Current rate (2018 Report Card)**
*MICH 21.1 Increase the proportion of infants who are breastfed ever	81.9%	83.2%
MICH 21.2 Increase the proportion of infants who are breastfed at 6 months	60.6%	57.6%
MICH 21.3 Increase the proportion of infants who are breastfed at 1 year	34.1%	35.9%
MICH 21.4 Increase the proportion of infants who are breastfed exclusively through 3 months	46.2%	46.9%
MICH 21.5 Increase the proportion of infants who are breastfed exclusively through 6 months	25.5%	24.9%
MICH 22 Increase the proportion of employers that have worksite lactation support programs	38.0%	49.0%

**MICH – HP2020 Objectives related to domains of maternal and child health[3]*

defined here as early weaning, also falls short of HP 2020 objectives and AAP breastfeeding recommendations.[1,2] Despite meeting the HP 2020 worksite lactation support objective, it is likely that worksites in non-traditional sectors, such as healthcare and service industries are not yet meeting this objective.[5,6,9] Moreover, women from population groups that are less likely to meet the HP 2020 breastfeeding objectives, such as those who are low-income, have little or no post-secondary education, are single mothers, and/or are African American, are also more likely to be employed in these non-traditional sectors.[9-11] Therefore, worksites in non-traditional sectors may have disproportionately fewer lactation support programs compared with other industries.[5,6,9-11]

Worksite Support and Breastfeeding Duration

Many factors may contribute to early weaning, including mechanical breastfeeding difficulties, perceived inadequate milk supply, nutritional concerns, cultural norms and lifestyle factors, lack of social support, and mothers' need to return to school or work.[12] This was explored by Li and colleagues, who examined data from the Infant Feeding Practice Study II (IFPSII) (n=1323) to determine reported reasons for early weaning.[12] Among these mothers, 27.9% reported that difficulties related to pumping or unwillingness to pump were important factors in their decisions to stop breastfeeding.[12] Of note, paid maternity leave is not widely available in the United States.[13] The Family Medical Leave Act (FMLA) only covers 12 weeks of unpaid leave and only applies to those who have worked at least one year and work an average of 24 hours per week. Therefore, many breastfeeding mothers return to the workplace before weaning or may choose not to breastfeed at all due to anticipated difficulties managing breastfeeding upon return to work.[13]

Adequate worksite support is critical for continued breastfeeding success, since research shows that mothers who express milk at the worksite throughout the day breastfeed for a longer duration upon return to the workplace compared to those who do not express their milk while onsite.[14] Elements of worksite breastfeeding support include access to a private, non-bathroom lactation space, provision of reasonable break time for breastmilk expression, and formal worksite lactation policies.[14] Worksite breastfeeding support may also include less tangible elements, such as company culture surrounding breastfeeding and interpersonal support among coworkers.[14] In order to determine how currently available breastfeeding support affects breastfeeding duration for working mothers, it is important to properly evaluate the effectiveness of breastfeeding support laws, other breastfeeding support programs, and formal and informal

workplace breastfeeding policies. Although federal and state laws exist to protect mothers' rights to reasonably express their breastmilk over the course of the workday, these laws are sometimes not enforced, either because employers choose not to or employers and/or employees are unaware of the laws.[13,15] For example, one study by Kozhimannil and colleagues found that only 40% of breastfeeding mothers were provided with enough break time to express breastmilk and had access to adequate pumping space upon return to the workplace.[14] There are various worksite breastfeeding support programs that are designed to provide employers with guidelines to establish formal breastfeeding support policies, however, these programs may be more effective in certain workplace sectors.[5,6] For example, in some settings, such as administrative positions, may provide obvious ways to integrate worksite lactation support into the workday. However, non-traditional settings, such as restaurants, retail establishments, and healthcare, which are often characterized by shift work, one-on-one interactions with customers, and/or irregular break schedules, can provide significant challenges to lactation support.[5,6] Therefore, it is important to identify strategies associated with positive worksite breastfeeding support experiences, particularly in these non-traditional workplace sectors, to improve the landscape of worksite breastfeeding support and support mothers' breastfeeding goals.

Since there are so many benefits to breastfeeding, worksite support of breastfeeding is an important component to overall breastfeeding support that may increase breastfeeding rates and duration.[16] For example, Kozhimannil and colleagues found that women who received adequate lactation space and break time were 2.3 times (95% CI 1.03, 4.95) as likely to breastfeed exclusively at six months as women who did not.[14] These women were also 1.5 times (95% CI 1.08, 2.06) more likely to breastfeed exclusively with each month.[14] Another study by Fein and colleagues showed that mothers who did not directly feed or pump during the course of the

workday continued breastfeeding for 14.3 weeks (median) after returning to the workplace, while mothers who were able to breastfeed their infants directly continued to breastfeed for 31.4 weeks (median) after returning to the workplace, and mothers who expressed breastmilk with a breast pump continued breastfeeding for 26.3 weeks after returning to work.[15] Therefore, it appears that mothers who are able to feed their infants directly, pump their breastmilk, or perform a combination of the two are able to breastfeed for longer than mothers who were unable to exercise these options.[16] This allows the mother to return to her career and earn income while continuing to breastfeed.

It is also advantageous to employers to support breastfeeding mothers in the workplace.[16] In addition to increasing morale among breastfeeding employees, providing worksite breastfeeding support can provide employers financial benefits. Enabling mothers to express milk allows them to continue employment, thereby eliminating the need to hire replacement employees. Since breastfeeding leads to improved infant health, mothers (and fathers) are likely to take fewer sick or vacation days in order to take care of their sick infants. Healthy mothers and infants may also have lower medical costs, which can translate to lower healthcare and insurance expenses for the employer. Therefore, employer provision of worksite breastfeeding support can benefit employers and employees alike.[16]

Challenges Related to Worksite Breastmilk Expression

There are many challenges related to worksite breastfeeding support, both for employers and employees. Some concerns a mother may face include hygiene, privacy, social pressure, and time management.[12,15] According to the CDC's Proper Handling and Storage of Human Milk Guidelines, breastmilk may be left out at room temperature for six to eight hours.[17] Depending

on the length of the workday, that may be acceptable or the mother may need a cold pack or access to a refrigerator to keep her breastmilk safe for consumption. They also recommend that mothers wash their hands and pumping equipment thoroughly prior to handling, so a facility with a sink and hand soap is needed.[17] The Fair Labor Standards Act (FLSA), section 7(r), dictates that employers provide mothers with a private, non-bathroom place to pump breastmilk, and that this place should be out of view from members of the public and coworkers.[18] This provision is to ensure mothers' privacy while expressing breastmilk. The FLSA also states that mothers are to be provided with "reasonable break time", which can be unpaid, in order to express breastmilk. This protection is valid for one year after the infant's birth.[18]

Employers may also face challenges associated with providing breastfeeding support. If unavailable, employers will need to ensure the availability of private accommodations for breastmilk expression, which may involve inconvenience or cost.[18] It is an employer's responsibility to make sure job-related tasks are completed, so rearrangement of work schedules may be necessary in some cases.[19] Regardless of these barriers, it is still the employer's legal obligation to provide adequate break time for milk expression, so flexibility is important.[18,19]

Worksite Breastfeeding Support Laws

As a part of the Patient Protection and Affordable Care Act (ACA), an amendment was made to the FLSA, section 7(r), to include federal guidelines to employers to provide private accommodations for mothers to express breastmilk and "reasonable break times" while at the workplace.[18] However, these laws are not without limitations. Under the federal law, employers are not required to follow the provision if they have fewer than 50 employees and it causes unreasonable disruption to business.[18] In addition, this law only applies for the first year of an

infant's life, which aligns with AAP feeding guidelines but does not support mothers who choose to breastfeed longer than twelve months.[1,18] Only non-exempt employees are covered by section 4207 of the ACA, so salaried employees who are not eligible for overtime pay may not be protected by the federal breastfeeding support laws.[20] Additionally, many states have their own breastfeeding support laws in place and the FLSA requires that the federal law not supersede any state law that provides greater protection.[18,20] Therefore, despite the existence of state and federal protections for breastfeeding employees, worksite support may remain inadequate to promote breastfeeding to twelve months.

A study by Smith-Gagen and colleagues examined different worksite breastfeeding support laws by state to determine which specific laws were associated with increased breastfeeding initiation and duration.[21] This study showed that the states that had laws allowing breastfeeding mothers to be exempt from jury duty, had laws declaring that breastfeeding in public would not be considered indecency, enforced pumping laws, and had laws that require employers to provide adequate space and time for breastmilk expression had higher proportions of infants who were offered breastmilk at least once ('initiation'). This effect was greatest for laws that allowed breastfeeding mothers to be exempt from jury duty [OR (95 % CI) 1.7 (1.3, 2.1)], and pumping law enforcement [OR (95 % CI) 2.0 (1.6, 2.6)]. This cross-sectional study provided some promising information but did have some limitations. Local laws were not examined, only state laws, which may have caused differences in local areas within states to be missed. Additionally, laws and policies may affect racial and ethnic groups differently, so future studies examining these differences more closely may be warranted.[21] A study by Hawkins and colleagues also found initiation of breastfeeding to be 1.7 percentage points higher ($p=0.01$) in states with worksite breastfeeding support laws than before those states had such laws.[22]

Although the researchers in this study were not able to obtain data from all states, they did employ a longitudinal, quasi-experimental design that examined differences-in-differences and so were better able to exclude the possibility of reverse causality, which was unable to be eliminated in the Smith-Gagen study.[21,22] This study also showed larger improvements in breastfeeding rates among African-American women (adjusted coefficient 0.056), Hispanic women (adjusted coefficient 0.058), and women with lower education levels in the states with laws for worksite breastfeeding support.[22] Historically, these populations have lower breastfeeding rates, so the fact that this study was able to show that the states with these laws may be effectively closing gaps in breastfeeding disparities is encouraging.[22]

While these studies examined the associations between the existence of breastfeeding support laws and breastfeeding rates and duration, others looked at how well support laws work in practice.[23] One such cross-sectional study of New Jersey hospitals and businesses by Bai and colleagues looked at how well breastfeeding laws were carried out based on amenity scores of available lactation rooms. This study compared amenity scores (based on responses to a 22-item survey) in hospital-based employment setting versus non-hospital-based employment settings since the implementation of the federal Reasonable Break Time for Nursing Mothers Law. The types of lactation room amenities examined were furnishings, hygiene, pump, and milk storage, with ranking choices of low, medium, and high within each of those categories. Hospitals were significantly more likely than non-hospitals to have a lactation room, with 81% of hospitals and 36% of non-hospitals offering one ($p=0.03$). One additional finding that was interesting but not entirely surprising was that the likelihood of an employer offering breastfeeding support increased as the proportion of female employees increased. This study had a small sample size ($n=51$) of businesses and only examined one aspect of breastfeeding support laws, lactation room

availability and associated amenity scores. Although this particular study only examined worksite support in a convenience sample of businesses in a single state, and therefore had low generalizability, it did indicate that certain types of business, hospitals in this case, may be more likely to enforce breastfeeding support laws than others.[23]

Worksite Breastfeeding Support Programs

A review by Kim and colleagues found that breastfeeding initiation, duration, and exclusivity significantly improved for each additional worksite breastfeeding support element (consisting of lactation space and equipment, education, and in-person and telephonic professional support) offered by a worksite, strengthening the finding that worksite breastfeeding support may help mothers reach their breastfeeding goals. When worksite breastfeeding support interventions, such as mothers receiving a breast pump for 12 months (8.3 months versus 4.7 months), utilizing telephone support (42% versus 15% at 6 months), and participating in breastfeeding consultations upon return to work (40% versus 17% at 6 months) were in place, breastfeeding duration increased.[24] While federal and state laws offer minimal protection of breastfeeding mothers' rights, other breastfeeding support programs have been specifically designed to more effectively support working breastfeeding mothers.[19,25-38] For example, *The Business Case for Breastfeeding Toolkit* offers materials and resources for employers to plan and develop their own lactation programs.[19] Other worksite breastfeeding support programs have been developed by state and local breastfeeding coalitions as well as by worksites. These often include necessary elements such as written breastfeeding policies.[25-38] Details on some existing programs are shown in Table 2.

