Breastfeeding experiences of Appalachian women in Ohio

March 2021

Prepared for:

Ohio Department of Health

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About this report

Purpose and funding

The Ohio Department of Health (ODH) was awarded funding in 2020 from the Association of State and Territorial Health Officials (ASTHO) to identify what strategies may increase breastfeeding duration rates among Black/African American and Appalachian women in Ohio. ODH subcontracted with Professional Data Analysts (PDA) to plan, implement, and analyze the study. PDA is also the contracted external evaluator for Ohio's State Physical Activity and Nutrition Program (SPAN). Extended authority funding from the SPAN grant funded the project (analysis and report writing) from January through March 2021. **This report focuses on the findings with Appalachian women.** Please see the companion report for findings with Black/African American women.

This study took into account a previous breastfeeding study in the state, completed nearly a decade prior. In 2011, ODH funded two focus groups for Appalachian and Black/African American WIC participants in Ohio that identified and informed the current strategies in ODH's Title V Maternal and Child Health Block Grant 5-year Workplan. These strategies include increasing access to breastfeeding friendly environments, increasing community awareness to promote and support breastfeeding, and establishing a breastfeeding designation program for childcare providers.

When applying for the 2020 ASTHO funding, ODH was in the fifth and final year of a Title V Maternal and Child Health Block Grant cycle. ODH aimed for the findings of the ASTHO work to be incorporated into the upcoming Title V 5-year Workplan (2021-2025) and build on the findings and strategies from the 2011 focus groups.

Audience

The primary audience for this report is ODH, specifically staff in the Bureau of Maternal, Child & Family Health and specifically those in the Women, Infants & Children (WIC) program. The secondary audiences for this report are breastfeeding partners and stakeholders across the state of Ohio.

Stakeholder involvement

Throughout the project, ODH and PDA prioritized collaborations with breastfeeding stakeholders and local partners across the state. These partners included the Ohio Breastfeeding Alliance (OBA), the Appalachian Breastfeeding Network (ABN), the Cuyahoga County Board of Health (including REACH: Racial and Ethnic Approaches to Community Health staff), and a local public health professional from an Appalachian county in Ohio. Collaboration with stakeholders and partners included facilitated bi-weekly meetings, development and review of the survey and

focus group instruments, development of the recruitment plan and materials, and review of initial findings and dissemination discussions.

Public health frameworks

This study was guided by three major public health frameworks:

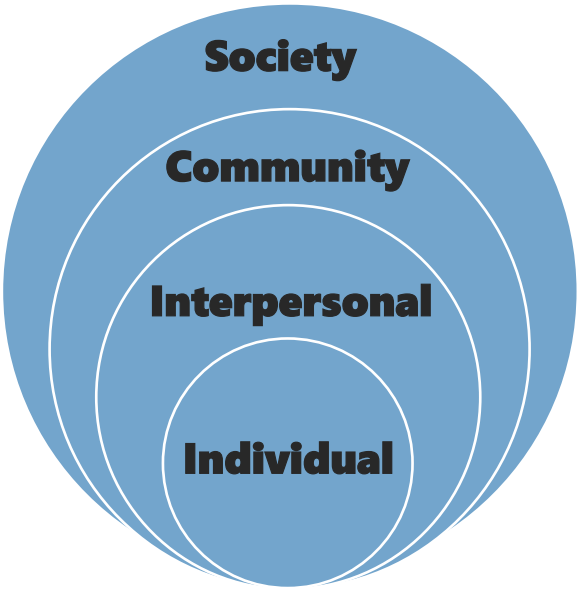
Health equity is the principle that all individuals and populations have the same right to health; therefore, health differences caused by social disadvantage are unjust.[1] The Centers for Disease Control and Prevention (CDC) stated, "Achieving health equity requires valuing everyone equally with focused and ongoing societal efforts to address avoidable inequalities, historical and contemporary injustices, and the elimination of health and health care disparities."[1, p. 4]

Life course theory highlights key developmental periods across the lifespan that affect one's health.[2] For example, early childhood, puberty, and pregnancy are important developmental periods to target when designing interventions to improve birth outcomes. This theory posits that different populations experience different amounts of risk and protective factors during these periods. These differences are a result of historical context and social stratification by demographics such as race. When individuals experience more risk factors and less protective factors, they accumulate chronic stress which affects their overall health. To promote health equity, populations with worse health outcomes need tailored interventions during key developmental periods.

The social ecological model (SEM) explains that health is influenced by factors across multiple levels.[3,4] Findings in this report are organized by each level of the SEM, including:

- **Individual:** This level focuses on biological and personal history factors that may affect the likelihood of breastfeeding. Individuals, organizations, and interventions that understand a woman's reasons to choose to breastfeed (or not), for example, will be more helpful in supporting that woman.
- **Interpersonal:** This second level examines relationships a woman has that may influence her decision to breastfeed. These include partners, family members, friends, and peers whose opinions about breastfeeding, for example, may affect breastfeeding initiation and/or duration.
- **Community:** This third level explores the characteristics of settings in which women live, work, and play that either promote or hinder breastfeeding. This report focuses on four community settings: worksites, healthcare, WIC, and community organizations.

- **Society:** The fourth and final level takes a broad look at societal factors that support or inhibit breastfeeding. This report focuses on social norms and policies that greatly influence a woman's decision to breastfeed.



Factors in these levels do not exist independently; there is interaction among the levels of influence. When designing public health interventions, we should target multiple levels of influence.

Use and navigation

This report is intended to provide a comprehensive overview of the findings from a breastfeeding survey and focus groups conducted in Fall 2020. The report is organized into sections based on the social ecological framework above. Each section gives an overview of survey and focus group findings. The four community-level sub-sections also include a take-away box with opportunities and possible next steps. **The report's organization was designed to facilitate conversation between the department of health and the different breastfeeding partners and stakeholders working to improve breastfeeding initiation and duration rates in Ohio.**

Introduction

Background information about breastfeeding initiation and durations rates, why breastfeeding is important, cultural factors unique to Appalachian women, and a brief summary of considerations for breastfeeding interventions.

Introduction

Breastfeeding initiation and duration

National and state prevalence

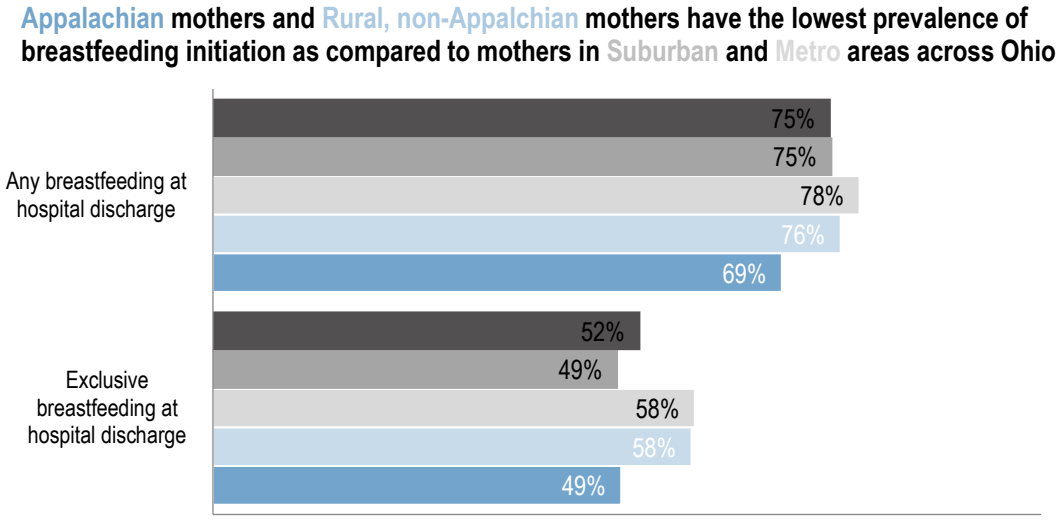
The Healthy People 2020 goals for breastfeeding are to achieve 82% of women having ever breastfed, 61% of women breastfeeding at 6 months, and 34% of women breastfeeding at 12 months.[5] While Ohio has improved breastfeeding initiation rates to be close to the national average, **breastfeeding duration continues to be below that average.**[6] Following the American Academy of Pediatrics' (AAP) recommendation,[7] also endorsed by the CDC.[2] and the World Health Organization (WHO),[8] ODH encourages mothers to exclusively breastfeed for at least 6 months.[9]

In 2012, the World Health Assembly (WHA) approved the global nutrition target of increasing the rate of exclusive breastfeeding in the first 6 months of age to at least 50% by 2025.[4] The U.S. has slowly made efforts to incorporate this recommendation into the Healthy People 10-year targets, though the new 2030 target (42%) is still below the 50% benchmark (see Table 1, below). The 2018-2019 National Immunization Survey (NIS) shows that the U.S. prevalence of breastfeeding exclusivity at 6 months (26%) rose to meet the 2020 target, but there is still work to be done in order to reach the new target by 2030. Additionally, Ohio falls short of the national prevalence, indicating that there may be further challenges to overcome to continue to advance breastfeeding among Ohio mothers.

Table 1: Breastfeeding Benchmarks

Frequency of Breastfeeding	Indicator	Healthy People 2020 Target[10]	Healthy People 2030 Target[11]	National Immunization Survey (2018-2019)[12]
Any	Proportion of infants who are ever breastfed	82%	N/a	84% (OH: 80%)
	Proportion of infants who are breastfed at 6 months	61%	N/a	58% (OH: 51%)
	Proportion of infants who are breastfed at 1 year	34%	54%	35% (OH: 31%)
Exclusive	Proportion of infants who are breastfed exclusively through age 3 months	46%	N/a	47% (OH: 41%)
	Proportion of infants who are breastfed exclusively through age 6 months	26%	42%	26% (OH: 22%)

In addition to the overall breastfeeding rates not meeting targets, racial, ethnic, and geographic inequities persist, due to multiple barriers that may be unique for different population groups.[13,14] At the national level, the data show that exclusive breastfeeding is highest among white women as compared to all other racial groups. Black women in particular have the lowest rates of exclusive breastfeeding at both 3 months (38.7%) and 6 months (21.2%), falling well below the rates of white women (52.4% and 28.7% respectively).[15] While this data does not currently exist for women living in Appalachia, 2011 estimates show that the prevalence of *any* breastfeeding among Appalachian mothers (68.3%) is lower than the national prevalence (75.5%).[16] In Ohio, Black/African American and Appalachian women continue to have lower breastfeeding initiation and exclusivity rates compared to the rest of the state. The figures below show 2018 ODH Vital Statistics data, illuminating the racial and geographic disparities.[17] **To implement effective interventions, strategies need to be tailored to the needs of specific populations.**[18]



Importance of breastfeeding

Breastfeeding has numerous health implications for both mother and baby; the implications of breastfeeding duration may influence infant mortality, chronic diseases such as asthma, and Sudden Infant Death Syndrome (SIDS). The research on the health implications are discussed in this subsection.