Table 2. Worksite Breastfeeding Support Programs[26-37]

Program	Features
Kansas Breastfeeding Coalition	Communities Support Breastfeeding designation
MilkWorks	Resource links, Returning to Work classes, Facebook support group
Healthy Columbia Willamette Collaborative	Lactation in the Workplace Toolkit, resource links, signage
Texas Mother-friendly Worksite Program	Mother friendly designation, toolkit, resource links
Breastfeed LA	Employer Tool Kit, sample policy, printables and signage, worksite assessment, training
New York Dept. of Health: Making it Work for Moms	Toolkit for mothers
Minnesota Breastfeeding Coalition	Breastfeeding in the workplace resource page, toolkit, resources and video links
Connecticut Breastfeeding Coalition	Breastfeeding Friendly Worksite designation
Florida Breastfeeding Coalition, Inc.	Business Case for Breastfeeding toolkit, Florida Breastfeeding Friendly Employer Recognition program, toolkit, resource links, social media
New Hampshire Breastfeeding Taskforce	Resource links, toolkits, breastfeeding-friendly employer award, employer training modules
Colorado Department of Public Health and Environment	Toolkit, sample policy, resource and video links, employer training
Massachusetts Breastfeeding Coalition	Toolkits and resource links

Much like the study by Bai and colleagues, a study by Spatz and colleagues explored worksite breastfeeding support in a hospital setting.[23,39] Spatz and colleagues examined breastfeeding rates of Children's Hospital of Philadelphia, Pennsylvania (CHOP) employees, which had an employee lactation program.[39] This program included availability of lactation rooms, breastfeeding classes, discounts on breast pumps, breast pump rentals, and a company lactation policy above and beyond the rights afforded to breastfeeding mothers through the ACA. An email survey was sent to employees of CHOP, who had taken maternity leave, to assess breastfeeding initiation rates and any breastfeeding and exclusivity rates at three and six months. These rates among the CHOP mothers were then compared with time-matched CDC data for the US and the state of Pennsylvania. Rates of initiation were significantly ($p<0.0001$) higher at CHOP (95.4%), compared with rates at the time of the study (68.1% in the state of Pennsylvania and 76.9% in the US). Rates of any breastfeeding at six months were significantly higher ($p<0.0001$) at CHOP (78.6%), compared with 47.2% in the US, and rates of any breastfeeding at twelve months were significantly higher ($p=0.0003$) at CHOP (32.4%), compared with 25.5% in the US. Likewise, exclusivity rates at three months were also higher among the CHOP mothers, at 69.2%, compared with 37.2% in Pennsylvania, and 36% in the US at the time of the study. Exclusivity rates at six months were 35% at CHOP, 14.1% in the state, and 16.3% in the US. This study had a large sample size, with 545 women (about 40% of those who were eligible) responding to the survey. Results seem to suggest that CHOP's employee lactation program positively affected breastfeeding outcomes for these employees. However, response bias may have occurred, as women who had positive experiences may have been more likely to respond to the survey, and those working in healthcare may be more aware of the benefits of breastfeeding

than that of the general population. It is also important to remember that this study evaluated employees in a single hospital, so would not be generalizable to the US workforce.[39]

Over the course of a study by Yimyam and colleagues, a worksite breastfeeding support model was developed using Mother-Friendly Workplace Initiatives by the World Alliance for Breastfeeding Action (WABA) as a guide.[40] The support model consisted of breastfeeding education, breastfeeding promotion campaigns, and breastfeeding support by lactation consultants and nurse midwives. Two groups of mothers were asked about their breastfeeding practices. The first group did not receive the support model intervention and the second group did receive the support model intervention. At six months post intervention implementation, exclusive breastfeeding rates were found to be significantly higher ($p=0.004$) at 36.4% in the intervention group than in the control group at 4.2%. Rates of any breastfeeding at six months in the control group were at 29.2% versus in the intervention group at 57.6% ($p=0.033$). Although this study took place in Thailand so is not necessarily generalizable to worksites in the US, it does show that improvements in breastfeeding rates can be made with implementation of worksite breastfeeding support programs.[40]

Various established programs outline methods for worksite breastfeeding support in different areas, such as lactation space, equipment, and establishment of lactation policies. The federally-developed *Business Case for Breastfeeding Lactation Support Kit* provides assessment, program planning, and feedback tools to the employer.[19] It offers clear guidelines on how to establish a formal worksite breastfeeding policy and guide with reputable resources.[19] The Breastfeeding Coalition of Oregon website offers support guidance as well as links to the *Business Case for Breastfeeding* information.[38] The CDC's *Healthier Worksite Initiative Lactation Support Program* also offers comprehensive information to employers regarding

assessment, planning, implementation, and evaluation of formal worksite breastfeeding programs.[25] The *Texas Mother Friendly Worksite Program* offers similar tools.[29] These programs appear to be robust and offer comprehensive tools for development of worksite breastfeeding support programs, however they must be widely implemented and assessed for effectiveness for detection of significant changes due to their implementation.[19,25,29,38] In addition to these programs, worksites may develop their own formal worksite breastfeeding support policies, which will likely vary in effectiveness.

While it is beneficial for worksite breastfeeding support programs to exist, it is crucial that they provide effective multi-faceted support for breastfeeding mothers while being sustainable for employers.[19] Worksite breastfeeding support programs and evaluation of the effectiveness of these programs is important, but gaps in overall worksite breastfeeding support still exist as some industries, such as healthcare and service industries, are less likely to employ these programs in the first place.[5,6,41] Therefore, additional research is needed to examine aspects of worksite breastfeeding support that are effective in these industries. Given the paucity of research regarding worksite breastfeeding support in these challenging workplace sectors, it is likely that a qualitative research approach would provide a rich initial understanding of the unique needs for support in these settings.[42]

Existing Qualitative Research

Though quantitative study designs may provide useful information, especially regarding evaluation of existing laws protecting breastfeeding and support programs, qualitative research is often a valuable formative approach for identifying nuanced information relevant to the topic and may help to highlight positive worksite breastfeeding support experiences from mothers'

perspectives and to explore this information in greater detail.[43-48] One qualitative study by Rojjanasrirat used a 50 item, open-ended questionnaire to elicit responses related to worksite breastfeeding support, which were coded and organized into themes.[43] Four distinct aspects of worksite breastfeeding support that were important to mothers were identified: maternal attitudes related to worksite lactation, receipt of support necessary for successful worksite lactation (emotional, informational, and instrumental), coping with psychological distress surrounding worksite lactation, and having a strategic plan for worksite lactation.[43]

Another study using three focus groups examined the worksite breastfeeding support experiences of employees, supervisors, Human Resources directors, and owners from different sized businesses with different types of breastfeeding support policies.[44] A semi-structured interview guide was used to stimulate conversation among focus group participants. Interview questions included:

1. *"What comes to mind when you hear the word 'breastfeeding' at your workplace?"*
2. *"In what ways does breastfeeding come up in your workplace?"*
3. *"What types of support are available for breastfeeding employees?"*
4. *"What are your biggest challenges in providing breastfeeding support?"*
5. *"What are some solutions for providing workplace support for breastfeeding?"*

The data revealed several common themes regarding worksite breastfeeding support. For example, even when formal policies existed, communication difficulties were often encountered. The three most common communication issues arose regarding conflicts between individuals of different ages, sexes, and positions. There appeared to be attitude differences between members of different generations, with observations such as, "the younger generation are more accepting of it" and "Maybe a few generations ago they didn't have the technology and the ability to pump

at work. If you had to go back to work, you were done [breastfeeding] I think". Women reported feeling as if men did not understand the challenges they faced associated with breastfeeding and the need for worksite breastfeeding support. Lastly, concerns over differences in position, such as an employee communicating with a manager and the associated difference in power, were prominent. It is important to note that the sample for this study was white and only represented businesses in a rural, midwestern setting, so future research should study a sample more representative of the entire US population. However, the study was useful as it did highlight concerns and potential disconnects related to worksite breastfeeding support policies and their effectiveness in practice.[44] It is important to remember that successful worksite breastfeeding support likely requires interaction between mothers and employers.

Another qualitative study, this one by Chow and colleagues, looked at worksite breastfeeding support from managers' perspectives with the goal of developing a future evaluation tool for worksite managers.[45] Themes were constructed from discussions that took place in focus groups comprised of managers from various worksites in the state of Michigan. Some of the themes uncovered included gaps in breastfeeding knowledge, beliefs that formal worksite breastfeeding support policies were unnecessary, the perception of a lack of acceptable lactation accommodations, discomfort regarding male manager-female employee interactions regarding breastfeeding support, along with a general willingness to accommodate breastfeeding employees. The sample in this study was mostly white, educated, married, and middle-aged, which limits generalizability, but does highlight some potential areas for additional exploration.[45]

A study by Majee and colleagues, also qualitative, looked at perspectives of both employers from education, health, retail, and manufacturing sectors and low-income breastfeeding mothers in rural Missouri counties after the implementation of the ACA.[46] Data

collection methods varied and included document review, focus groups, and semi-structured interviews, from which themes were constructed. The sample of mothers in this study was mostly white, high school educated, unmarried, and low-income. Employers were generally seen by mothers as reactive, rather than proactive, in their approach to worksite breastfeeding support. Although employers generally reported familiarity with ACA breastfeeding support laws, mothers indicated that these were not always enforced. Mothers reported intolerance by coworkers and managers, even when the law was technically enforced. For example, one mother said management allowed her to take breaks to pump but provided no employee coverage while she was gone, thereby causing her fellow employees to get behind on their work. Differences between the perceptions of employers and employees regarding worksite breastfeeding support signals a disconnect between expectations of support provided by employers and support received by employees.[46]

A focus group study in southeast Michigan, by Johnson and colleagues, examined factors specific to the worksite breastfeeding support experiences of African-American mothers, which is important because Black women historically have lower breastfeeding initiation and exclusivity rates than Hispanic and White women in the US.[10,11,47] Separate focus groups were conducted, one with lactation professionals, one with women who did not breastfeed or plan to breastfeed, and one with women who had breastfed or planned to breastfeed. Mothers cited concerns about being too busy at work to pump or being afraid to speak up about breastfeeding laws because they might lose employment and saw employers as generally unsupportive of breastfeeding. Mothers felt that paid FLMA would support a breastfeeding relationship by relieving some of the pressure to return to work quickly, before breastfeeding can be established. Breastfeeding mothers, non-breastfeeding mothers, and lactation professionals all expressed a

belief that breastfeeding peer support groups and breastfeeding education for community health professionals would help support breastfeeding.[47]

Other qualitative research focuses on mothers' perspectives of worksite breastfeeding support in particular industries. For example, a study by Brown and colleagues, looked at differences in worksite breastfeeding support by employer size.[48] This study, used to develop a social marketing campaign to promote breastfeeding in Texas called the *Texas Breastfeeding Initiative* (TBI), held two focus groups of human resource professionals, one with small employers (companies with fewer than 150 employees) and one with large employers (companies with greater than 150 employees). Generally, employers did recognize the health benefits of breastfeeding and its importance to employees' work-life balance, however many cited concerns about how employer-provided support affected productivity, specific job duties, fairness to other employees, and cost associated with providing lactation facilities and additional employee coverage. Although this study did examine perspectives across a variety of industries, it was from an employer, rather than an employee, perspective. Given that employer concerns varied by business size and job duties, this study further illuminates the need to explore mothers' perspectives on worksite breastfeeding support across different industries.[48]

These qualitative studies share an inherent limitation, that is, because the study design is qualitative, statistical inferences cannot be made.[43-48] Additionally, although worksite breastfeeding support in different worksite environments was examined using qualitative study designs, these studies were not usually specific to workplace sectors where breastfeeding support is likely to be the most difficult, such as restaurants, small retail stores, large retail stores, health care facilities, and education.[5] Therefore, successful strategies identified in these studies may not be applicable to more challenging industries. Some qualitative research regarding worksite

breastfeeding support has been done in other countries.[49-53] Because qualitative studies of worksite breastfeeding support outside of the US take place in a different type of support environment than the US and involve different worksite breastfeeding support laws, they are not discussed here, although there may be some similar themes uncovered with qualitative research.[49-53]

Research Needs

Qualitative research is necessary to explore the unique perspective of mothers employed in workforce sectors that are not particularly conducive to providing regular breaks and appropriate spaces for mothers to pump their breastmilk, such as dedicated lactation rooms or private office space. Additionally, available qualitative research generally uncovered barriers, rather than facilitators, to worksite breastfeeding support. Therefore, it is evident that there is a lack of research examining factors related to mothers' ***positive worksite breastfeeding experiences, particularly in sectors where worksite support of breastfeeding is more difficult***. Given that employees in certain worksite sectors, such as service, healthcare, and education, appear to be less likely to receive adequate worksite breastfeeding support, qualitative research focusing on mothers' positive experiences with worksite breastfeeding support in sectors where such support is historically more challenging is needed.[5]

Summary and Conclusions

In conclusion, little, if any, research exists that attempts to define the unique experience of mothers who have successfully continued to breastfeed after returning to employment in non-traditional work sectors.[42] Given the important health outcomes associated with breastfeeding,

for infants, mothers, employers, and the greater society, identification of effective worksite breastfeeding support strategies will be important for development of future interventions, particularly in workplace sectors in which breastfeeding support is most challenging. Therefore, research should be done in order to capture in-depth information on mothers' experiences and to identify commonalities in positive worksite breastfeeding support experiences in challenging workplace sectors in the US.

CHAPTER 2: MANUSCRIPT

Introduction

Project Development

This project was conceived with input from the Knox County Health Department (KCHD) to identify strategies that may improve worksite breastfeeding support for mothers employed in non-administrative settings. Non-administrative settings were selected as the focus of this study because the KCHD's Wellness and Communications Manager identified these as the sites in which adequate support is most challenging to obtain regionally.[54] Upon consideration of the literature pertaining to worksite breastfeeding support and input from KCHD experts on community needs, the specific worksite sectors identified included small retail stores, large retail stores, restaurants, education, and health care facilities.[5,6,9,54] A phenomenological approach was used to describe positive experiences of mothers who had received worksite breastfeeding support. Following data collection and analysis, training materials for use by East Tennessee worksites were developed for future distribution by KCHD and the East Tennessee Wellness Roundtable (ETWR).[55] The development process for these materials has been briefly described in the Methods section. The University of Tennessee (UT) Institutional Review Board (IRB) granted approval for this study (UTK IRB-16-03253-XP).

This study's purpose was to identify factors related to positive worksite breastmilk expression experiences of mothers employed in non-administrative sectors that have historically been challenged to support breastfeeding, such as small and large retail, restaurants, healthcare, and education settings. Identified factors related to success were then used to develop worksite breastfeeding support materials intended for use to improve worksite breastfeeding support for women in these industries. The research question this study aimed to investigate was: *What are*

mothers' experiences of breastfeeding worksite support for those who have had overall positive experiences and work in industries where attainment of such support is historically challenging?

Methods

Study Design

Because the purpose of this project was to understand mothers' experiences and perceptions of worksite support of breastfeeding, a qualitative approach was the most appropriate method of investigation for this study.[56-61] A qualitative design was consistent with purpose of this study and allowed for fulfillment of goals as described by Maxwell, such as gaining a deeper understanding of participants' experiences and of the context that frames their experiences.[58] In-depth interviews provided rich descriptions of mothers' experiences and enabled greater understanding of factors that lead mothers to feel supported while expressing breastmilk at the workplace.[58]

There is a precedent for use of phenomenological methods of investigation in research involving breastfeeding experiences. Studies about mothers' perceived breastfeeding inadequacies, such as Dykes and colleagues and Dykes used a phenomenological approach, and found mothers had concerns about adequacy of breastmilk supply which interfered with successful breastfeeding experiences, whether or not mothers actually had low breastmilk supplies.[62,63] Other studies about breastfeeding difficulties, such as those by Hauck and colleagues, which found that mothers utilized different pathways to overcome breastfeeding difficulties and Mozingo and colleagues, which found that mothers experienced inconsistencies in breastfeeding expectations versus reality (leading to breastfeeding difficulties), also used a phenomenological approach.[64,65] A study by Bailey also explored perspectives on breastfeeding

of both mothers and fathers using phenomenological methodology.[66] Although these studies did not focus on mothers' positive breastfeeding experiences, they did investigate similar phenomena in similar populations and therefore support the choice of phenomenology as the inquiry method for this study.

In choosing a qualitative design, there are several factors to consider. Resources, time constraints, and researcher ability all played a role in design choice. However, the most important factor in choosing a qualitative study design was the research question itself.[59,60] This study's purpose was to discover what the experiences of worksite breastfeeding support were like for mothers who had overall positive experiences and worked in industries where worksite breastfeeding support was challenging. Unlike in Grounded Theory methodology, where the goal would be to create a theory, in phenomenological methodology, the focus would be to obtain descriptions of experiences of the phenomenon of interest.[60] Therefore, an appropriate methodology for this study was phenomenology.[61]

The Transdisciplinary Phenomenology Research Group (TPRG) at the University of Tennessee is a research group that supports the study and practice of phenomenology.[67] The group, composed of members representing various disciplines, such as nursing, psychology, education, counseling, and nutrition, holds weekly meetings at which members review phenomenological literature and discuss current phenomenological research projects of group members. Members conducting phenomenological research brought interview transcripts to the group for discussion and feedback as a method of exercising peer debriefing. The group also reviews themes, as they are constructed, to further ensure validity of research. Bracketing and pilot interviews are also presented at TPRG meetings to minimize potential researcher bias and refine phenomenological interview technique prior to participant data collection. During this

study, the primary researcher utilized TPRG meetings regularly to perform bracketing, pilot interviewing, peer debriefing, presentation and discussion of interview transcripts and constructed themes, and aid in better understanding of phenomenological methodology.[67]

Study Population

This study's target population was mothers who had positive experiences pumping in workplace sectors where adequate support is traditionally challenging to receive. Inclusion criteria included mothers who were >18 years of age, had infants <18 months of age, were fluent in English, were working outside of the home and expressing breastmilk at the worksite at the time the study was being conducted, or within the previous six months, and had, overall, positive experiences with worksite breastfeeding support in the following sectors: restaurants (full service and quick service), small retailers (convenience and corner stores, gas stations, etc.), large retailers (big box stores, chain department stores), health care facilities (hospitals, outpatient settings, etc.), and education (K-12 teachers and assistants, childcare providers, etc.).

Recruitment

Participants were recruited via social media posts featuring an electronic version of the recruitment flyer (see Appendix B – Recruitment Flyer) on the *BreastFriends* Facebook page, an online breastfeeding support group moderated by the Knox County Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Electronic recruitment flyers were also posted on the ICAN THRIVE Facebook page. Paper copies of the flyer were posted around UT campus and were distributed to WIC participants at Knox County WIC and Sevier County WIC. Stratified purposeful sampling, commonly used in qualitative research, was used to recruit mothers who had positive worksite pumping support experiences in the specified industries.[56]

Because little was known about the prevalence of these positive experiences in the sectors of interest, snowball sampling was also used to recruit participants.[56] This was achieved by asking participating mothers to encourage other potentially eligible mothers to complete the online or phone screening. Researchers did not request others' contact information from participants, rather, researchers' contact information was given to participants with a request to forward it to other mothers who might have been interested in study participation. To increase sample diversity, the snowball recruitment process included language intended to encourage recruitment of participants from underrepresented groups. In keeping with phenomenological qualitative methodology, recruitment continued until saturation was reached (determined to be when new information no longer emerged from interview content), at which time two additional interviews were completed to confirm that saturation had been reached.

Screening

To determine study eligibility, respondents completed a screening questionnaire via Qualtrics link or over the phone (see Appendix C – Screening Form). In most situations, those who were determined to be ineligible were informed immediately of their ineligibility and thanked for their time. In order to confirm age-eligibility upon completion of the online screen, mothers were informed of their tentative eligibility if applicable and were prompted to either contact the research lab via phone call or email or to provide their name, phone number and/or email, and an indication of preferred contact times for a follow-up phone call or email from the research lab. To ensure consent for use of participant screening data, a consent process was added to the screening questionnaire. If the option for no consent was chosen, screening data were not collected.

Table 3. Frequency* of Reasons for Ineligibility among Screening Questionnaire Respondents

Reason for Ineligibility	**n (%)**
Not a mother of an infant <18 months old	3 (5.8%)
Did not work outside the home	5 (9.6%)
Did not pump in the workplace	6 (11.5%)
Ineligible occupation	27 (51.9%)
Had overall negative experience	9 (17.3%)
Infant age ineligibility	4 (7.7%)
Maternal age ineligibility	0

* Not mutually exclusive; Participants could have been ineligible for multiple reasons

A total of 114 screens for eligibility were initiated, of which 98 were completed. Of these, 46 were eligible to participate and 52 were determined to be ineligible for the study. Among those who were eligible, 8 did not leave contact information, 18 were not able to be reached by phone or email, and 20 enrolled in the study. Reasons for study ineligibility and their frequencies are shown in Table 3.