Ohio has one of the highest infant mortality rates in the nation.[19] In 2019, Ohio's non-Hispanic Black infant mortality rate (14.3 per 1,000 live births) was almost three times as high as the white rate (5.1) despite decreases in recent years.[20] While data is not available for the majority of Appalachian counties across the state due to small sample sizes, 5-year estimates (2013-2017) suggest that 11 of the 24 Appalachian counties reported have infant mortality rates higher than the overall Ohio average,[21] underscoring the need for targeted interventions in these areas as

well. As noted by The Health Policy Institute of Ohio, such interventions may include breastfeeding promotion programs deemed scientifically supported to decrease disparities in infant mortality in addition to increasing breastfeeding rates.[22] Several studies support this suggestion in showing a positive association between breastfeeding promotion and reductions in infant mortality.[23,24,25]

Breastfeeding has numerous health benefits to both mother and baby. These include reduced risk of asthma, obesity, Type I diabetes, and SIDS among infants.[26] Maternal health benefits include decreased postpartum bleeding, earlier return to pre-pregnancy weight, and decreased risk of breast and ovarian cancers.[27] Additionally, research suggests that breastfeeding positively impacts children's brain, cognitive, and socio-emotional development and also reduces stress and improves maternal sensitivity and care among mothers.[28]

Breastfeeding also has positive impacts on society at large, including healthcare cost savings and both economic and environmental benefits. According to the CDC, "low rates of breastfeeding add more than $3 billion a year to medical costs for the mother and child in the United States,"[16, p.1] meaning that increased prevalence would result in huge cost savings. More specifically, recent research suggests that "if 90% of mothers could comply with current medical recommendations about breastfeeding, our economy could save $3.7 billion in direct and indirect pediatric health costs, with $10.1 billion in premature death from pediatric disease."[29, p. 313] Given the link between breastfeeding and child development, an increase in breastfeeding may result in an additional economic gains as breastfed children are more likely to grow up to become productive members society.[30] Lastly, increasing the prevalence of breastfeeding decreases waste and pollution associated with the development, packaging, and distribution of formula, meaning that breastfeeding is crucial to sustainable development.[31,32]

Cultural factors related to breastfeeding

There are various factors that contribute to lower rates of breastfeeding among Appalachian women. Geographic barriers in addition to a shortage of lactation consultants (LCs) and other health care providers contribute to poor health care access among Appalachian women,[33,34] and an ever-widening health gap for the Appalachian region overall.[35,36] Additionally, nursing staff and other providers in Appalachia may lack the breastfeeding knowledge and training themselves, resulting in misinformation being shared with expectant mothers.[37] Cultural factors may also be at play, such that lower rates breastfeeding may be influenced by fatalism among Appalachian communities, embarrassment regarding breastfeeding due to the sexualization of breasts, and community acceptance of and reliance on formula as a necessary medical advancement[27,38,39] These factors not only influence the mother's decision to breastfeed, but also shape the opinions of family and friends who may express "open opposition to breastfeeding" or "displeasure with being unable to share in feeding the infant."[28, p.4] Family support may be

crucial to breastfeeding initiation and duration among Appalachian mothers, especially in a region known for having large, connected families.[40] Thus, an understanding of Appalachian culture and ideals must be incorporated into targeted breastfeeding interventions for Appalachian women.

Considerations for community interventions

To increase breastfeeding rates, a multi-pronged approach may be essential. This means employing concurrent and mutually reinforcing interventions at all levels of the SEM to make breastfeeding education and support easily accessible to all women. For Appalachian women in particular, cultural factors must be taken into consideration to develop and implement effective strategies and supports for these unique populations. This may include building on guidance from the CDC[41] regarding breastfeeding strategies and tailoring community interventions related to:

- Maternity care practices,
- Professional education for healthcare providers,
- Access to professional support,
- Peer support programs,
- Support for breastfeeding in the workplace
- Support for breastfeeding in early care and education,
- Access to breastfeeding education and information,
- Social marketing, and
- Addressing the marketing of infant formula.

While little research has been done on breastfeeding interventions tailored specifically to the unique needs of Appalachian women, there may be some general principles to keep in mind when developing and implementing breastfeeding education and supports geared toward this population. Researchers point to key cultural themes that should be incorporated into breastfeeding interventions for Appalachian women and offer suggestions for providers on how to approach improvements in breastfeeding initiation and duration in a culturally appropriate way. Examples include:

- "*Use of storytelling:* Providers should utilize stories or scenarios about other people's breastfeeding experiences to reinforce key teaching points."[28, p. 60]
- "*Belief in fate:* Being aware of the fatalistic tendencies of this population is important. Providing women with multiple strategies to overcome obstacles rather than simply accepting that 'breastfeeding did not work for me' is essential."[28, p. 61]

- "*Mistrust of outsiders and their intentions:* For this population, providers should be aware that personality is more important than expertise and credentials. In order to be successful at educating women about breastfeeding, developing a personal connection is important."[28, p. 62]

Though focus group participants in this study were probed about their experience as Appalachian women, these concepts did not come up within the written discussion between participants about their experiences. This does not contradict findings from the literature, but rather reinforces the need for more research and evaluation of breastfeeding interventions that are tailored to the Appalachian context.

Given the prevalence of substance use and devastating impacts of the opioid epidemic on the Appalachian region,[42,43] it may also be helpful to pair breastfeeding interventions with supports and services for tobacco cessation and opioid use disorder. One example is the Drug-Free Moms and Babies (DFMB) Project out of West Virginia, which seeks to "support healthy baby outcomes by providing prevention, early intervention, treatment, and recovery services for pregnant and postpartum women with substance use disorders."[44] Early evidence suggests that DFMB is helping to improve breastfeeding rates among women in this high-risk group across the state.[45]

Other promising interventions may include the use of motivational interviewing by providers,[46] incorporating breastfeeding into school curricula,[47] or utilizing an educational video to address breastfeeding barriers.[48] Moving forward, more should be done not only to improve breastfeeding rates among Appalachian women but also to evaluate the efficacy of programs tailored to this population. Additionally, with the onset of COVID-19, a shift to tele-lactation and virtual breastfeeding support may not be feasible for Appalachian women who lack reliable, high-quality broadband connections.[49] Thus, more should continue to be done to reach Appalachian women in need of breastfeeding education and support in a safe, accessible, and affordable manner.

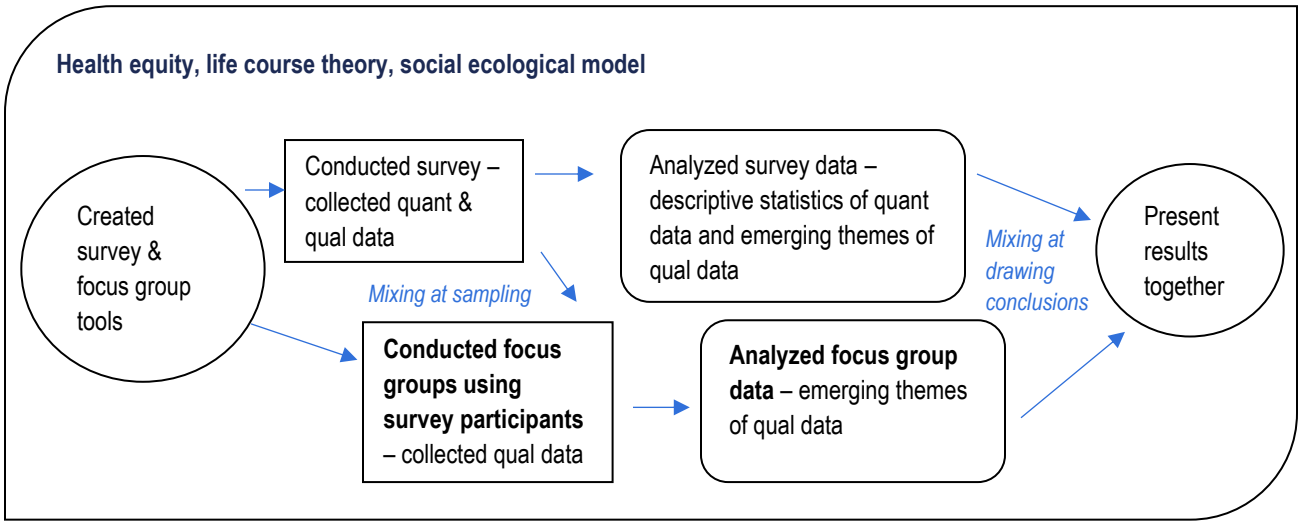
Methods

Information about the mixed methods approach for this project, description of data collection and data analysis, participant demographic tables, important terminology, and limitations.

Methods

Mixed methods approach

The project used a mixed methods approach to data collection and analysis, with analytic emphasis on our qualitative data from the focus groups. A concurrent mixed methods[50] approach was used, informed by the three public health frameworks described previously. The flow of the methods and analysis are visualized below.



First, the survey and focus group tools were created concurrently to align the items at each data collection phase. In the first phase of data collection, we conducted an online survey that included quantitative (close-ended) and qualitative (open-ended) questions. The survey also gathered contact information for eligible focus group participants who were later be invited to participate in a focus group. Mixing at sampling, we invited a subset of survey participants to participate in online focus groups.

In the second phase data collection, we conducted online asynchronous focus groups that collected qualitative data (open text responses to discussion questions). At the analysis stage, the survey and focus group data were first analyzed separately. To analyze survey data, we reviewed descriptive statistics of quantitative information, and grouped qualitative information according to emerging themes. To analyze focus group data, we coded responses according to emerging themes and in consideration of the report's audiences. Then, focus group and survey findings were reviewed together while writing each section of the report or level of the SEM to account for alignment or any contradictory findings.

Data collection

The first phase of data collection was an online survey for Ohioan residents. The survey served two purposes: to collect information about their breastfeeding experiences and then to collect contact information for eligible respondents to invite them to participate in a focus group.

The second phase was asynchronous, online focus groups for each population: two groups of Black/African American mothers and two groups of Appalachian (not Black/African American) mothers. Within each population group, we invited participants to a focus group based on their breastfeeding duration. One focus group included those who had breastfed for less than a year, and another focus group included those who had breastfed for at least a year.

Criteria for **survey** participation was:

- Is ages 18 years old or older
- Lives in Ohio
- Has given birth

Criteria for **focus group** participation was:

- Meets the primary criteria (at least one of the two):
  - Identifies as Black or African American
  - Lives in an Appalachian county
- Is between the ages of 18 – 45 years old
- Lives in Ohio
- Has given birth to one child in the past year (not multiples)
- Identifies as female
- Has breastfed or attempted to initiate breastfeeding while living in Ohio
- Is currently breastfeeding[1] or discontinued breastfeeding before their child reached 6 months
- Has an email address and internet access via a computer, laptop, tablet, or smartphone

Analysis

Survey data was analyzed through descriptive statistics of the close-ended quantitative questions and analysis of the emerging themes identified from the open-ended qualitative responses. PDA used SAS 9.4 to run frequencies of all questions in the surveys, plus crosstabulations to compare certain questions of interest. We subset all responses (n=831) to those who met survey inclusion criteria (n=541), and then included only those who responded to at least five core questions as complete responses (n=492). This report presents data from the Appalachian participants (n=181). (see Table 2 on page 15 for attrition information). We presented initial results to our partners, who then suggested some additional comparisons.

Focus group data was analyzed according to emerging themes using NVivo 11 software. Two evaluators coded focus group exports (see Table 5 on page 18 for participation information). The focus groups for each population of interest were analyzed separately so that findings are specific to each population.

We developed and refined a codebook focusing on participants' positive, negative, and neutral experiences with systems/audiences of interest identified by our partners (worksites, healthcare, community organizations, WIC, and public policy) as well as their ideas for improvement. Within this overarching structure, we identified emerging themes to draw conclusions about common experiences with these systems. Additionally, we coded information about cultural ideas, norms, practices, and attitudes, as enacted by the influence of friends, family, history, and society.

Participants

Of 831 surveys, 656 consented, 492 met our eligibility criteria, and **181 were Appalachian and not Black/African American.** From those, 36 were invited to participate in a focus group and 15 participated.

Table 2. Survey attrition

Surveys in dataset	831
Consented	656
18 years or older	570
Lives in OH county	558
1 or more children	556
Female	541
Responded to at least 5 core survey items after screener	**492**
Appalachian and not Black/African American	**181**

Table 3. Appalachian Survey demographics

Appalachian and not Black/African American respondents who meet eligibility and answered core questions	**N** **181**	**%** **100**
Age		
18 to 25	27	15%
26 to 35	99	55%
36 to 45	44	24%
46 or older	11	6%
Race *(multiple select)*		
American Indian or Alaska Native	2	1%
Asian	0	0%
Black or African American	0	0%
Latinx	4	2%
Middle Eastern or Northern African	0	0%
Native Hawaiian or Other Pacific Islander	0	0%
White	177	98%
Other	1	<1%
Education		
Less than high school	1	1%
High school/GED	25	14%
Some college, but no degree	38	21%
Associate's degree	25	14%
Bachelor's degree	56	31%
Graduate School or Advanced degree (Masters, PhD, MD, JD, etc.)	35	19%
Health Insurance *(during birth of youngest child)*		
Did not have	6	3%
Medicaid	53	30%
Private	119	67%
WIC Enrollment		
Yes	58	32%
No	121	68%

Table 4. Appalachian survey maternal and breastfeeding characteristics

Appalachian and not Black/African American respondents who meet eligibility and answered core questions	**N** **181**	**%** **100**
Total Children		
1	49	27%
2	63	35%
3	41	23%
4	18	10%
5 or more	10	5%
When was youngest child born		
2014 or prior	32	18%
2015 to 2018	55	30%
2019	47	26%
2020	46	26%
Type of breastfeeding support during pregnancy and in six months after birth *(multiple select)*		
Professional help within the healthcare setting	121	67%
Professional help outside of a healthcare setting	55	30%
Social support	147	81%
Before you gave birth – how did you plan to feed		
Both breastmilk and formula	16	9%
Only breastmilk	156	87%
Only formula	7	4%
How long were you planning to breastfeed		
Less than 6 months	5	3%
6 to 12 months	49	29%
More than 12 months	33	19%
For as long as possible	76	44%
I was not sure/did not have a plan	8	5%
How long did you breastfeed		
I am currently breastfeeding	83	46%
Less than 6 months	22	12%
6 to 12 months	21	12%
More than 12 months	48	27%
I did not breastfeed	6	3%
Why did you stop breastfeeding *(multiple select)*		
No access to pump or storage fridge	1	1%
Lack of support from family or partner	1	1%
Pain	6	7%
Lack of time or too busy	6	7%
Medical reasons	9	10%
Work/school	14	16%
Personal reasons	25	28%
Baby stopped on their own	28	31%
Low milk production	31	34%
Unknown	1	1%

Table 5. Focus group participation

	Invited participants	Created an account	Participants
Breastfed at least 1 year	18	9	8
Breastfed less than 1 year	18	8	7

Two of fifteen focus group participants mentioned being breastfeeding professionals or advocates: a nurse/LC and a nurse/certified lactation counselor (CLC). A third participant mentioned being in the medical field but did not provide specifics.

Terminology

For consistency and differentiation, we refer to those who completed our survey as "respondents" and those who took part in our focus groups as "participants".

In the introduction to the survey, we defined breastfeeding as such: "During this survey when we use the terms breastfeed, breastfed, and breastfeeding, we are using them to include *lactating, chestfeeding, hand expressing, pump feeding, and bottle-feeding breastmilk* experiences."

We recognize that people of many genders breastfeed. For this study, we restricted our sample to individuals who identified as female. Our recruitment materials shared that we were "most interested to hear from Appalachian and Black/African American Ohioan mothers". People of any gender who had given birth were able to submit their online survey, but we only analyzed responses of those who self-identified as female. It is a limitation of our study that we only learned about women's experiences. We hope that future studies will center the experiences and needs of transgender and gender nonconforming mothers and parents.

Limitations

This study is affected by limitations related to participant recruitment, and to a lesser extent, partner moderators, that must be considered when interpreting results. **The information presented in this report is <u>not</u> generalizable to all Appalachian women in Ohio.** The online survey was intended to capture Ohioan mothers who were willing to share their experiences with breastfeeding. The survey was not conducted to gather a representative sample of the population. Since the focus group participants were gathered from the survey participant pool, the same intent applied. We hope this report adds new information for stakeholders and other interested parties. **We encourage programs and organizations to consider collecting information from people who are and are not seeking their services to better understand what barriers and facilitators are contributing to those patterns.**

Participant recruitment

This project, specifically the focus groups, intended to collect information and experiences from women who had breastfed for less than six months and had likely experienced more barriers to continuing breastfeeding. Upon review of the survey data, we found that about nearly 4 in 10 respondents had breastfed for at least six months (12% breastfed for 6 to 12 months and 27% breastfed for more than 12 months) and over a third were breastfeeding or healthcare professionals who were already familiar with support mechanisms (37% reported working in healthcare, and a few additional respondents noted working at WIC to open-ended questions). Additionally, we received many more survey responses from Appalachian (n=181, 37%) than Black/African American participants (n=95, 19%), and nearly half of survey participants were neither Appalachian nor Black/African American (n=216, 44%). When presenting the initial survey findings to the partners and reflecting on the recruitment process, multiple factors were discussed that may have influenced this outcome in sample.

First, partners involved with the recruitment of Black or African American respondents noted that the summer of 2020's protests for racial justice and the legacy of unethical research involving Black/African American individuals were likely influencing the lower numbers of respondents compared to those who identified as Appalachian.

Second, recruitment relied on our partners' networks. Our partners and PDA discussed that since recruitment strategies utilized organizations (WIC), groups, websites, and social media affiliated with breastfeeding support systems, the people seeing the recruitment materials were more likely to have positive or supported breastfeeding experiences. Those who experienced more barriers to start or continue breastfeeding were less likely to encounter our recruitment materials.

Third, our partners discussed that a respondent may be more willing to respond to a survey titled "Breastfeeding Experiences" if they had positive experiences or were pro-breastfeeding, which likely means they had or were breastfeeding for longer durations of time compared to those not familiar with these support groups.

In reflecting on the recruitment strategies, PDA and partners discussed that future studies could focus on reaching a broader span of respondents and experiences. Studies could utilize an intercept survey and/or recruit at sites not associated with breastfeeding promotion.

Partner moderators

PDA planned to partner with women from the communities we were engaging to co-moderate the focus groups. This would ensure sufficient information was probed and culturally relevant information was not missed from responses. Our partners recommended three potential focus group partner moderators: two who live in Appalachian Ohio and one who is Black/African

American and lives in Ohio. We contacted all three, and ultimately only one moderator was available to moderate one group: Appalachian women who had breastfed for less than one year.

Implications of COVID-19

Due to the COVID-19 pandemic, data collection for this project was restricted to virtual formats (online survey and online focus groups). PDA acknowledges that the virtual format impacted those able to respond to the survey and participate in the focus groups. Additionally, in-person focus groups may have led to different findings or more/less detailed responses.

Several focus group participants described the impact of COVID-19 on their breastfeeding. A few shared how they were able to continue breastfeeding while working from home due to COVID-19, and one mentioned continuing to breastfeed in order to support their baby's immune system due to the risk of COVID-19.

Results

Survey and focus group findings for Appalachian women are presented in sections based on the Social Ecological Model. The four community sections include summary boxes that highlight potential next steps for each intervention audience.

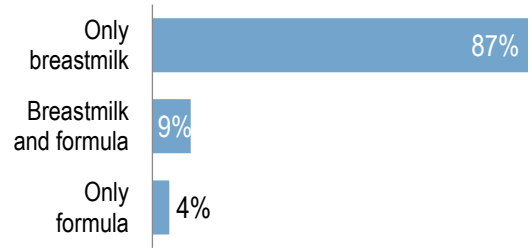
Individual Results

This level focuses on biological and personal history factors that may affect the likelihood of breastfeeding. Individuals, organizations, and interventions that understand a woman's reasons to choose to breastfeed (or not), for example, will be more helpful in supporting women.

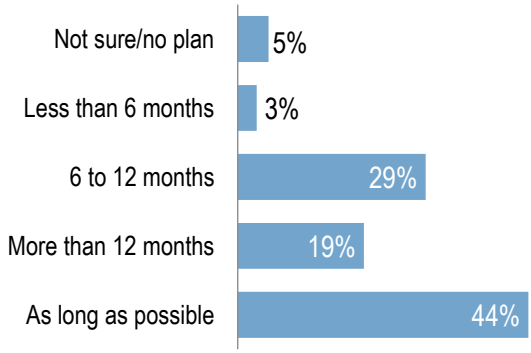
Reasons for breastfeeding

Understanding a woman's reasons to choose to breastfeed (or not) can help individuals and organizations better support that woman. Each woman will have her own history, experiences, attitudes and beliefs around breastfeeding. The WHO recommends that breastfeeding counseling be empowering while respecting women's choices.[51] Although each woman has her own personal reasons, there are broader, common reasons with which stakeholders should be familiar.

Before birth, over 85% of Appalachian survey respondents planned to breastfeed their baby only breastmilk.



Before birth, almost half of Appalachian survey respondents planned to breastfeed their baby for as long as possible.



Survey respondents had varying plans for breastfeeding and duration. Most respondents (96%) planned to breastfeed their baby breastmilk, in combination or alone. Almost half (48%) planned to breastfeed their baby for at least 6 months, and almost another half (44%) planned to breastfeed their baby for as long as possible.

Benefits was the most common reason for breastfeeding

Most survey respondents and many focus group participants wrote about the health benefits, both for their babies and themselves, associated with breastfeeding as one of the primary reasons for choosing to breastfeed. A number of focus group participants specifically wrote about health benefits in terms of what was "best for my baby." Some focus group participants explained learning about these health benefits from WIC, and some survey respondents wrote

about doing their own research before their baby was born. Some survey respondents shared that they did this research about breastfeeding through websites, books, and some mentioned talking to their doctors.

Bonding was also important

The desire to bond with their baby through breastfeeding was also shared a number of times by focus group participants. One participant noted, "I wanted the bonding experience as it's just something that I always imagined as part of motherhood."

Past or previous experience breastfeeding informed choice to do it again

A number of survey respondents and focus group participants also shared how their past experiences with breastfeeding their older children influenced their desire and plan to breastfeed again. Some focus group participants explained how they had not known as much about breastfeeding with their older children, which motivated them to seek out more information for their experience feeding their younger child. Many survey respondents mentioned successful or positive previous experiences, which made them want to do it again.

Cost savings was an important factor

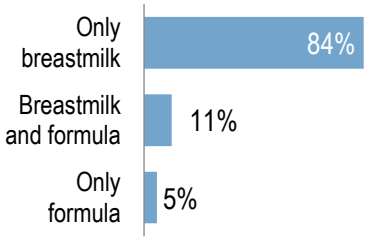
Finally, there were both survey respondents and focus group participants who noted the cost savings from breastfeeding as being an important factor in their decision to breastfeed. One focus group participant explained her gratitude about being able to save money by breastfeeding, especially given the pandemic: "I tell my husband all the time how much money I save our family by being a milk goddess." Another participant wrote when explaining her reason for wanting to breastfeed, "I would probably say cost effectiveness. As much as I wanted to say bonding experience, my financial brain couldn't because formula is so expensive and I can't even imagine spending the money on something that was not proven better/as good as breastmilk."

Experience

Early experiences and first attempts

Focus group participants wrote about their experience trying to breastfeed in the hospital or shortly after birth with some describing the difficulty of establishing a good latch or milk supply. These descriptions often included details about assistance they then received from a LC or nurse in helping them move past these barriers, which aligns with almost half of survey respondents naming LCs as being one of the most helpful resources or sources of

After leaving the hospital, slightly less than 85% of Appalachian survey respondents reported feeding their baby only breastmilk.