Consent and Compensation

Upon determination of eligibility from the screening questionnaire, eligible respondents were notified via email or phone call, depending on reported preference. If eligibility notification took place by email, an electronic copy of the consent form (see Appendix D- Consent Form) was included for respondent review and the interview was scheduled. At the start of the interview, the primary researcher read the consent form to the respondent and confirmed verbal consent prior to the interview. The primary researcher also informed the respondent that written

consent would need to be received before compensation would be mailed. After the phone interview and demographic questionnaire were completed, the primary researcher mailed out two copies of the consent form with a self-addressed stamped envelope for the participant to sign and return. Upon completion of all study activities, each participant received either $50 or $55 in gift cards to their choice of two local retailers as compensation for their time ($50 for the in-depth interview and demographic questionnaire and $5 for the follow-up survey). The $50 gift card was mailed to participants after the phone interview and receipt of their signed consent forms. This amount of compensation was determined as a result of discussion with key informants working with this population. Time spent on study activities by each participant totaled less than one and a half hours (10-15 minutes for the demographic survey, 30-60 minutes for the audio interview, and 10-15 minutes for the follow-up survey). An additional $5 gift card was mailed to each participant upon completion of the follow-up survey (see Appendix G – Follow-up Survey).

Bracketing

Although it is impossible to completely remove presupposition on the part of the researcher, bracketing is a process which can help minimize bias in qualitative research.[56,68, 69] Bracketing, as it relates to phenomenology, is a process in which the primary researcher sets aside assumptions, prior experiences, and preconceived notions about the subject of interest. Bracketing serves as a necessary step to obtain phenomenological reductions through the avoidance of projecting researcher interpretation into the phenomenon of interest. Through bracketing, the researcher attempts to understand the lived experience of the phenomenon through the participant's actual words, instead of the researcher's interpretation of those words through the context of her previous experience and beliefs. [56,68,69] Because the primary researcher

had workplace breastmilk expression experience and breastfeeding research experience in the ICAN-THRIVE lab at UT, it was necessary to bracket these experiences throughout the research process to maintain as much objectivity as possible.[68] To accomplish this, a bracketing interview was completed with an experienced member of TPRG prior to recruitment. The interview was transcribed and presented to TPRG, who analyzed the interview to help identify the primary researcher's perceived biases, assumptions, and values about the phenomenon being researched, worksite breastfeeding support. The primary researcher reviewed the group analysis prior to data collection to uncover and avoid potential bias. Examples of the primary researcher's preconceived notions identified during the bracketing process included: a positive attitude toward pumping in the workplace, an assumption that mothers were capable of asking management that their pumping needs be met, and that privacy was a minimal concern to pumping employees. Bracketing continued throughout the study during data collection and analysis by reviewing each transcript and compilation of themes alongside identified assumptions to ensure bias was minimized.[68,69] The primary researcher also completed a pilot interview, which was recorded, transcribed, and presented to the TPRG to refine interviewing technique and minimize bias during data collection.

Data Collection

Phenomenological methodology guided data collection and analysis. After verbal consent was obtained, the demographic questionnaire began (see Appendix F – Demographic Questionnaire). The questionnaire included questions intended to provide quantitative data about the duration and frequency of the worksite pumping experience, as well as data that allowed for characterization of the sample, such as employment status, education level, race, and income

level. After completing the demographic questionnaire, the recorder was started and participants completed semi-structured, in-depth phone interviews with participants to provide better understanding of their positive worksite breastfeeding support experiences in the previously specified workplace industries (see Appendix E – In-depth Interview Guide).[60] As dictated by phenomenology, the opening question during interviews was "Tell me about your experience pumping breastmilk at work?", which was intended to elicit in-depth descriptions of maternal workplace breastmilk expression experiences and perceptions of support.[63,70] Because phenomenological interviews are intended to be open-ended and participant led, a rigid interview guide was not used, however, a guide including optional key probes was developed by the research staff to clarify or expand on responses if needed. Interviews were audio-recorded and subsequently transcribed.

Upon completion of the interview, after the audio-recording was stopped, participants were asked to consider referring any interested and potentially eligible mothers to complete the online or phone screen and were given contact information if applicable. If a signed consent form had not previously been returned, participants were then mailed two copies of the consent form with instructions to sign and return one copy in the provided SASE. Participants were asked for their gift card retailer preference and informed that a $50 gift card would be mailed to them as soon as we received the signed consent form in the mail. Additionally, they were reminded that they would be contacted via email or mail near the end of the study period to complete a brief Qualtrics survey on the developed materials (see Appendix G – Follow-up Survey), at which time they would receive an additional $5 gift card to a local retailer.

Field notes were taken throughout the data collection process, which aided in data analysis in multiple ways.[58] Field notes were taken before, during, and after interactions with

study participants to ensure preservation of data, particularly details which may be forgotten and information that may be lost in transcripts, such as participant tone of voice and meaningful pauses. Descriptive and reflective elements of the researcher's thought process were recorded during study activities. Additionally, collection of field notes throughout data collection and analysis assisted with bracketing, helping to ensure preconceived notions of the researcher were bracketed throughout the entire research process.[58]

Data Analysis

Descriptive statistics were performed using SPSS 25 software. Means and frequencies of participant characteristics from the demographic questionnaire were run to describe the sample. Colaizzi's methodology was used to guide qualitative data analysis.[71-73] The steps of this qualitative methodology appear in Figure 1. After in-depth interviews were completed, the audio recordings were transcribed. Transcripts were first read and reviewed to get an overall feel for participant descriptions (step 1).[71] Transcription was performed by the primary researcher and other members of the research staff (RZ, AE). All transcripts completed by other members of the research staff were reviewed by the primary researcher for accuracy. Several transcripts completed by the primary researcher were reviewed by other members of the research staff for accuracy. Select transcripts were presented at TPRG over the course of the study period to exercise peer debriefing. Significant statements, in the form of sentences and phrases of participants' dialogue related to worksite breastfeeding support, were extracted from transcripts using NVivo 11 software. Another member of the research team (RZ) co-coded select transcripts to provide verification of primary researcher interpretation (step 2).[71] Formulated meanings were

Figure 1. Components of Colaizzi's method used to guide data analysis. Modified from Beck (1994).[71]

developed by recording the meaning of each portion of excerpted dialogue (step 3).[71] This process allowed for the extraction of units of meaning from interview content to understand the meanings through participants' words.[71] Conceptually similar statements were then clustered together.[71] Themes and subthemes were then constructed from these clusters to create a description of participants' overall experiences, which were revised as data analysis progressed (step 4).[71] Preliminary themes were presented to TPRG for peer discussion and feedback. Results were subsequently integrated into an exhaustive description of the phenomenon of interest (step 5).[71] The exhaustive description was a thorough narrative of emergent meanings and themes and comprehensive discussion as related to the phenomenon being studied, positive worksite breastfeeding support experiences. Using the exhaustive description, an unequivocal statement was created which served to summarize a concise description of the phenomenon's structure (step 6).[71] Finally, member checking was performed, via a survey administered to participants after completion of the in-depth interview, toward the end of the study period (step 7).[71] This final step, described by Colaizzi, served to ensure that the described phenomenon was consistent with participants' experiences.[71]

Member Checking

The information obtained from data analysis was used to create materials to promote successful worksite breastfeeding support in East Tennessee. As part of that project, emergent themes (detailed in the Results section below) from this study were presented to the Board of Directors of the East Tennessee Wellness Roundtable (ETWR), a *"member-based collaboration of area professionals who strive to create cultures of wellness at their worksites through the promotion of professional development, evidence-based wellness and networking",* for

prioritization via nominal group process.[55,74] The themes that were prioritized at this meeting were: Having access to necessary equipment and materials and Supportive company culture.[74] Breastfeeding worksite support training modules were created based on these themes and published in partnership with the and KCHD in August 2018. The details of module development and distribution have been described elsewhere.[74]

To validate the findings, a member checking process was completed by returning to participants with resultant themes to assess compatibility with their individual experiences.[57,58,73] Participants were also presented with descriptions of content and a visual sample of worksite breastfeeding support modules that were developed and asked to assess their helpfulness (see Appendix G – Follow-up Survey).[57,58,73]

Validity and Reliability

Various strategies were employed over the course of the study to improve internal validity, or trustworthiness.[57,73] The primary researcher completed a pilot interview and presented the transcript at TPRG in order to practice and receive feedback on interviewing technique prior to conducting participant interviews. Bracketing, as described above, was performed throughout the research process.[57,73] Peer debriefing and consultation with experts is prescribed by Colaizzi's methodology and has been used to improve internal validity in previous phenomenological research.[62,67,73] Peer debriefing was employed by presenting interview transcripts and themes to TPRG members.[73] Using verbatim segments of participant dialogue in the final report helped preserve their specific meanings.[73] Finally, member checking was done in order to promote trustworthiness.[57,58,73]

Strategies were also used to ensure reliability.[73] The primary researcher's personal relationship with the research phenomenon of interest was disclosed.[73] The use of a well-established protocol, Colaizzi's methodology, allows future researchers to follow a similar method of data analysis in future studies, thereby increasing reliability of this study.[57] Assurance of technical accuracy of work, for example, transcription of in-depth interviews, was accomplished by thorough training of research staff (RZ, AE). QC checks, or review of transcripts completed by other research staff, were performed by the primary researcher for assurance of accuracy.[73]

Lack of generalizability across populations due to frequent and often necessary use of purposeful sampling is a common criticism of qualitative research.[68] However, the generalizability issue, when applied to results of a phenomenological study, is defined by Polkinghorne as "not one of population characteristics but the specificity of the essential description". He argues that since the experience itself is the subject of investigation here, it is not useful to view generalizability through the same lens as with quantitative studies. Because generalizability is not a particular goal of phenomenological research, but the importance lies instead in obtaining varied perspectives, stratification is recommended and was done in this study by the recruitment of participants across different industries.[68]

Results

Participant Characteristics

Twenty participants completed interviews and demographic questionnaires. Recruitment was not restricted to any specific region, however, due to the limited geographical reach of recruitment materials, the participants primarily resided in the East Tennessee region.

Participants were residents of Roane County, Jefferson County, Anderson County, Sevier County, and Knox County. The mean maternal age was 29 years (23 – 39 years); the mean infant age was 7.8 months (2.2 – 18.0 months). A little over one-half of the sample (n=11) were classified as full-time employees and the remainder were classified as part-time employees (n=9) (Table 4). Similarly, a little over half of the sample participants reported being eligible for WIC or SNAP, while the remainder (n=9) either did not participate in these programs or were unsure of their eligibility. Most of the sample participants had completed at least some college (n=19) and nearly the entire sample reported being married (n=19). The sample participants predominantly identified as white (n=18), while most identified as non-Hispanic/Latino (n=16). Participants were employed in a variety of relevant industry sectors. The greatest number of participants were employed in education (n=6) and healthcare (n=5) settings, while fewer were employed in large retail (n=3), small retail (n=4), and restaurant (n=2) settings (Figure 2).