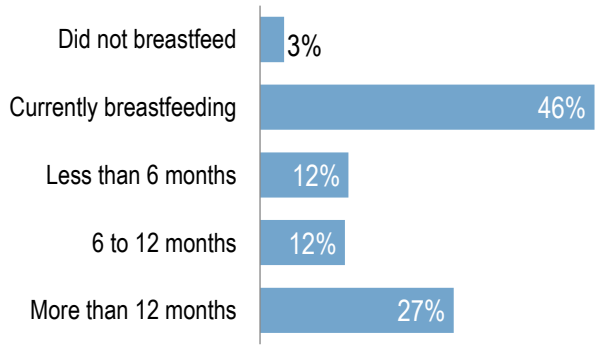


support. Other focus group participants described health professionals' concerns with their baby's weight or other health conditions (such as tongue tie and time in the NICU) that made breastfeeding difficult. Interestingly, despite potential challenges that some focus participants identified above, survey responses show that upon leaving the hospital, the majority of respondents (84%) were feeding their babies only breastmilk.

At six or more months

Focus group participants provided details about their experience of transitioning from exclusive breastfeeding to pumping or bottle feeding. As will be described in the worksite section, most participants described this transition in reference to them returning to work. Some participants also described supplementing their breastmilk supply with formula to address any of the barriers above. A small number of survey respondents named their workplaces, bosses, and co-workers as being supportive while they were breastfeeding or trying to breastfeed. Overall, the variety of experiences that participants shared of breastfeeding for the first six months demonstrates where community-level interventions (healthcare, worksites, etc.) can aid (or deter) an individuals' decision to breastfeed.

At the time of the survey, Appalachian survey respondents reported a range of breastfeeding durations for their youngest child, from never to more than 12 months, to currently.

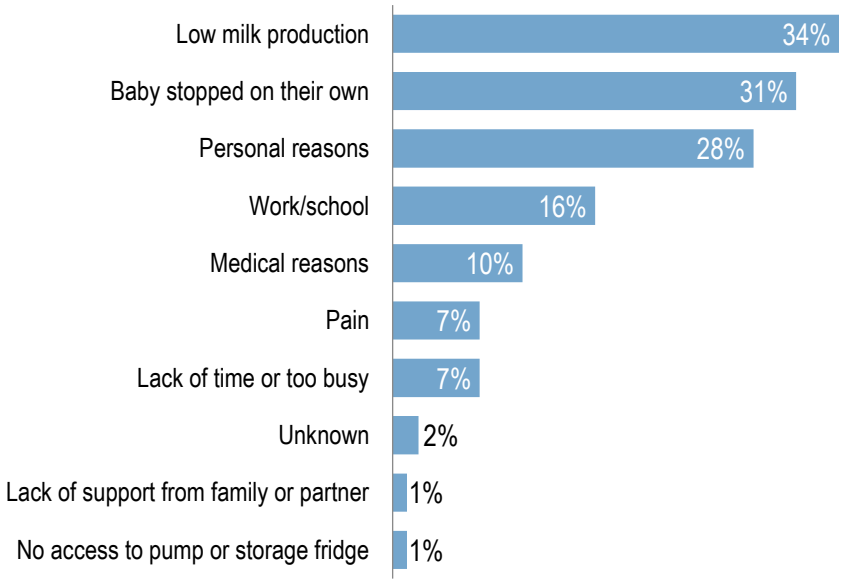


Focus group participants shared their experience breastfeeding their babies past six months, with many describing their experiences breastfeeding for a year or more (though this is most likely due to the stratification of the focus groups, which is described further in the methods section of this report). According to survey responses, less than half of respondents reported breastfeeding their baby for six months or longer (39%), but also almost half reported they were currently breastfeeding at the time of the survey (46%). Focus group participants who breastfed for a year or more did not give specific reasons for their longer durations of breastfeeding other than their decision to let their child wean when they are ready and their plans to breastfeed for as long as possible.

Stopping breastfeeding

One focus group participant had stopped breastfeeding; she stopped at six weeks due to her milk supply. All other participants described that they were still feeding or were soon going to move towards weaning.

Among Appalachian survey respondents who were not currently bresatfeeding (n=90), low milk production, the baby stopped on their own, and personal reasons were the most common reasons for stopping breastfeeding.



In looking at survey responses about reasons for stopping breastfeeding, almost a third of respondents said that their baby stopped on their own, with other common reasons being low milk production and personal reasons.

Interpersonal Results

This second SEM level examines relationships a woman has that may influence her decision to breastfeed. These include partners, family members, friends, and peers whose opinions about breastfeeding, for example, may affect breastfeeding initiation and/or duration.

Friends

Friends, especially those with breastfeeding experience, are important supports

Survey respondents and focus group participants named and described friends as an important source of support, especially if their friends also had experience or were breastfeeding at the same time. Almost half of survey respondents who answered who supported them while they breastfed or tried to breastfeed named friends. Some participants' decision to breastfeed was influenced by their friends who had breastfed or were breastfeeding. Others shared generally how their friends were supportive by either offering advice or referrals to LCs. A few others mentioned the support from their friends as being important to them when they were feeding in public.

Friends unfamiliar with breastfeeding may be unsupportive

A few focus group participants described their experience with unsupportive friends who were unknowledgeable about breastfeeding. These participants did not share that they stopped breastfeeding because of unsupportive friends.

Family

Support from partners can come in multiple forms

In terms of family support, survey respondents and focus group participants wrote largely about the importance of having supportive partners. About two-thirds of survey respondents who provided an answer as to who supported them named their partner, husband, or spouse as who was supportive of them while breastfeeding or trying to breastfeed. Focus group participants shared that partners were supportive when participants started breastfeeding by helping with household chores and giving supportive comments. Other participants described how their partners helped with the transition to bottle feeding when they went back to work. One survey respondent shared how her partner was "very emotionally supportive and encouraging" when asked who was the most supportive of you while breastfeeding. Finally, a few focus group participants shared examples of their supportive partners being educated about breastfeeding by LCs, classes, or WIC.

Comments from partners can be unsupportive

Some focus group participants shared ways in which their partners were unsupportive. This included comments about the baby being too old for breastmilk or encouraging the use of formula. These participants did not express stopping breastfeeding as a result of these comments and some considered their partners to be unfamiliar or unknowledgeable about breastfeeding.

Family members with breastfeeding experience can be supportive

Survey respondents and focus group participants also identified other family members as an important source of support. Again, about two-thirds of survey respondents who wrote an answer to who was supportive named their family for who supported them while breastfeeding or trying to breastfeed. This often included their mothers, mother-in-laws, and other female family members. Focus group participants wrote about the influence of family members who had breastfed and many described how this influenced them to choose to breastfeed. One participant shared, "My mom was super supportive, she breastfed all 3 of her kids." Others appreciated that they could ask for advice from family members who had experience breastfeeding.

Family members can also be unsupportive

Other focus group participants wrote about unsupportive family members who had not breastfed or who were unfamiliar with breastfeeding. Most of these participants spoke about older generations (mothers and grandmothers) who had not breastfed and how they were unlikely to talk about breastfeeding. One participant wrote, "My family was not supportive really - nobody had breastfed in my family before me." Others wrote about family members encouraging them to give their babies bottles or questioning how long they were going to breastfeed. In these cases, participants, again, did not describe stopping breastfeeding because of these comments.

Community Results

This third SEM level explores the characteristics of settings in which women live, work, and play that either promote or hinder breastfeeding. This section focuses on four community settings: worksites, healthcare, WIC, and community organizations.

Worksites

Workers need space and time to pump

Under federal law, employers are required to provide break time and a private space that is not a bathroom to pump for all employees covered by the Fair Labor Standards Act.[52] Survey respondents and focus group participants' descriptions of positive worksite experiences focused largely on their employers providing space and flexible time for them to pump. Participants wrote about the importance of having a clean and private place to breastfeed, whether that be their own office or a dedicated space. Participants also appreciated the flexibility of their employers giving them time to pump or shift their schedules to accommodate pumping. One participant shared, "The fact that my employer made a pump room and that my direct supervisor told me to take as much time to pump as needed did make a big difference."

Focus group participants and survey respondents also shared negative worksite experiences of employers not providing space or time to pump. An example of this includes employers or co-workers suggesting they use a bathroom to pump or breastfeed. One focus group participant shared, "My experience was being asked by my supervisor to pump in a single stall bathroom that was the only staff bathroom available on the floor which was SO stressful. No one would want to eat in a public bathroom, so I'm not sure why mothers are sometimes asked to feed their babies there." Other focus group participants wrote about the challenge of not having time to pump and having to fit it in during their lunch break or go long hours between pumping. Other survey respondents shared their experience with inflexible schedules or lacking a comfortable place to pump.

Multiple participants who did not receive accommodations named this as a reason for leaving the job and then finding a more supportive work environment. One participant noted, "I actually left my previous employer due to my supervisor's lack of support (not providing me adequate breaks to pump, asking me to pump in the bathroom, etc.) breastfeeding was so important to me that I found a new job that was so accommodating and supported me by scheduling around when I needed to pump."

Finally, a few participants also wrote about how the lack of worksite accommodations could negatively impact a woman's breastfeeding experience. One participant wrote, "It is sad that the

lack of employment support could lead some to stop breastfeeding. …There are laws to protect breastfeeding but unfortunately there are some situations that still develop in the workplace."

Longer maternity leaves are beneficial

In terms of leave from work, some focus group participants considered the length of time they were able to take off from work a positive factor in their breastfeeding experience. These participants shared how grateful they were to have had longer leaves (twelve weeks – five months) and why they were able to take time off (accruing enough time, having a higher position, and the impact of the COVID-19 pandemic). One participant compared her experience with her first child to her second: "For work, I'm further in my career so I had enough sick time to take off a full 12 weeks instead of the 7 weeks I took with my oldest."

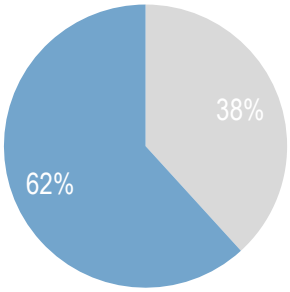
Other focus group participants wrote about their negative experiences with leave, which largely focused on being expected to return to work at six week (or earlier) or not accruing enough time (sick leave) to take additional time off. One participant wrote, "I was supposed to go back to work at 6 weeks but then [COVID-19] shut everything down and ended up going back at 12 weeks. I am SO THANKFUL. I couldn't imagine going back earlier then 12 weeks." In reference to how shorter leaves could impact breastfeeding, one participant explained, "I believe 12 weeks off is a minimum to establish a bond and milk supply. This area is not set up for that."

Acknowledging the shift from breastfeeding to pumping

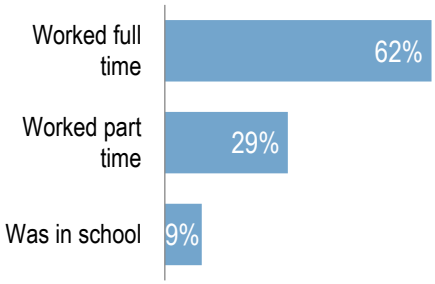
Multiple focus group participants also provided descriptions of their transition from breastfeeding to pumping as they returned to work. Most wrote of the transition in neutral terms, commenting on the time needed to accommodate pumping schedules and their process of supplying milk while away (when child was with partner, at daycare, etc.). One mentioned the impact of the COVID-19 pandemic and working from home by sharing, "I really miss being able to work from home due to COVID-19. It was really easy for me to multitask by feeding her and do my work at the same time."