Table 4. Characteristics of Mothers Completing Phenomenological Interviews Exploring Positive Experiences Pumping Breastmilk in Non-traditional Work Sectors (n=20)

Characteristic	**n (%)**	**Characteristic**	**n (%)**
Employment status		**Marital status**	
Full-time	11 (55%)	Single	1 (5%)
Part-time	9 (45%)	Married	19 (95%)
WIC or SNAP eligible		**Ethnicity**	
Yes	11 (55%)	Hispanic/Latino	2 (15%)
No	8 (40%)	Non-Hispanic/Latino	16 (80%)
Unsure	1 (5%)	No response	1 (5%)
Education level		**Race**	
Some college/A.A. Degree	9 (44%)	White	18 (90%)
B.S. Degree	6 (30%)	Other	2 (10%)
M.S. Degree	4 (20%)		
No response	1 (1%)		

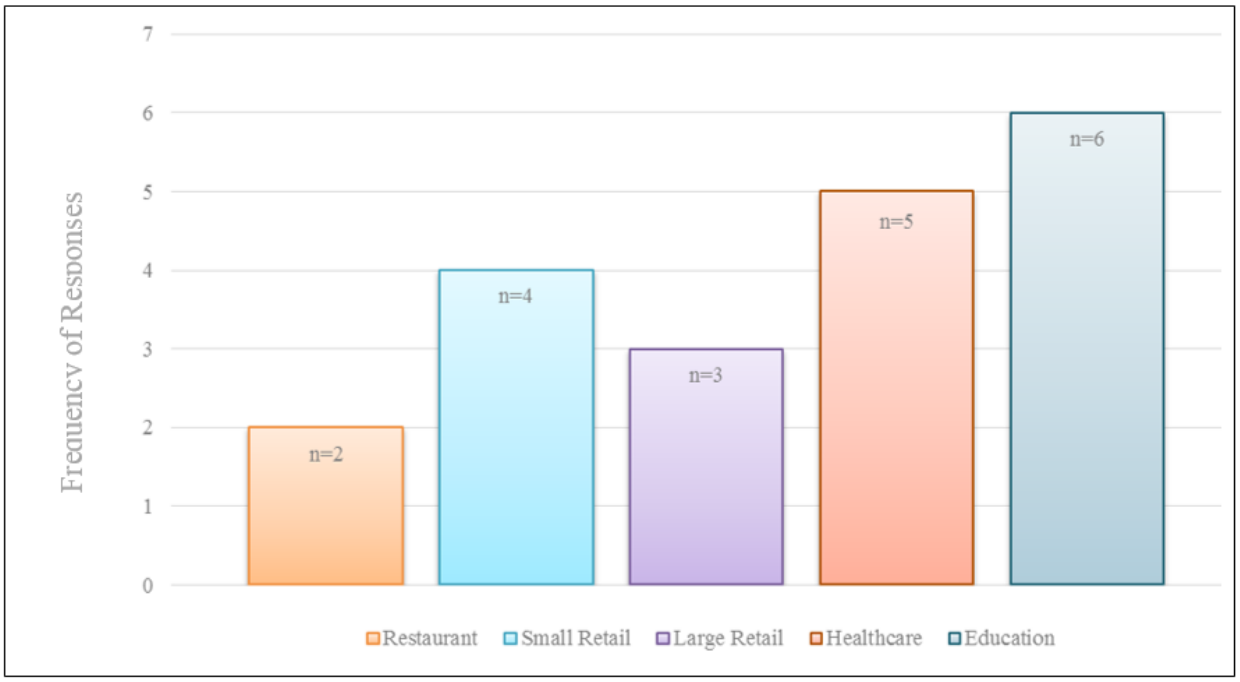

Figure 2. Work Sector Distribution of Mothers Completing Phenomenological Interviews Exploring Positive Experiences Pumping Breastmilk at the Worksite (n=20)

Interview Themes

Six themes (with subthemes, when applicable) were identified from interview content. Descriptions of these themes appear below. Supporting sample quotes appear in Table 5 alongside their corresponding themes and subthemes below.

Theme 1: Maternal and managerial flexibility in working with suboptimal pumping spaces and equipment. Two subthemes were identified for this theme. Participants indicated personal and managerial flexibility was important when finding space to pump, as a permanent, ideal space was not always available. Personal and managerial adaptability and creativity were reported to be important to make pumping work despite less than ideal accommodations. Participants noted

Table 5. Representative Quotes for Each Theme and Subtheme Identified from Participant Interviews (n=20)

Theme/Subtheme	**Representative Quote(s)**
Theme 1: Maternal and managerial flexibility Subtheme 1.1 Having access to necessary equipment and materials	*"I ended up just taking several extension cords to a bathroom… to fit them from a bathroom to a fitting room easily"* *"I have a sink and I have my whole little setup there with my connectors and my drying tub and everything"*
Theme 1: Maternal and managerial flexibility Subtheme 1.2 Security and privacy of the pumping space	*"They said no I wouldn't have to… {pump in the bathroom}"* *"You were completely undisturbed and there wasn't…. anybody knocking on the doors or jiggling the handles or trying to come in on you"*
Theme 2: Ability to negotiate schedule flexibility Subtheme 2.1 Concerns about time	*"Coming back to work, I was a little concerned because I was serving, and I was like, well when I come back to work, am I going to be able to pump?"* *"I work a breakfast shift and our breakfast shift is always super busy…..it's 6am to 11am and of course my main concern was being able to pump"*
Theme 2: Ability to negotiate schedule flexibility Subtheme 2.2 Ability to be flexible	*"Coming back to work, I was a little concerned because I was serving, and I was like, well when I come back to work, am I going to be able to pump?"* *"I work a breakfast shift and our breakfast shift is always super busy…..it's 6am to 11am and of course my main concern was being able to pump"* *"I just set up my bottles, hook everything up, eat, pump, same time usually. Sometimes I'm doing reports or whatever on my laptop when I'm pumping"* *"I might push a pumping session back probably like 30 minutes so that we have a better age group for one teacher so that my other coworkers aren't going with 50 kids all by themselves, instead it's 25. So… I try to work with them"*
Theme 3: Formal and informal managerial support Subtheme 3.1 Managers provided support	*"It was fine with her and to just kind of give her a heads up that way if she was in there… she could vacate the office while I was pumping"* *"I had several managers, a couple of them were very understanding and gave me the time when I needed to and let me change my breaks around"*

Table 5. Continued.

Theme/Subtheme	**Representative Quote(s)**
Theme 3: Formal and informal managerial support Subtheme 3.2 Conversations with management/HR	*"They didn't understand it so I really had to educate them quite a bit on it and for the most part they were… pretty understanding. They were good with it… one was grossed out, but she doesn't have any kids"* *"I let them know before I came back and then I had to keep in contact with my store manager, the main one, the whole time I was out for my maternity leave. There were several conversations that we had"*
Theme 4: Supportive coworkers	*"I do have two {teachers} that come from outside of the school, they work with different schools, so they will come and go and they will actually tell me stop to go pump. Because sometimes I am just busy with stuff and they're like, it will be here when you get back… Stop and go pump, do what you need to do, feed your baby…. So, I've pretty much had pretty good support"* *"I could be gone for 30 minutes and still have a table or two…that they {her co-workers} had finished taking care of for me. They {her co-workers} didn't have any issues, they just took care of them or getting them their bill or whatever was necessary"* *"They're {coworkers} very encouraging and they really want the best for my daughter, but everyone {coworkers} wants them {management} to cover my time so that I can go pump"*
Theme 5: Supportive company culture	*"Our company, our corporation…. do a wonderful job….. They've made it super easy to continue to breast pump"* *"I mean apparently it wasn't a hidden thing at all, everybody knew {the manager was also pumping at work}"* *"Everyone is very supportive, even like the bigger bosses. Because our branch director is really good….they {lower management} knew that I was coming in pumping and they were for it"*
Theme 6: Maternal determination to continue breastfeeding	*"…I was a lot more comfortable with it as it went on"* *"It's {just} a regular occurrence I guess"* *"I've heard all these horror stories of moms having to pump in the bathroom and I'm like I really don't want to do that"* *"Everything's… surprisingly better than expected because I was a little nervous about how all that would work"*[28]

they often had to be flexible to adapt to the accommodations and equipment that were available to them. Many participants reported creative ways to work around space and equipment difficulties to create accommodations that suited their needs well. Privacy, as indicated in subtheme 1.2, was another important element of breastfeeding support for these participants. Participants indicated that a private, non-bathroom space to pump was important and that managers frequently worked with them to ensure adequate privacy.

Theme 2: Ability to negotiate schedule flexibility. Two subthemes were identified for this theme. Participants described time management as a big concern related to pumping. Many participants reported having to fit pumping in around interactions with clients and customers. Participants conveyed that they were worried about how they were going to schedule pumping sessions around work duties. The ability to negotiate schedule coverage with coworkers and management reportedly made pumping possible for many participants. Multitasking was also considered to be an important skill for fitting pumping into tight schedules. Participants reported often combined work duties (such as completion of paperwork) with pump breaks when possible. They reported often adjusting their pumping schedules to better fit with workplace needs to ensure work duties and pumping needs were both adequately addressed.

Theme 3: Formal and informal managerial support. Two subthemes were identified for this theme. Participants identified the support of management and human resources staff as very important to pumping success. Formal support, such as workplace policies and plans were reported to be helpful, however the social aspect of workplace relationships with managers appeared to heavily influenced mothers' ability to meet their workplace pumping goals as well. Participants reported that managers often had experience with breastfeeding personally or had previous experience with breastfeeding employees. Participants felt that having understanding

management did more to accommodate pumping needs than those who seemed less understanding. Participants felt conversations before and after returning to work were often helpful to ensure the receipt of needed support when dealing with inexperienced managers. Participants reported that when they were able to discuss pumping needs before or upon returning to work, they felt better supported and were able to be successful.

Theme 4: Supportive coworkers. Participants identified coworkers as an important source of social support. Interpersonal workplace relationships seemed to play a vital role in participants' pumping success. It was reported that fellow employees often had experience breastfeeding and were therefore understanding. Other employees reported that they did not have experience breastfeeding personally but were close to those who did. Participants indicated that they often had a sense of solidarity with coworkers and they tried to support each other in various ways. For example, it was reported that coworkers often covered duties and reminded mothers that it was time to pump and encouraged them to take breaks. Participants reported feeling that coworkers often seemed invested in and encouraging of their breastfeeding relationships. Therefore, supportive coworkers appeared to foster a sense of protection surrounding breastfeeding employees and made them feel more comfortable, often standing up for them when management was less supportive.