Focus group participants also wrote about how going back to work added the challenge of balancing time between work and having to pump. One participant named that "lots of moms have to return to work and pumping can be hard to juggle as well as work and home" as being a factor that makes it difficult to breastfeed. Another participant wrote, "I had to return to work, I pumped every 3 hours away from baby but I just wasn't pumping enough to feed her. So, I had to supplement again. As the next months went on, I was producing less and less and had to supplement to with formula more and more."

62% of Appalachian survey respondents returned to or began work or school within the first year of giving birth to their youngest child.



Most Appalachian survey respondents who returned to or began work or school within the first year of giving birth to their youngest child worked full time.



As shown in the charts above, over half (62%)of survey respondents began or returned to work or school within one year after giving birth, and over half (62%) worked full time upon their return.

Importance of supportive employers, worksites, and co-workers

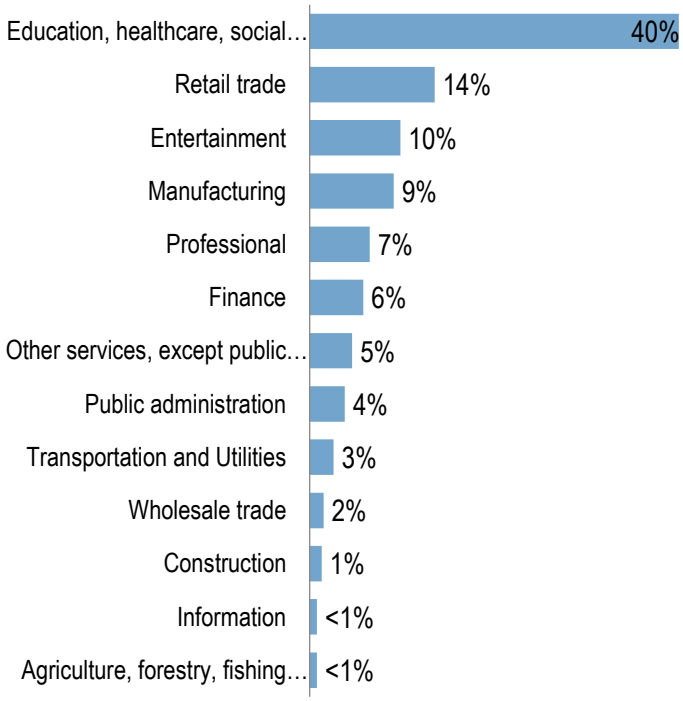
Besides the specific themes mentioned above, focus group participants and survey respondents also wrote about the importance of having employers who were knowledgeable about breastfeeding and generally supportive of pumping. One focus group participant shared, "Having a supportive workplace for pumping is definitely so necessary." Other focus group participants and survey respondents shared that supportive co-workers were important to their breastfeeding experience. A focus group participant also shared how support was connected to knowledge about breastfeeding: "My new employer is very family friendly and much of the work we do is with kids, from infancy to adulthood. Most of the women in my office have breastfed and have been so supportive and encouraging. I think the most important aspect was having coworkers and a supervisor who were knowledgeable about breastfeeding."

Again, besides the specific examples or themes that were related to negative experiences above, multiple participants wrote about how their employers or worksites were generally unsupportive of them pumping or breastfeeding. One participant shared, "The only issue I have had, as mentioned in a previous post, was with my former employer. I was the only one there with a young child— there were a few with older adult children but most of the office did not have children. I feel like the nonsupport came from a lack of education about breastfeeding and employee rights." Another participant shared that even though she worked in the healthcare setting, her coworkers are unsupportive. She wrote, "I am a Registered nurse and many of my coworkers are extremely unsupportive and judgmental about breastfeeding." This demonstrates

that work environments with presumed adequate knowledge about breastfeeding can still be unsupportive.

Ohio Census data[53] shows that 40% of Appalachian adult female workers work in education, healthcare, and social assistance (subset to Ohio residents who are employed civilians, age 18 years or older, are female, and who live in OH Appalachian counties, including a few typically non-Appalachian counties that were labeled as such by and inextricable from the dataset: Stark, Fayette, and Clinton). Since the Census survey uses a representative sample, partners can use the Census data to target industry outreach to support Appalachian women's ability to breastfeed at work.

Census data shows that over a third of Appalachian female Ohioan adults work in education, healthcare, and



How can worksites continue to support breastfeeding among Appalachian women?

To support those who breastfeed, worksites can examine their environments and policies. **Worksites and employers need to be knowledgeable about breastfeeding** and what employees' rights are related to worksite accommodations. Employers should consider **ensuring their is space for employees to pump, providing flexible schedules to allow for time to pump, and paying for longer maternity leaves**. Worksites and employers of all industries, though ODH and its partners can target industries in which Appalachian female Ohioans are frequently employed: education, healthcare, social assistance, and retail, can also **consider how to create or maintain generally supportive environments for breastfeeding employees**.

Research supports these overarching principles regarding PSE changes to create breastfeeding-friendly workplaces for working mothers,[45] though more research is needed to understand and address the unique needs of Appalachian women.

Healthcare

Lactation consultants are a key source of support

Most focus group participants and survey respondents alike named LCs as helpful supports. In fact, the majority of focus group participants shared examples of how LCs assisted or offered support by helping with their latch or how to recognize a good latch, demonstrating how to do different holds, checking for tongue ties, helping them establish or improve their milk production, and sharing ways partners can assist and support breastfeeding mothers. One participant shared the following examples of assistance from the lactation team at her hospital: "They helped me get her to latch and also explained to me what a good latch should look and feel like. They also really encouraged me that it is very normal to make little amounts of milk in the beginning and told me that babies really just eat very frequently in the beginning. They also helped calm her because she would become upset and refuse to latch." Another shared that her experience with asking her LC to check for a tongue tie: "It was basically the LC in the hospital coming in to verify he didn't have one. ... I just had them check right away to rule it out from day one."

Focus group participants also shared examples of *when* they received assistance and support from LCs. Many gave examples of their LC helping them immediately after birth in the hospital and others shared examples of meeting with their LC at follow-up visits postpartum. A few participants felt there were not enough LCs at their hospital to meet with mothers or not enough time to meet with LCs. Some women wrote that their LC was available 24/7 through the hospital for consultation. One participant noted, "It was so difficult in the beginning. When my daughter was born she refused to latch and was very upset during our hospital stay. We had 24/7 access to a lactation consultant at our hospital and I think if it wasn't for them I would have given up right away. They showed me how to help her latch and helped calm her down so that we could get her to latch better. They also had me use a hospital grade pump to pump some colostrum and then fed it to her so that I could sleep a little bit. They also continued to see us after our hospital stay because she wasn't gaining weight."

Survey respondents and focus group participants also wrote generally about LCs as a source of information and support because of their credibility and training. Many survey respondents listed LCs as one of their main sources of support and advice. One focus group participant shared, "If it weren't for my LC I would have given up before the six weeks. She was amazing. She was there with ideas to help with latch, ways to hold baby, nipple shields, changes to diet etc as well as an ear to listen to an exhausted new mom cry about sore nipples and just plain discouragement. I was determined and so was she! We communicated by phone, text and messenger as well as in person at her office." Another one shared why she trusts LCs: "I typically rely on my lactation consultant or someone who has a lot of experience with breastfeeding. I

trust lactation consultants because they have went to school and have expert knowledge about breastfeeding. And in my experience they have been extremely helpful."

Two focus group participants shared negative experiences with LCs. One experience included comments from an LC about small breast size and concern about her ability to breastfeed. The other was a general comment about the hospital lactation department not being very supportive or "widely used postpartum."

Breastfeeding information is limited during prenatal care

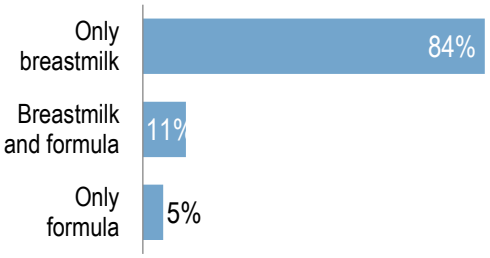
When asked about what breastfeeding information they may have received during their prenatal care, many focus group participants shared they received minimal information or encouragement. Some explained that their OBGYN's office or prenatal care was likely the first place they learned of the benefits of breastfeeding and others remembered receiving some written information. One participant shared the following about their prenatal care: "I am trying to remember the support I had for him [re: breastfeeding]...I think maybe just sending home resources that talked about breastfeeding being best was helpful." Another shared, "My OBGYN gave me an information sheet on breastfeeding and the local hospital where I delivered gave me a packet to read. I didn't have anyone actually talk or discuss with me what to except, how to do it , etc. Looking back, I wish I had researched more/taken classes/had someone talk with me about breastfeeding before giving birth and during the first week of daughter being born." Another participant shared her experience with her prenatal care provider discouraging her from breastfeeding her other child since she was pregnant.

Mixed experiences with pediatricians supporting breastfeeding

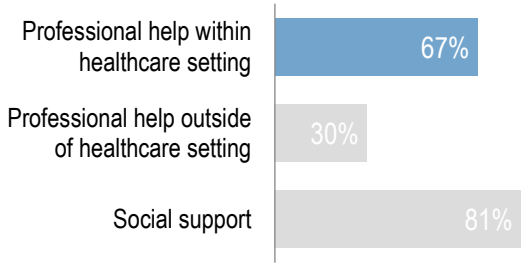
A few survey respondents found their doctor to be supportive of breastfeeding postpartum, though did not specify whether they were their pediatricians or another specialty. Some focus group participants shared examples of their pediatricians encouraging breastfeeding. One participant shared, "All the pediatricians at my child's doctors office have very positive attitudes about breastfeeding, which helps a lot." Another shared "Our pediatrician definitely pushed breastfeeding as long as possible."

More participants shared more negative experiences or advice from their pediatricians, which included pediatricians encouraging formula for weight gain or doctors providing inaccurate information about milk supply or benefits of formula over breastmilk. One participant shared, "I was very skeptical about introducing formula, her doctors wanted to go straight to bottle feeding. We ended up compromising and I started fortifying my milk." Another wrote, "I actually asked the pediatrician for a second opinion because she told me that formula helps decrease Bilirubin levels faster than breastmilk, which was conflicting information than I had. She looked at me like I had 2 heads." Multiple focus group participants mentioned they wished doctors would be more knowledgeable or receive more training about breastfeeding.

When leaving the hospital, almost 85% of Appalachian survey respondents reported feeding their baby only breastmilk.



About two-thirds Appalachian survey respondents received professional help outside of a healthcare setting during pregnancy and within the first 6 months of giving birth to their youngest



As seen in the charts above, well over three-fourths (84%) of Appalachian survey respondents were feeding their babies only breastmilk when leaving the hospital. The second chart shows over half (67%) of Appalachian survey respondents received professional breastfeeding help within the healthcare setting, though almost a third did not. This presents an area for continued improvement in providing Appalachian women breastfeeding support in the healthcare setting.

Mixed support from other healthcare professionals

As with doctors, focus group participants shared mixed experiences with other healthcare professionals during their breastfeeding journeys. Some survey and focus group participants shared positive experiences with nurses. Focus group participants wrote about nurses providing informational packets, demonstrating how to tube feed, and offering general encouragement. Other participants shared negative experiences with nurses in their hospital encouraging use of formula or supplementing right away. For example, one participant shared her experience with NICU nurses, "A lot of them seemed to feel I needed to just go home and leave my baby there and let them give her a formula bottle. I suspected that one of the older nurses did infant give her a formula bottle while I ran out to grab food. Just frustrating when you are trying to build those basic blocks of breastfeeding."

Other survey and focus group participants shared positive experiences with midwives. A few survey respondents shared that their midwives or doulas were supportive or most helpful to them while breastfeeding or trying to breastfeeding, while some focus group participants compared their experiences with midwives to previous experiences with their older children and other healthcare providers. One participant noted "The place I switched to had only a couple midwives and doctors and I chose to be with the midwives. They were super supportive about breastfeeding and gave me the hospital lactation number so I could get education about breastfeeding before the labor process." Another wrote, "I decided to switch to a midwife for my

second baby for a more natural and relaxed approach. … I feel we discussed breastfeeding a little more in depth than the first time and I was more encouraged."

Format, approach, and focus of assistance matter

In terms of the format for assistance and support, many focus group participants expressed their appreciation for hands-on assistance and demonstrations. Less participants wrote about the helpfulness of written materials or pamphlets, though those that did still explained that they found this information helpful. One participant explained, "Even after reading and looking at pictures it's hard to tell of the latch is correct, etc. The nurse would help with positioning baby and latching and helped me with starting with nipple shield."

Health insurance plays a role in supporting breastfeeding

Finally, a few focus group participants shared their experience with health insurance. Though one participant shared that she expected her pump to be covered by her health insurance and through lots of calls and work found out it was not, most of these participants shared their gratitude for how their insurance plan covered the cost of their breast pump. One participant also wrote about the cost associated with breastfeeding as an area that could use more support: "Many people think breastfeeding is free but it isn't always! While insurance/WIC/Medicaid may cover a pump, there is still costs associated with purchasing replacement parts, cleaning supplies, storage, bottles, etc. I know insurance can provide pumps but I'm not sure about the other necessities that are out of pocket costs and whether this is accessible to everyone."

How can healthcare staff and organizations continue to support breastfeeding among Appalachian women?

LCs continue to be the main source of support and information for those who breastfeed. **Hospitals should continue to prioritize offering LCs** and **evaluating hospital processes and flows to allow for adequate consultation time between mothers and LCs**.

Experiences with doctors and other healthcare professionals supporting breastfeeding seemed to mixed and dependent on the stage and specialty of care (prenatal versus postpartum/pediatric care). **Doctors of all specialties should receive more training and current information to help them encourage breastfeeding among their patients.**

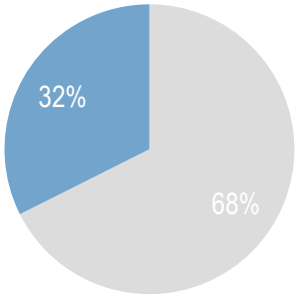
Additional research supports the use of motivational interviewing by providers, which could be a focus of training efforts for healthcare providers.[50] Though, again, more research is needed to understand how healthcare interventions can be effectively tailored to meet the needs of Appalachian women.

WIC

WIC is an important source of information

Multiple survey respondents and focus group participants identified WIC as one of their most important resource for information and education about breastfeeding. Some survey respondents named WIC LCs specifically as their most helpful resource. Multiple focus group participants noted that WIC was a key source of information regarding the benefits of breastfeeding, which helped them decide to breastfeed. One participant shared "I was educated at a WIC about breastfeeding and all the benefits. I thought it was the best choice and made sense to me to give my baby milk my body made specifically for me." Others mentioned specific topics about which WIC provided information, such as breastfeeding while pregnant. Pamphlets or handouts were common informational formats, and these were largely received during the prenatal period.

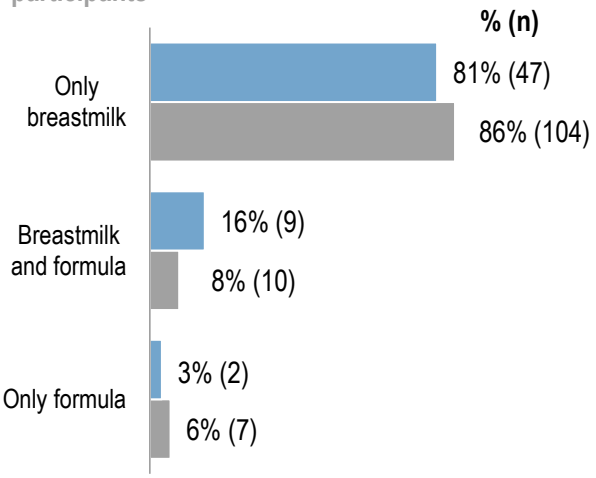
32% of Appalachian survey respondents were enrolled at WIC in any time during their pregnancy or within the first year after the birth of their youngest child.



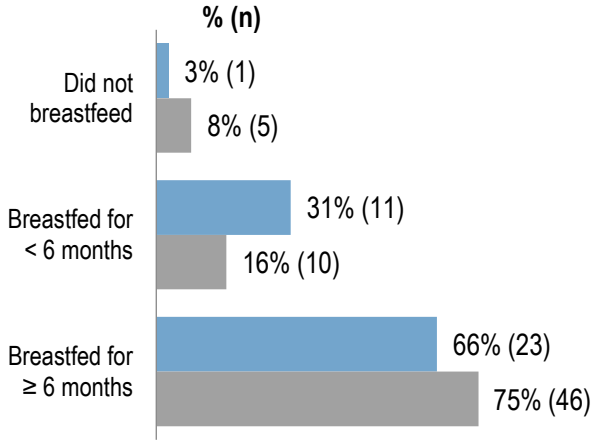
WIC is also a source of support

In addition to education, some survey and focus group participants also described how WIC was a source of support during their breastfeeding experience. This support was discussed in the form of peer education or support groups. A few focus group participants described the WIC Peer Helper program as supportive for them during their breastfeeding journey. They appreciated they could ask questions without feeling "silly" or "crappy." Other focus group participants also discussed that they knew the hotline as an important source of support if they needed it, although none wrote about actually using it. One participant mentioned knowing about the 24 breastfeeding hotline and sharing about it via on her social media network, but not ever using it herself. She explained, "Honestly, im not sure about more women calling if they knew about it. Struggling with breastfeeding is kind of embarrassing. Many women are hesitant to ask for help."

When leaving the hospital after giving birth, WIC participnts were slightly less likely to feed their babies only breast milk compared to non-WIC participants



Of Appalachian survey respondents who were not currently breastfeeding (n=61), WIC participants were more likely to breastfeed for less than 6 months compared to non-WIC participants



As depicted in the charts above, WIC participant survey respondents were only slightly less likely (81%) to feed their babies only breastmilk but were more likely (31%) to breastfeed for less than 6 months. This could demonstrate the experiences of some of the focus group participants in their receiving information about the benefits of breastfeeding or more in the prenatal period from WIC, but there being some barriers or hesitancy in using WIC support services later in postpartum.

How can WIC continue to support breastfeeding among Appalachian women?

WIC remains an important source of information and support for those who choose to breastfeed. WIC should **continue to provide information on the benefits of breastfeeding and sustain their Peer Helper program and support groups**.

WIC should also **consider evaluating and further promoting their 24-hour Breastfeeding Hotline** to ensure it is the best form of support and is being utilized by the community.

In general, more research is needed to understand and evaluate how WIC programs and interventions can be specifically tailored to best fit the needs of Appalachian women. However, there is some evidence to suggest that WIC staff and peer counselors have great potential to positively impact breastfeeding among this unique population.[38]

Community Organizations

Online websites and apps provide credible information

Many focus group participants shared that they used online resources as sources of information during their breastfeeding experience. Participants shared and emphasized others' comments about the usefulness of sites such as KellyMom.com, Medela and La Leche League. Others mentioned using the What to Expect app. One participant shared, "I spent a lot of time reading boards on the What to Expect App and felt the information provided there was helpful. I tend to research rather than reach out to people I know." Participants regarded these sources as credible and trustworthy. A participant shared this as a reason for trusting KellyMom: "It is very comprehensive and well organized, so it's easy to navigate. They also seem to keep the information up-to-date and current. The recommendations from other moms (both friends and people from mom boards) also added credibility for me." Others also mentioned finding information on the internet in general or their trust in "googling" and preferring to search for information.

Support groups are helpful, especially those through social media

Survey respondents and focus group participants also discussed their involvement in support groups, the majority of these being in the form of online groups. Survey respondents shared examples of these groups including Milky Mammas and La Leche League. Focus group participants wrote about how they would use these groups as a way of answering their questions and getting support from other moms. Others mentioned the groups as a way of exchanging supplies such as extra pumping parts, nursing bras, and cloth diapers. One participant shared that she and her friends started their own group: "We actually created our own Facebook group to ask breastfeeding and cloth diaper questions in within our own circle of friends. … there is a similar, but much larger Facebook group that is run by the LC I've mentioned… this smaller group just made it a little more personal."

Drama and misinformation can deter women from using

A smaller number of participants discussed the drawbacks of online support groups. They discussed potential drama within the discussion threads and spread of misinformation. One participant wrote, "I personally do not find them helpful because of all of the drama and people giving their opinion on a topic they know nothing about."

Accessibility of groups is important

Other participants discussed the lack of groups or distance to groups associated with in-person support groups. One participant shared, "In my town, the only resources available are the hospital lactation and WIC. The LLL groups are over an hour away, the FB groups are mostly online and not very support directed but resource directed."

Breastfeeding classes are helpful when available

Some survey respondents and focus group participants mentioned free or voluntary breastfeeding classes they participated in as important sources of education. The majority of these were offered during the prenatal period. One participant shared this about her experience with her class: "I attended a free educational class called BOOBS and BOWS in my area and they explained how you can self express, what your milk production should look like over the first couple of days and they even talked about how to deal with negative family members. Each person got a booklet when they left and I used it so much in the beginning of breastfeeding. It had so much information such as what temp my milk needs to be frozen at long it will be good for at that temperature and how to hand express and tips for sore breasts. I love that booklet so much."

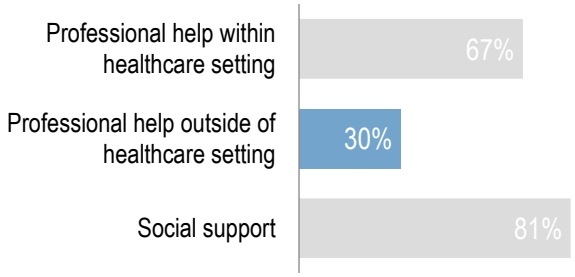
Accessibility of classes is also important

As with support groups, there were a few participants who discussed their disappointment with a lack of education classes available to them or classes that were a far distance away. One participant wrote about how her plans to join classes was stopped due to the COVID-19 pandemic and then wrote, "I live in a very small town now so I would have to travel 45 minutes to anywhere for classes or more widespread help." These experiences show that access and availability in rural areas remain a barrier to utilizing these services and benefiting from these types of interventions.

More funding is needed

Some focus group participants and a small number of survey respondents wrote about the need for more funding breastfeeding support. One participant wrote, "It would be nice to see more statewide funding for breastfeeding help, especially in the areas with limited resources." Another shared, "I also feel more government dollars should go to organizations that support mother and children in the first three years if their lives (and not just for mother's that meet income requirements—this should be available to everyone!)."

A little less than a third of Appalachian survey respondents received professional help outside the healthcare setting during pregnancy and within the first 6 months of giving birth to their youngest child.



As seen in the chart above a little less than a third (30%) of Appalachian survey respondents reported receiving social support before and after their pregnancy. This, again, shows room for improvement among community organization interventions.

How can community organizations continue to support breastfeeding among Appalachian women?

The majority of focus groups participants shared finding information and support through online sources. **Websites, apps, and community organizations should continue to strengthen and share resources** via the internet to ensure accessibility. **Online groups should consider ways of verifying information and enforcing community standards for interactions**, possibly having more LCs as admins of the groups.

Organizations offering educational courses should consider evaluating their availability and accessibility, especially in rural areas, to ensure their educational resources are being utilized.