Theme 5: Supportive company culture. Participants reported feeling that pumping in the workplace was facilitated by a breastfeeding supportive culture. In other words, when a company reportedly maintained an atmosphere of support and normalized breastfeeding in the workplace, mothers felt supported. Participants who reported that when pumping at work was viewed as "normal", they were able to have successful experiences. Although participants sometimes reported experiencing apprehension about how pumping at work would go, many reported

feeling reassured by a culture that was supportive of breastfeeding upon return to work. Participants who reported that they did not feel like they had to hide the fact that they were pumping viewed this as integral to their success. When upper management, sometimes offsite, had a reputation for being supportive of breastfeeding, pumping mothers reported feeling like they were fitting in with company culture.

Theme 6: Maternal determination to continue breastfeeding. Despite hurdles related to worksite breastfeeding support, participants were able to overcome difficulties and have positive experiences. Participants were determined to make breastfeeding successful upon returning to work, even if hardships were encountered. Participants also indicated a pragmatic attitude toward breastfeeding; despite hardships, it simply must be done. Participants often reported having preconceived notions that breastfeeding in the workplace might be difficult but were able to overcome these fears and pump successfully. Challenges related to pumping were often anticipated by participants, however, many reported being pleasantly surprised at how well they were supported after returning to work.

Table 6. Follow-up Survey Results of Mothers Completing Phenomenological Interviews Exploring Positive Experiences Pumping Breastmilk in Non-traditional Work Sectors (n=10)

	Potential Responses n (%)				
Survey Question	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
These materials reflect a lot of what I talked about with researchers	9 (90%)	1 (10%)	0	0	0
I think these materials will be very helpful for worksite support for pumping mothers	10 (100%)	0	0	0	0

Member Checking Survey

Ten out of 20 participants (50%) completed and returned follow-up surveys toward the end of the study period (see Appendix G – Follow-up Survey) (Table 6). The follow-up materials included a summary of the six themes resulting from phone interviews, a sample of support materials that were developed from the two previously prioritized themes, and a short survey to assess participant agreement with the identified themes and developed materials. Two content questions appeared on the survey, with answer choices on a Likert-like scale and space for open-ended comment entry. The first question was “These materials reflect a lot of what I talked about with researchers” and the second question was “I think these materials will be very helpful for worksite support for pumping mothers”. Only one participant added comments. For the first question this comment was, "We talked about how I wasn't always able to use the same space but always had the availability of another office or space if the usual one wasn't readily available. The flexibility and understanding made it so easy to continue nursing my child well into his second year". A comment for the second question included, "Giving companies suggestions that show they don't necessarily need to completely remodel a space just to accommodate may make the transition easy for so many smaller companies”.

Discussion

The themes identified in the in-depth interviews revealed various factors that participants associated with their positive worksite breastfeeding support experiences. The themes were largely related to the work environment as opposed to external factors that led to positive experiences. These were logistical in nature as well as social. Interestingly, these themes did not differ by workplace sector or occupation in this sample. At the same time, the variety of factors

identified as integral to successful worksite breastfeeding support experiences suggests that a multifaceted approach to support may be required to adequately support breastfeeding mothers employed in worksite sectors where breastfeeding support is challenging to obtain.

It is well understood that access to workplace pumping accommodations contributes to continued breastfeeding, which was demonstrated by Kozhimannil and colleagues, who found that mothers who had access to adequate break time and pumping space were more likely to continue breastfeeding and to breastfeed exclusively.[14] Pumping equipment, adequate break time, and private space have all been associated with longer breastfeeding duration (Kim and colleagues).[24] In light of these findings, it is unsurprising that mothers in this study identified the ability to obtain these supports as crucial elements for breastfeeding success. Flexibility seems to be important, as discussed by Majee and colleagues, who found that employers often acknowledged that provision of space, equipment, and time was not enough; flexibility is needed to truly meet pumping mothers' needs.[46] Similarly, participants in this study, and reportedly their managers, were often required to be flexible regarding pumping logistics. Participants in this study negotiated and compromised with management to obtain what they needed to pump successfully. Regardless of the effort required to obtain necessary pumping time, space, and equipment, participants still reported benefiting from this support and were able to have successful experiences.

Social support in the workplace was also discovered to be an important factor for breastfeeding success in this study. Coworkers often share tasks and a teamwork approach can create a sense of dependency on fellow employees.[6] In this study, mothers stressed the importance of positive interactions with coworkers for successful worksite breastfeeding support experiences. This is consistent with findings by Hauck and colleagues, who found that

encouragement, via social support, was a contributing factor for breastfeeding success in their study.[64] Even in less than ideal circumstances, mothers in this study who reported feeling emotionally supported were able to overcome breastfeeding difficulties.[64] Conversely, while positive interpersonal interactions with coworkers led to successful breastfeeding experiences in this sample, a study by Payne found that negative interactions with coworkers sometimes lead to early cessation of breastfeeding or the decision not to return to work.[53]A study by Anderson and colleagues found both of these ideas to be true; mothers and employers alike identified interpersonal communication and support as a highly important factor for breastfeeding success, whereas stressful interpersonal interactions had a negative effect on breastfeeding support experiences.[44] Similarly, workplace culture surrounding breastfeeding was identified as an important social factor for worksite breastfeeding success. Although workplace culture also encompasses formal worksite breastfeeding support, such as policies, participants in this study stressed the importance of how they felt when company culture was supportive of breastfeeding.[16]

The theme, *Maternal determination to continue breastfeeding*, describes how participants in this study showed initiative and persistence in pursing their breastfeeding goals. These maternal qualities align well with findings from a study by Rojjanasrirat and colleagues, where development of a maternal strategy related to worksite lactation was identified as a key factor for success.[43] In the Rojjanasrirat study, mothers planned out long term logistics for worksite lactation rather than simply planning for the short term, and they stressed the importance of having conversations with managers about necessary support in advance, much like many of the participants from this study did.[43]

The logistical factors, and the solutions, that were identified in this study could provide guidance for worksites to develop and implement concrete and specific changes to better support pumping mothers. Social support may be more difficult to promote at worksites but appears likely to be vital for adequate support. In this study, participants consistently perceived the workplace culture surrounding breastfeeding as supportive, despite difficulties in worksite environments. Therefore, it appears that organizational level interventions geared toward management and human resources professionals may be effective at improving workplace culture surrounding breastfeeding.

Strengths and Limitations

The qualitative design and intentional recruitment strategy of this study allowed for the collection of rich descriptions of mothers' positive worksite breastfeeding support experiences in industries where it is more challenging to obtain such support, of which there is limited literature to date. The use of a prescribed methodology for data analysis, Colaizzi's methodology, strengthened the study further. Strategies were employed to improve validity, such as bracketing, field notes, and the use of trained transcriptionists. Peer debriefing, achieved by regular consultation with the TPRG provided additional reinforcement of the primary researcher's coding and themes, as well as served as quality control of interview technique. Various occupations, ages, and income levels were represented by the sample. The limited geographic scope of the sample only allowed for perspectives of mothers in the East Tennessee region and worksite breastfeeding support experiences may vary by region. Despite attempts to recruit an ethnically diverse sample, most participants identified as non-Hispanic white, so the study results

best represent the perspectives of this population. In the future, studies of a more geographically and ethnically diverse sample could offer insight into the experiences of these groups of mothers.

Conclusions

This study uncovered components of support identified as most important for successful worksite breastfeeding support experiences to improve support for non-administrative positions in the restaurant, large and small retail, healthcare, and education sectors, among a sample of mothers with positive experiences pumping and returning to work in these sectors. Additional research is needed to determine if themes related to positive worksite breastfeeding support experiences in these sectors are applicable outside of the East Tennessee region. Programs promoting factors associated with successful worksite breastfeeding support experiences identified in this study may improve support, allow mothers to continue breastfeeding longer, and ultimately improve US breastfeeding rates at one year. Further work is warranted to determine specific effective strategies to improve breastfeeding support in these worksite sectors and the impact of such interventions on breastfeeding duration in the US.

CHAPTER 3: EXPANDED METHODS

Phenomenology

At first glance, phenomenology may appear to be similar to other qualitative data analysis methods, however, there are distinguishing characteristics (see Leedy, 2001,[61] for a comparison of qualitative data analysis methods).[61] Phenomenology can be described as a philosophy and used as a qualitative research methodology.[60,68] The philosophy originates from the works of Husserl, although some elements of phenomenology appeared earlier in the writings of Hegal, Mach, and Kant.[75] From there, a branching off occurred and study of phenomenology was continued by Heidegger (interpretive or hermeneutic phenomenology) and others, such as Sartre and Merleau-Ponty (existential phenomenology).[75] At its core, Husserlian phenomenology is a study of essences and return to the "things themselves".[76] It is concerned with descriptions of experiences, rather than interpretations.[76] Things and human consciousness coexist and there cannot be one without the other.[77] The idea that things can only exist in the context of being experienced by humans is central to the philosophy.[75-77] Phenomenological reductions are done to add precision to research findings.[78] It also emphasizes the need for epoche, in which the researcher suspends any knowledge, feelings, and preconceived notions (which can be achieved by the process of bracketing, described in a later section).[69,70,76] The Heideggerian approach to phenomenology does not require the bracketing of researcher knowledge, thoughts, and experiences in the sense of attempting to remove their influence from the research process because it views this process as unnecessary and in fact, these are seen as essential to the research process.[70,79] It calls for researcher interpretation of participants' words in the context of experience, including the researcher's own experiences.[70,75] The TPRG at UT, Knoxville follows the teachings of Merleau-Ponty and as a member of the group, the primary researcher has experience with this branch of phenomenology.

As a data analysis method, there are several different applications of phenomenology available. First, the decision to choose a descriptive (Husserl) or interpretive (Heidegger) phenomenological method must be made.[70,75,79] In the case of this study a descriptive approach will be used because it best fits with the purpose of this study, that is to better understand the essence of the experiences of the population of interest rather than attempting to ascribe outside meaning to them.[70,79] There are varying data analysis methodologies within the different branches of phenomenology.[72,79] There is no consensus within phenomenology on a preferred choice, only a requirement that the method of inquiry should make sense within the context of the philosophy it follows and it should be an appropriate choice to address the research question.[76,78] Although a phenomenological approach to inquiry does not necessitate a prescribed set of steps, it does lend reliability to the study, therefore a structured approach will be used in this case.[57,80] Within the descriptive approach, there are several commonly used methods for data analysis, including Van Kaam's, Giorgi's, and Colaizzi's methodologies (see Beck, 1994,[72] for a comparison of these methods).[69,71,72,78,79] Colaizzi's methodology was utilized for this study.[71]

Study Procedures

Screening

At the end of the screening, each potential participant was presented with two options regarding consent to collect screening data:

- I understand the data collected in this questionnaire will be used for study activities. By clicking "I consent", I am allowing you to use my information for research purposes and to determine eligibility. *"I consent" (this choice prompted the appropriate eligibility response).*

- I do not want my data to be collected. By clicking "I do not consent", I understand my data will be destroyed. *"I do not consent" (this choice prompted a screen which read "Thank you. Your data will be destroyed in the next 24 hours.").*

Informed Consent

Upon determination of eligibility, the primary researcher described the study activities to participants and the informed consent form was reviewed over the phone (see Appendix D – Consent Form). At this time, mothers were able to ask questions regarding the consent process. Copies of the consent form were then emailed or mailed to interested mothers, and they were asked to return one signed copy via mail or email to the ICAN Lab before completing the audio-recorded interview. Participants who preferred to return the signed copy via mail were provided with a self-addressed stamped envelope (SASE). Because some participants chose to complete the phone interview at the time eligibility is confirmed, the researcher obtained verbal consent prior to beginning the interview. Once received, signed copies were stored inside a locked filing cabinet in a locked office in 213A, JHB.