Community organizations should also **utilize and sustain their role in educating about breastfeeding and making breastfeeding more of a cultural norm**.

Other research has found support for recognizing the use of storytelling, belief in fate, and mistrust of outsides and their intentions as important considerations when working with Appalachian communities.[28] Though these themes were not discussed by the participants in this study, further research is needed to better design breastfeeding interventions for Appalachian women.

Societal Results

The fourth and final SEM level takes a broad look at societal factors that support or inhibit breastfeeding. This section focuses on social norms and policies that greatly influence a woman's decision to breastfeed.

Social norms

Varying factors influence comfort with public feeding

One of the main topics of discussion related to social environment was public feeding. Focus group participants shared different reasons behind their feeling more comfortable breastfeeding in public. These included having supportive friends, feeling it is natural, and developing more comfort since breastfeeding their older children. One participant shared, "As my baby got older and we would go out places as a friend group my friends always would have my back if I needed to breast feed and they would reassure me that if someone were to make a negative comment they would handle it." Another wrote, "I have become very comfortable and care free about breastfeeding in public. I feel that it is my right and responsibility to my child to breastfeed so I just do be descent about it but I will not not breastfeed because of being in public." Another participant shared: "I agree that if my baby was hungry and I didn't have a cover, I wouldn't deny her. Breastfeeding is natural and beautiful and should be celebrated!"

Some focus group participants explained they are most comfortable feeding in public if they are covered up. These comments were often followed by participants expressing worry about weird looks or comments. One participant shared, "I would breastfeed in public as long as I had a cover for me / baby. I'm more of a private person and would prefer to nurse alone." Another wrote, "I personally wanted to cover just because I am pretty reserved, lol although a lot of my shyness went away after going through childbirth. I have always thought people react different towards mothers who do not cover." Others noted they felt a decreased need to cover the more they breastfed over time or as they had more children.

Feeding in public seems to be the most controversial aspect of breastfeeding

A few participants wrote about the mixed views on public feeding they perceive from the public or how public feeding seems to be more controversial than breastfeeding itself. When asked about if public attitudes towards breastfeeding in public are a reason for stopping breastfeeding, one participant wrote, "It's hard to know without speaking to people directly. I would say it is not the most common reason. I hear of people ending breastfeeding way before they would have had a need to breastfeed in public due to improper latches, pain, low supply, having to return to work and not being able to afford a pump or not enough time to pump, etc." Another participant added: "Feeding in public is I think the most controversial when discussing

breastfeeding. People all have different views on the matter." Another participant wrote separately, "Some women I know are all for it and others have no interest. I would say most of the negative attitudes I have come across are more related to breastfeeding in public rather than breastfeeding in general."

A couple participants wrote about not seeing breastfeeding in public very often. They wished to see it more in hopes of normalizing public feeding. A few discussed receiving strange looks or comments from strangers. One wrote the following about feeding in public, "I feel that people get extremely uncomfortable and it makes you uncomfortable." Another participant shared, "I think it is so unfortunate that women have to fear judgment in public for feeding their babies. I hope public perception changes someday, because this fear may also be a factor in women deciding not to breastfeed."

As compared to feeding from the breast, a few participants clarified that they were not comfortable expressing or pumping in public. One participant wrote, "I don't think I would express milk in a public place. I think I feel more exposed and vulnerable pumping/expressing. Plus I'm not great at it and I really need to concentrate and take my time."

Proximity and access to education or resources is important

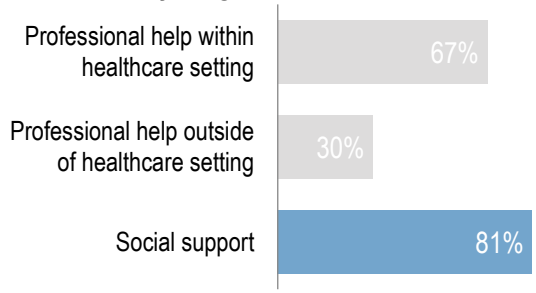
A few focus group participants wrote about the lack of education or knowledge about breastfeeding that was prevalent in their social circles or area. A few of these comments were sparked around a discussion of how participants perceived breastfeeding as uncommon in Appalachia. One participant wrote, "I don't see it as being very common. And I don't know exactly why, it's more cost effective. Maybe it's lack of education/ information." Another noted, "Culturally I think breastfeeding is accepted but the majority of people still think that formula is necessary for all babies. The idea that babies can strictly breastfeed from birth is limited. The woman also believe that it's an 'either or'. They don't recognize it as a both breast or bottle."

Another participant commented on the lack of resources and funding in relation to lack of education: "I am a breastfeeding woman who lives in an Appalachian county. I have previously stated in this group that I live in a very rural area. We have very limited resources and funding. Many women do not receive education about breastfeeding, and when they do sometimes the information is not evidence based and is inaccurate." This participant also wrote, "My hope is to someday become a IBCLC and be a resource for my community. I want to educate not just women, but everyone about breastfeeding and begin to make it a culturally accepted practice. However, I feel that the opportunity for me to do this is not supported by my community. My health department would not fund something like this, they dont even have an IBCLC. It would be nice to see more statewide funding for breastfeeding help, especially in the areas with limited resources."

Many are lacking critical social support

A little over 80% of survey respondents reported receiving social support during pregnancy and within the first 6 months after giving birth and this social support was defined as including partners, family, and friends. Only a few focus group participants spoke generally about a supportive social circle or network. In these instances, social circle or network was understood by the study team as being broader than just family and friends. One participant shared, "Everyone was extremely supportive. No one ever question[ed] my decisions and always listened and followed my lead. When working I even had coworkers who breastfed and were supportive."

Over three-quarters of Appalachian survey respondents received social support during pregnancy and within the first 6 months of giving birth to their youngest child.



More participants discussed how negative or unsupportive social circles can threaten a woman's breastfeeding experience. One participant wrote the following in response to being asked how common breastfeeding is in Appalachia, "I'm not sure exactly how common it is, but I feel that it is probably less common. I think for breastfeeding mothers it can be hard not to give into the social pressures, especially if you come from a family where everyone thinks negatively about breastfeeding and they believe that mothers should only breastfeed for the first 6 months and then just stop. It's also a lot more difficult to breastfeed if you're being told to cover up, or go somewhere else to feed as this isn't always very convenient." Another shared, "I feel very unsupported by people around me. many people act surprised or appalled at the idea of continuing breastfeeding. Breastfeeding in public is also extremely embarrassing because of the facial expressions and comments. OUR SOCIETY IS SO UNSUPPORTIVE OF BREASTFEEDING!"

Sexualization of breasts adds to the taboo

Finally, a few focus group participants wrote about the sexualization of breasts and how that leads to breastfeeding being taboo. One participant shared, "I think its a lot to do with the culture. Breasts are more widely viewed as sexual objects as opposed to ways to feed babies." Another wrote, "It's cultural (it involves breasts = sexual), and where I work it is male dominated so it isn't discussed." A third participant wrote that moms can support each other to counter the narrative: "It doesn't bother me to see moms nursing their babies in public. I feel like moms

need to support each other. It's natural - people have made a point to sexualize breasts which has created that 'taboo'."

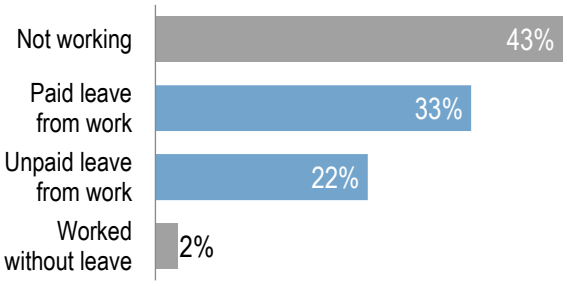
Policy

A major policy consideration for supporting breastfeeding is paid parental leave. A review of studies across countries about paid parental leave concluded that "The overall trend in research on the health consequences of parental leave is that parental leave supports two precursors to improved child health—breastfeeding and immunizations—and potentially reduces maternal stress and depression. In light of the challenges that new parents face, it is perhaps not surprising that a plurality of studies find that access to paid parental leave strongly associates with lower rates of mortality throughout infancy and childhood."[54, p. 11] Yet the majority of American women do not receive paid maternity leave, and for those who do, the average paid leave is 3 weeks.[55] Furthermore, access to paid leave is unequal; women who are older, more educated, have private insurance, have a partner, and have higher income receive longer paid maternity leave at a greater proportion of their salary.[47] The American Academy of Pediatrics supports paid parental leave, paid family leave, and paid medical or sick leave as health equity initiatives.[56]

A few focus group participants specifically mentioned the need for paid leave. One participant wrote, "I also only got about 6 weeks off. I wish we had a federal or state mandated paid maternity leave. I couldn't afford to take off longer than 6 weeks as I had used up all of my sick and vacation time (although I know that was more than many get)." Another shared, "We need HUGE systematic changes in our society. A higher minimum wage, required paid maternity leave, etc."

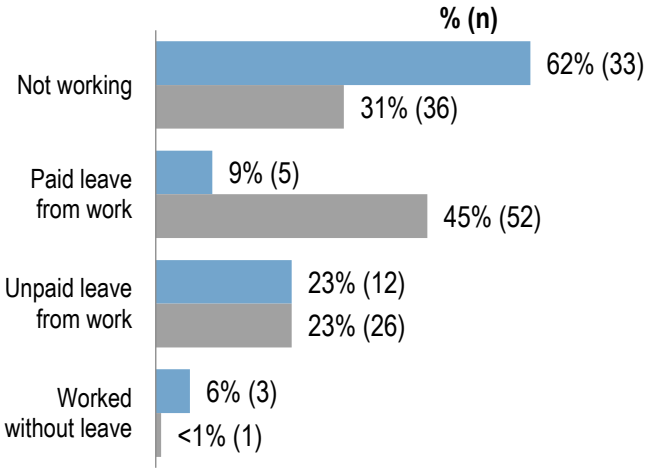
From looking at the survey responses, over half took leave from work following birth, though only 33% took paid leave. The average (median) time from giving birth to returning to or beginning work and/or school was 77 days (about 2 and a half months), with a range of 3 to 360 days (about 1 week to 2 years).

Most Appalachian survey respondents received a leave from work following birth, though only 33% received paid leave.

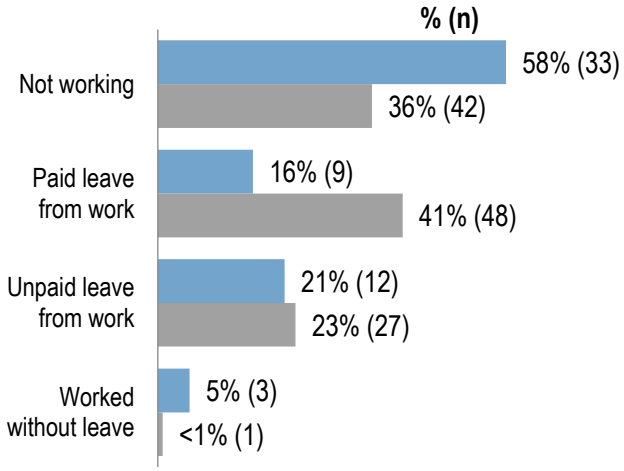


We did not ask about income in our survey, but we did ask about health insurance status and WIC participation, which could be markers for income. We found that those likely to have lower incomes (those with Medicaid and those who participate in WIC) were less likely (9% for those with Medicaid and 16% for those in WIC) to have paid leave from work than their likely higher incomes counterparts. Those who need paid maternity leave the most have the lowest rates of receipt.