Data Storage and Transmission

Audio-recorded interview files were uploaded on a password-protected computer located inside a locked office in JHB 213A using Vault, a secure email application. Only approved and trained study personnel transcribed in-depth interviews. As suggested by Easton, the primary researcher did not personally transcribe all interviews, but performed quality checks after transcription by other research personnel so that accuracy could be ascertained.[81] Identifying information, such as names and specific locations, were blinded during transcription. Unique

participant IDs were assigned to ensure confidentiality, and these were linked to identifying information only in a master file, stored separately on a computer with password-protection in JHB 213A. In order to exercise peer debriefing, select interview transcripts were presented at TPRG meetings.[73] All TPRG members signed a confidentiality pledge before presentation of interview transcripts.

Toward the end of the study period, participants were emailed or mailed a packet containing a summary of themes, samples of developed materials, and a brief survey, which served as a member-checking process. The survey consisted of two opinion questions, using responses on a Likert-like scale, and had space for open-ended feedback related to the questions (see Appendix G – Follow-up Survey). Participants were contacted via email or phone, depending on preference to remind them of the follow-up survey. Participants who requested the survey via email were sent a document containing a summary of themes and samples of developed materials. The email included a link to the online Qualtrics survey. Participants who requested the survey via mail were sent a paper copy of the materials and survey and asked to complete and return it using the SASE provided. Qualtrics responses were recorded on paper by the primary researcher, linked to the corresponding participant ID, and stored in a locked filing cabinet in JHB 213A. Following transfer of the data to paper forms, electronic response forms were deleted.

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APPENDICES

Appendix A – Glossary of Terms

Phenomenology- A philosophy and qualitative study methodology concerned with uncovering of essences of a phenomenon through exploration of the descriptions of lived experiences of participants.[82]

Essence- In Husserlian phenomenology, the real and intended meanings of human beings behind a phenomenon.[82]

Bracketing- Setting aside of previous knowledge and assumptions of the researcher related to the phenomenon of interest.[82]

Epoche- Another term for bracketing.[83]

Reduction- The process of a researcher becoming closer to the phenomenon of interest by examining the participants' lived experiences without the researcher's own context. This can be achieved by bracketing.[83]

Significant statements- Statements extracted from in-depth interviews between the researcher and participants that are relevant to the phenomenon of interest.[82]

Formulated meanings- The researcher's understanding of meanings of extracted significant statements, in the participants' words.[82]

Theme clusters- Organization into themes of formulated meanings into clusters by the researcher.[82]

Exhaustive description- A description comprised of detailed meanings related to the phenomenon of interest, composed of information present in the theme clusters.[82]

Saturation- The point at which sampling is complete and new ideas are no longer being discovered during participant interviews.[82]

Field notes- Notes taken by the researcher throughout the research process. Contains items such as recall of data, researcher observations, and exploration of researcher thoughts related to data analysis.[82]

Peer debriefing- A process in which data and research analysis are reviewed by the researcher's peers in order to obtain objective feedback.[82]

Member checking- Return to participants with elements of research findings to ensure the researcher's accurate understanding of participants' descriptions.[82]

Appendix B – Recruitment Flyer

Worksite Pumping Support Study!

Are you a mom that has pumped breastmilk at your workplace in the past 6 months? Was your experience with your employer generally positive?

We would like to talk with moms of young children who have worked in kinds of jobs that make it hard to pump, but who had supportive employers who helped make it work.

For more information or to see if you are eligible to participate, contact Courtney at the University of Tennessee ICAN THRIVE Lab

Email or text: ican@utk.edu

Phone: 865-974-2109

Eligible moms who complete all study activities will receive $55 in gift cards to a local retailer

Appendix C – Screening Form
Worksite Pumping Support Study (WPSS)

Screening Questions (to determine study eligibility)

1. Are you the mother of a baby less than 18 months old?
   - ☐ Yes
   - ☐ No **(exclude, but continue screen)**

2. Within the past 6 months, have you worked outside of the home?
   - ☐ Yes
   - ☐ No **(exclude and end screen)**

3. In the past 6 months, did/do you ever pump your breastmilk while at that work location?
   - ☐ Yes
   - ☐ No **(exclude and end screen)**

4. Please choose what kind of job this was/is. (If you worked in more than one kind of job, please click on the last option, below). *Potential participants will only be able to select <u>one</u> primary type of job. If there are secondary subtypes to the primary job, they will then see/be offered a list of possible choices, of which they can choose one.*

   - ☐ Restaurant - *If this option is selected, the potential participant will see (online)/be asked (phone) to select one of the following choices:*
     - ☐ Fast food restaurant
     - ☐ Sit-down restaurant

   - ☐ Small retail store (like a convenience store or a specialty shop. Examples of specialty shops include things like clothing, hardware, or automotive parts stores). *If this option is selected, the potential participant will see (online)/be asked (phone) to select <u>one</u> of the following choices:*
     - ☐ Specialty shop (this is like a clothing, hardware, or automotive parts stores)
     - ☐ Convenience store/corner store (may or may not sell gas). *If this option is selected, the potential participant will see (online)/be asked (phone) to select <u>one</u> of the following choices:*
       - ☐ Independently-owned
       - ☐ Chain store
       - ☐ I don't know

   - ☐ Large retail store (this is like a department store, discount store, grocery store, or home-improvement store). *If this option is selected, the potential participant will see (online)/be asked (phone) to select <u>one</u> of the following choices:*
     - ☐ On the floor/on my feet most of the time
     - ☐ In an administrative office/sitting most of the time **(exclude, but continue screen)**

   - ☐ Healthcare - *if this is selected, the potential participant will see (online)/be asked (phone) to select <u>one</u> of the following choices:*
     - ☐ Doctor's office/clinic- *if this is selected, the potential participant will see (online)/be asked (phone) to select <u>one</u> of the following choices:*
       - ☐ On the floor/on my feet most of the time

- ☐ In an administrative office/sitting most of the time **(exclude, but continue screen)**

☐ Hospital - *if this is selected, the potential participant will see (online)/be asked (phone) to select <u>one</u> of the following choices:*

- ☐ On the floor/on my feet most of the time
- ☐ In an administrative office/sitting most of the time **(exclude, but continue screen)**

☐ Education - *if this is selected, the potential participant will see (online)/be asked (phone) to select <u>one</u> of the following choices:*

- ☐ Classroom teacher/teacher's aide or assistant
- ☐ Facility services (janitorial staff, lunchroom staff)
- ☐ Administrative support **(exclude, but continue screen)**

☐ Active-duty military **(exclude, but continue screen)**

☐ Administrative/Professional/Office setting **(exclude, but continue screen)**

☐ Skilled labor (ex: mechanic, construction, farming, shipping, utility technician, other) **(exclude, but continue screen)**

☐ Factory worker (non-office setting) **(exclude, but continue screen)**

Participants who select any of the above options will continue on to Question 5.

☐ I have worked in more than one type of outside-the-home job in the past 6 months. *If this is selected, potential participant will be asked to type in up to three different types of jobs, via text-box. After each completed text box, they will be prompted to answer question 5, below, re: overall pumping experience.*

☐ _[jobtype 1]_____; *if anything typed in this box, they will be prompted to answer the following:*

- ☐ My experience with pumping on this job site was/is:
  - ☐ Mostly positive
  - ☐ Mostly negative

☐ __[jobtype 2]_____; *if anything typed in this box, they will be prompted to answer the following:*

- ☐ My experience with pumping on this job site was/is:
  - ☐ Mostly positive
  - ☐ Mostly negative

☐ __[jobtype 3]_____; *if anything typed in this box, they will be prompted to answer the following:*

- ☐ My experience with pumping on this job site was/is:
  - ☐ Mostly positive
  - ☐ Mostly negative

If potential participants select 'mostly positive' for any text box that includes text, they will still be potentially eligible to participate. If they select 'mostly negative' for <u>all completed</u> text boxes, they will be excluded.

5. My experience with pumping at work was/is:
   - ☐ Mostly positive
   - ☐ Mostly negative **(exclude, but continue screen)**
6. What is your baby's date of birth? **(exclude if > 18 months old, but continue screen)***
   MM/DD/YYYY
7. What is your date of birth? **(exclude if <18 years old, and end screen)***
   MM/DD/YYYY

***Because *Qualtrics* cannot calculate age on the spot, mothers completing the online survey who are otherwise eligible will be provided with the following language request they contact us or allow us to contact them in order to confirm eligibility.**

Thank you for taking time to answer our questions. It looks like you are likely to be eligible for this study, but we need to confirm one or more of your responses before we can be certain. Please provide your first name, along with your preferred contact information and time, and we will follow-up with you as soon as possible. Alternatively, you can contact our research lab, at 865-974-2190 or [insert our lab email address], and let us know that you recently completed the online screen and we will finish the screening process with you at that time.

Language for those who are excluded because they have not worked outside the home and/or pumped at work in the last 6 months:

Thank you for taking time to answer our questions. Because we are studying mothers' recent experiences with working outside the home and pumping, you are not eligible for this particular study. However, please check out our ICAN-THRIVE lab Facebook page from time-to-time, as we study lots of things and you may be eligible to participate in a different project in the future.

(Online-only) **Language for those who are excluded for reasons OTHER THAN not working outside the home in the last 6 months, pumping at the worksite, and/or maternal or infant age:**

Thank you for taking time to answer our questions. Unfortunately, it appears that you are not eligible for this particular study. However, please check out our ICAN-THRIVE lab Facebook page from time-to-time, as we study lots of things and you may be eligible to participate in a different project in the future.

(Phone-only) **Language for those who are excluded for reasons OTHER THAN not working outside the home:**

Thank you for taking time to answer our questions. Unfortunately, you are not eligible for this particular study. However, please check out our ICAN-THRIVE lab Facebook page from time-to-time, as we study lots of things and you may be eligible to participate in a different project in the future.

Appendix D – Consent Form

Informed Consent Statement
University of Tennessee, Department of Nutrition
Worksite Breastfeeding Support Study

INTRODUCTION
You are invited to participate in a research study. The purpose of this study is to talk with mothers who have had positive experiences with pumping their breastmilk while at work in jobs that are not considered office or administrative jobs.