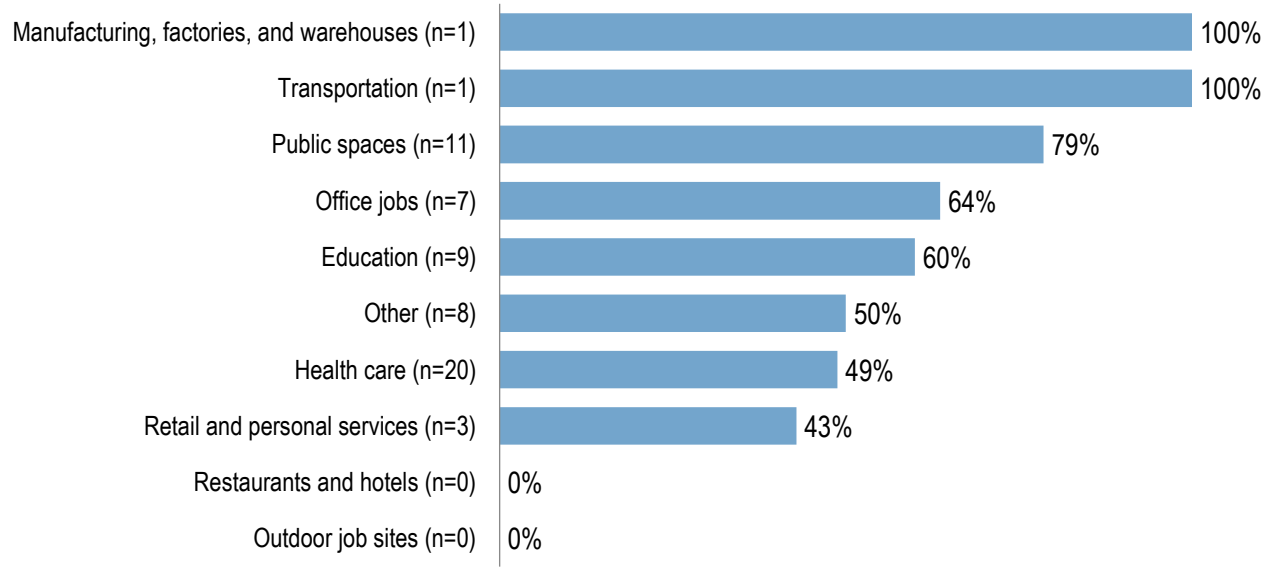
Appalachian survey respondents with Medicaid (n=53) were much less likely to have paid leave from work than those with private insurance (n=115).



Appalachian WIC participants (n=57) were much less likely to have paid leave from work than non-WIC participants (n=118).



The receipt of paid maternity leave among Appalachian survey respondents varied by industry, with manufacturing, transportation, and public spaces having the greatest proportions of respondents with paid



Conclusions

As described in the methods section of this report, this study has limitations regarding participant recruitment and partner moderators that should be considered when interpreting these findings and conclusions below. These limitations impacted our sample of survey respondents and focus group participants; therefore, the following conclusions are not representative of all Appalachian women in Ohio and should not be generalized.

What have we learned?

Through survey responses and focus group participants' written discussion, this study has identified supports and barriers to breastfeeding at the different levels of the social ecological model. Some findings were expected, such as respondents and participants naming family, friends or social support as being an important or promotional factor during their breastfeeding experience. Additionally, participants provided descriptions of their worksite experiences, which demonstrate the need for comprehensive worksite accommodations for breastfeeding women and ample paid time off for maternity leave. Finally, many survey respondents and focus group participants wrote about the help and support received from LCs, demonstrating the value and impact LCs have on women's breastfeeding experiences.

Other findings were more specific to Appalachian respondents and participants. These included some focus group participants writing about how their friends or families' experience breastfeeding influenced their decision to breastfeed and dictated whether friends or family were supportive of their experience. Another finding from focus group participants was that multiple women shared receiving minimal support or information about breastfeeding during their prenatal care and many found mixed experiences of support from pediatricians or postpartum. Many participants wrote the suggestion that healthcare providers could benefit from more training and education about breastfeeding. For participants who wrote about WIC, many wrote about learning about the benefits of breastfeeding from WIC during their prenatal period and less wrote about using WIC's programs postpartum. Focus group participants also wrote about online resources and support groups as being helpful and some mentioned the barrier of distance in accessing in-person classes or groups. Finally, many participants wrote about public feeding as being really the most controversial aspect of breastfeeding. Some discussed their comfort or journey to becoming more comfortable feeding in public while others discussed why they feel less comfortable feeding in public.

What it means

These findings indicate potential areas for improving interventions for increasing breastfeeding rates and duration among Appalachian women. The following list outlines potential

opportunities for expanding and strengthening current initiatives to assist Appalachian women in their breastfeeding journeys:

- Provide training and education about breastfeeding for healthcare professionals, specifically for prenatal care providers and pediatricians.
- Evaluate WIC peer support programs and postpartum support programs like the breastfeeding hotline to better understand who is utilizing these supports and why. This could generate information that could be used to better tailor WIC supports to Appalachian women in Ohio and increase use of these services.
- Consider the accessibility of interventions and supports given the rural geography of Appalachia. This could include having more LCs available in hospitals, doing home visits, or promoting more online or virtual support groups.
- Design and implement public health campaigns or messaging that promotes and normalizes public feeding.

What next?

Beyond these intervention opportunities, PDA recommends the additional data collection considerations and evaluations for a more comprehensive understanding of how to improve breastfeeding rates and duration among Appalachian women. These include:

Prioritize partnering with facilitators or moderators from communities of interest: PDA would recommend continuing to make every effort to involve and engage with community facilitators or moderators during the design, data collection, and analysis/interpretation phase of future studies. This can ensure sufficient information is collected and culturally relevant information is not missed or misinterpreted.

Focus group or interviews with healthcare providers or WIC staff: Collecting data from those providing interventions or support to breastfeeding women could allow for an assessment of what they're already doing and their knowledge about breastfeeding. This could inform areas to focus on for training and education.

Intercept study at healthcare offices or WIC sites: An intercept study could consist of on-site, brief questionnaires with patients or clients. This could address this study's limitation of having a sample with many strong advocates for breastfeeding and those with experience of breastfeeding for long periods of time.

Acknowledgements

This project was reviewed and approved by the Ohio Department of Health's Institutional Review Board (IRB).

PDA is grateful for the support of our fantastic partners in this project. We met frequently to plan study design, participant recruitment, and data collection tools, and review results. Our partners' involvement was critical and invaluable throughout this project and their feedback ensured cultural and contextual relevance. We give heartfelt thanks to:

Michele Benko, Cuyahoga County Board of Health

Bre Haviland, Ohio Department of Health

Theresa Henderson, Cuyahoga County Board of Health

Stephanie Hutchinson, Appalachian Breastfeeding Network

Lori Nester, Ohio Breastfeeding Alliance

Nichelle Shaw, Cuyahoga County Board of Health

Lisa Sheer, Zanesville-Muskingum County Health Dept

Cissy Watkins, Appalachian Breastfeeding Network

Additionally, we appreciate **Mishelle Trescott** with the Appalachian Breastfeeding Network for serving as a partner moderator for a focus group.

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Appendix

Appendix 1. Survey Instrument and Focus Group Protocol

The survey instrument and focus group protocol were developed with the assistance of Ohio breastfeeding partners and stakeholders. The instrument and protocol are available from the Ohio Department of Health at request.

Appendix 2. Ohio Breastfeeding Programs

Many programs in Ohio are working to support breastfeeding mothers, including at organizations that are explicitly focused on breastfeeding and at organizations for which breastfeeding is one of many priorities. Below is a list of some key programs and organizations, with study partners highlighted. Some focus on serving specific populations and others have a broader mission. This is not intended to be a complete list of all organizations supporting breastfeeding work. We recognize that many more initiatives are happening beyond this list, such as classes and trainings happening at many health systems across Ohio. A wealth of partners collaborating from diverse fields are critical to continuing to promote breastfeeding and advance racial and regional equity.

- **AMEN (All Moms Empowered to Nurse)**: breastfeeding peer support
- **Appalachian Breastfeeding Network (ABN)**: a network of breastfeeding supporters who seek to improve education and access to care through educating hospitals, administering the Appalachian hotline, posting on social media, hosting a conference, and speaking at other events
- **Black Lactation Circle of Central Ohio (BlaC)**: a breastfeeding peer support group for Black women in Central Ohio
- **Breastfeeding Medicine of Northeast Ohio**: a medical and lactation support service organization
- **Breastfeeding Friendly Child Care Designation**: a designation awarded by ODH, OBA, and the Ohio Child Care Resource and Referral Association to early childhood education (ECE) programs that implement a breastfeeding policy that meets minimum requirements to support breastfeeding mothers and their infants
- **Creating Healthy Communities**: a statewide chronic disease prevention program that promotes healthy food and physical activity, as well as breastfeeding
- **Centering Pregnancy**: a national model of group prenatal care
- **Cradle Cincinnati**: a collaboration of parents, caregivers, healthcare professionals, and community members working to reduce infant mortality in Cincinnati, with a focus on supporting equity for Black women

- **Early Head Start**: a national program that supports development for infants and toddlers through home visits, classroom education, and child care
- **First Year Cleveland**: a collaboration of parents, community leaders, philanthropic organizations, government and business entities, healthcare providers, educational institutions, nonprofits, and faith-based organizations working to reduce infant mortality in Cuyahoga County, with a focus on supporting equity for Black women
- **Head Start**: a national program that supports development for preschoolers through home visits, classroom education, and childcare
- **Help Me Grow**: a parent support program that includes home visiting, early intervention, and parental education
- **La Leche League of Ohio**: a local affiliate of the international organization that provides breastfeeding peer education and support
- **Maternal and Child Health grant, aka Title V**: a federal grant that funds a variety of programs to improve women and children's (infants, children, and adolescents) healthcare, health, survival, and community experiences
- **Moms and Babies First: Ohio's Black Infant Vitality Program**: a county government initiative to reduce low birthweight babies, infant deaths, and sickness among Black women in Montgomery County through home visits, parental education, and father engagement
- **Neighborhood Family Practice**: a Federally Qualified Health Center (FQHC) in Cleveland partnering with REACH to integrate midwifery and breastfeeding support
- **Ohio Breastfeeding Alliance (OBA)**: a group of breastfeeding professionals who promote breastfeeding through partnerships, campaigns, workgroups, and a resources database
- **Ohio Collaborative to Prevent Infant Mortality**: a statewide collaborative that performs community engagement, exchange of best practices, data management, and advocacy to reduce infant mortality
- **Ohio Department of Health (ODH)**: state health department
- **Ohio First Steps for Healthy Babies, aka First Steps:** a designation awarded by ODH and the Ohio Hospital Association to hospitals that promote breastfeeding
- **Ohio Lactation Consultant Association (OCLA)**: a local affiliate of the US Lactation Consultant Association that hosts an annual Breastfest conference and other educational opportunities for LCs and other breastfeeding advocates

- **Ohio Perinatal Quality Collaborative**: a statewide consortium of perinatal clinicians, hospitals, and policy makers and governmental entities that uses improvement science to reduce preterm births and improve maternal and birth outcomes
- **REACH (Racial and Ethnic Approaches to Community Health)**: a CDC-funded grant administered by Health Improvement Partnership (HIP) Cuyahoga that funds healthy eating, active living, and clinical and community linkages in Black/African American communities
- **Restoring Our Own Through Transformation (ROOTT)**: a reproductive justice organization in Columbus that supports Black women and women of color through doula services and training, research, education, and consultation
- **WIC (the Special Supplemental Nutrition Program Women, Infants, & Children)**: a national program that provides nutrition education, breastfeeding education and support, supplemental nutritious foods and formula, and referral to healthcare and support services to income-eligible women