INFORMATION ABOUT PARTICIPANTS' INVOLVEMENT IN THE STUDY
We are recruiting mothers with babies younger than 18 months old who have had an overall positive experience with pumping at work in the last 6 months. Study activities will occur over the phone and either online or through the mail. If you decide to volunteer, you will be asked to participate in the following activities:

- Over the phone, complete a demographic survey and an audio-recorded interview about your experience pumping while at work. This information will be used to help us understand ways to better support mothers who are pumping their breastmilk while at work.
- Complete a brief follow-up survey, to discuss the study findings (online or through the mail, depending on how you want to complete it).

The total amount of time spent participating in this study should be no more than one hour and 30 minutes.

RISKS
There are no foreseeable risks other than those encountered in everyday life.

BENEFITS
You will not personally benefit from this project. However, this information will help us better understand how to support mothers who are pumping their breastmilk at work.

CONFIDENTIALITY
The information in the study records will be kept confidential. Data will be stored securely and will be made available only to persons conducting the study unless participants specifically give permission in writing to do otherwise. No reference will be made in oral or written reports which could link participants to the study.

You will be assigned a unique subject ID and this will be used to label individual research records. A master key that links your name and unique subject ID will be maintained in a separate and secure location. The audio-recording will include no identifying information. The study-related materials will be stored on a password protected computer, or in a locked office on the UT campus. All audio-recordings will be destroyed immediately after they have been transcribed.

_____Participant's initials

COMPENSATION
After completing the first study activity (phone survey and in-depth interview), you will be compensated with a $50 gift card to a local retailer. This will be mailed immediately after you complete this activity. After completing the second study activity (brief online or mailed-in survey), you will be compensated with a $5 gift card to a local retailer. This will be mailed immediately after you complete this activity.

CONTACT INFORMATION
If you have questions at any time about the study or the procedures, (or you experience adverse effects as a result of participating in this study,) you may contact the researcher, Courtney Wright, at ican@utk.edu and 865-974-2109, or Dr. Katie Kavanagh, at kkavanag@utk.edu and 865-974-6250. If you have questions about your rights as a participant, you may contact the University of Tennessee IRB Compliance Officer at utkirb@utk.edu or (865) 974-7697.

PARTICIPATION
Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed.

CONSENT

I have read the above information. I have received a copy of this form. I agree to participate in this study.

Participant's Name (printed) _____

Participant's Signature _____ Date _____

Appendix E – In-Depth Interview Guide

Workplace Pumping Support Study (WPSS) – In-Depth Interview Questions

Subject ID: _____ Date: _____

Questions are intentionally open-ended and designed to elicit the unique experience of each mother. Probes are provided as suggestions and are not required.

1. Please tell me about how you talked to your employer about pumping at work.

   Probe: When did you start talking about this with your employer?

   Probe: How did you start the conversation?

2. Please tell me about your experience pumping at work.

   Probe: How does (or did) pumping fit into your workday?

   Probe: What things about your job helped you pump while at work?

   Probe: What things about your job made it harder to pump while at work?

   Probe: How were problems solved so that you could pump at work?

3. If you could change anything, how would you change your workplace to help other mothers pump while at work?

   Probe: In what ways did your boss or your coworkers make it easier or harder to pump at work?

   Probe: If you could go back, what things would you have changed or have done differently?

4. What else would you like to add about your experience with worksite support for pumping?

The recording will be turned off at this time.

5. Do you know anyone who has also had a positive experience pumping in the workplace for their baby less than 18 months old, and who may be interested in participating in this study? Would you mind passing along my contact information to that person?

Appendix F – Demographic Questionnaire

Worksite Pumping Success Study (WPSS) - Demographic Questionnaire

Subject ID: _____ Date: _____

FOR OFFICE USE ONLY

From screen: Did the mother report having more than one job in the last 6 months, where she pumped breastmilk? Y N

If 'Yes', please clarify which job type she will be discussing*:

_____

*preference is given to the experience that was most positive. If both (or more) were equally positive, please encourage mother to clarify her responses (which job type she is referring to), when relevant.

Remind mother that, if she has more than one child, please respond based on her experiences with the child/children under 18 months of age.

1. Do you currently work outside of the home? [Circle one] Yes No

2. Are you currently: [Circle one] full-time part-time Flexible/as needed Temporary Other: _____

3. Are you: [Circle one] Paid hourly Salaried On contract Other: _____

4. Do you primarily work: [Circle one] Day shift Night shift Other: _____

5. About how many hours do you work per week? _____ hours/week [Will be categorized later]

6. About how many hours do you work per day/per shift? _____ [Circle one] per day per shift

7. About how often do you/did you pump while at work? _____ [Will be coded/categorized later]

8. How old was your baby when you returned to, or started, this job? _____ [Circle one] Days Weeks Months

9. Did you start pumping as soon as you went back to/started this job? (i.e., on the first day, or within the first few days) [Circle one] Yes No

    a. If "no", ask "When did you start pumping?" _____

10. How long have you been pumping at work? _____ [Circle one] Days Weeks Months

11. Are you still pumping at work? [Circle one] Yes No

12. Approximately how many employees are at your worksite during your shift? _____[Will be categorized later]

13. What is your zip code? _____

14. From the following list, please select the category that best describes your race (read list and circle one):

American Indian/Alaska Native Asian Black/African American

Hawaiian/Pacific Islander White Other Choose not to respond

15. From the following list, please select the category that best describes your ethnicity (read list and circle one):

Hispanic/Latino(a) Not Hispanic/Latino(a) Choose not to respond

16. Are you: [Circle one] Married Single Cohabitating Divorced Widowed

17. What is the highest grade level in school that you have completed? _____ [Will be categorized]

18. How many people are in your household (including yourself)? _____ [Will be categorized]

19. Do you qualify for the SNAP and/or the WIC program?

[Circle one] Yes No Unsure Choose not to respond

Appendix G – Follow-up Survey

Worksite Pumping Support Study (WPSS) – Follow-up Survey

Hello,
You are receiving this letter because you participated in a study with us about supportive work places for mothers who are pumping breastmilk for their babies. This is the final part of the study, where we ask YOU what you think of what we have created to help future moms to breastfeed when they return to work! Based on conversations with you and lots of other moms who have had good experiences with pumping at work, we have created some materials. Through these conversations, we found some common themes:

1. Maternal and managerial flexibility in working with suboptimal pumping spaces and equipment. Mothers said flexibility was important when finding space to pump because a permanent, ideal space was not always available. Adaptability and creativity were important to make pumping work despite less than ideal accommodations. Security and privacy of the pumping space were also important factors.

2. Ability to negotiate schedule flexibility. Mothers described time management as a big concern related to pumping. Many mothers had to fit pumping in around interactions with clients and customers. Mothers who were successful were able to negotiate schedule coverage with coworkers and management, so pumping was possible. Multitasking was also an important skill for fitting pumping into tight schedules.

3. Formal and informal managerial support. Mothers said that the support of management and human resources staff was very important to pumping success. Managers often had experience with breastfeeding personally or had previous experience with breastfeeding employees. Mothers felt that understanding management did more to accommodate their pumping needs. Conversations were often helpful to ensure the receipt of needed support when dealing with inexperienced managers.

4. Supportive coworkers. Mothers found coworkers to be an important source of social support. Fellow employees often had experience breastfeeding and were therefore understanding. Mothers said that they often had a sense of solidarity with coworkers and they tried to support each other in many different ways. Coworkers often covered duties and reminded mothers that is was time to pump and encouraged them to take breaks. Mothers felt that coworkers often seemed invested in and encouraging of their breastfeeding relationships.

5. Supportive company culture. Mothers felt pumping in the workplace was made easier when there was a breastfeeding supportive culture. When a company had supportive policies and/or normalized breastfeeding in the workplace, mothers felt supported.

6. Maternal determination to continue breastfeeding**.** Despite hurdles with worksite breastfeeding support, mothers were able to overcome difficulties and have positive experiences. Mothers also indicated a practical attitude toward breastfeeding; even when there were difficulties, it simply must be done. Mothers were often worried that breastfeeding in the workplace might be difficult but were able to overcome these fears and pump successfully.

The next step in the process was to take these themes to community experts for help with choosing the most important factors. Maternal and managerial flexibility in working with suboptimal pumping spaces and equipment and Supportive company culture were chosen as the two main themes to focus on. We have developed three interactive online modules to train managers and human resources employees on the importance of worksite breastfeeding support and what they can do to make the workplace more supportive for breastfeeding mothers. Since the modules have now been developed, the next step will be to use them to train employees in East Tennessee worksites that need them most. Below is a short description and example slide of each module.

Module 1: Introduction

- Breastfeeding benefits
- Importance of worksite support
- Define elements of support
- Resource links

Module 2: Supportive Workplace Culture

- Myths vs. Facts
- Actions of support
    - Create a policy
    - Be proactive
    - Be accountable

Module 3: Supportive Worksite Facilities

- Space and furniture
- Privacy
- Sanitation
- Equipment and supplies
- Cleaning and storage

We would love it if you would look these over and then take this quick survey to tell us what you think. Once you complete the survey, please mail it back to us in the self-addressed stamped envelope provided in your packet. As soon as we receive it, we will mail you the last gift card ($5) and your participation in the study will be complete. Please complete the survey and mail it back within a week of receiving it.

Thank you,
Courtney Wright
ICAN Lab Research Team
ican@utk.edu/ 865-974-2109
Survey Questions

Date: _____

Please choose the answer which best describes your level of agreement.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
These materials reflect a lot of what I talked about with the researchers	○	○	○	○	○

Please enter any comments you have about the previous question.

Please choose the answer which best describes your level of agreement.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I think these materials will be very helpful to improve worksite support for pumping mothers	○	○	○	○	○

Please enter any comments you have about the previous question.

Do you prefer a gift card to Walmart or Target?

- ○ Walmart
- ○ Target
- ○ Either/ No preference

Thank you for completing this survey! Please mail this back to us, using the self-addressed stamped envelope provided in your study packet. We will mail your final gift card ($5) as soon as we receive your survey. Thank you for your participation in this study!

VITA

Courtney Wright earned her Bachelor of Science in Nutrition from the University of Tennessee, Knoxville (UTK) in 2015. She has been active in the Infant, Child, and Adolescent Nutrition Lab (ICAN-THRIVE) at UTK since 2013. Additionally, she served a research assistant in the HEALTHE Lab and as a graduate teaching assistant for Clinical Nutrition at UTK. Courtney's academic and professional interests include maternal and child health, nutrition, and social support of breastfeeding. In the summer of 2018, Courtney completed her block field experience at the Knox County Health Department (KCHD), where she developed training materials for East Tennessee worksites to improve support for breastfeeding employees. Courtney is currently enrolled in a dual degree program at UTK earning a Master of Science in Public Health Nutrition alongside a Master of Public Health with a Community Health Education concentration and a minor in Epidemiology. Courtney is also completing a dietetic internship. Upon completion of her degree, Courtney plans to obtain her RDN credential and build a public health nutrition career locally, specifically in the field of breastfeeding promotion.