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Breastfeeding disparities and recommended strategies to end them in New York

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ABSTRACT

Objective: The objective of this study was to identify strategies to address breastfeeding disparities across New York in the United States.
Methods: Data were collected from August-December 2021 using a qualitative research design that included 45 key informant interviews and 253 online questionnaires.
Results: Ninety-six percent of participants lived in or represented New York, and four percent were national experts. Participants discussed the factors contributing to breastfeeding disparities across the social ecological continuum. They identified New York subgroups most likely to report lower rates of breastfeeding initiation and/or continuation, including: certain racial and ethnic groups; individuals working in certain employment sectors or living in specific geographic areas; people with disabilities; and the lesbian, gay, bisexual, transgender, queer, intersex, asexual and more (LGBTQIA+) community. Recommendations included addressing social and commercial determinants of health and modifying the healthcare and workplace sectors with an emphasis on policy changes.
Conclusions: The findings from this study emphasize the need to address systemic and structural factors impacting breastfeeding disparities. This article makes a novel contribution by providing recommendations that can be implemented collectively across relevant settings to address breastfeeding disparities in a state with one of the largest and most diverse populations.

1. Introduction

Breastfeeding, although a natural behavior, can be challenging for birthing people, especially in current United States society (Sriraman and Kellams; Volk, 2009) where social support is often lacking. Due to the many health benefits, health organizations support efforts to increase breastfeeding initiation, exclusivity, and duration (Volk, 2009). In 2020, while 85.3% of infants in New York (83.1% in United States) initiated breastfeeding, continuation drops off rapidly and disparities persist by race/ethnicity; income status; Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) participation; birth order; geographic location; and maternal education, age, and marital status (Centers for Disease Control and Prevention, 2024).

In the United States, *Healthy People 2030* includes two national breastfeeding objectives: increase the proportion of infants who are breastfed exclusively through 6 months to 42.4% and increase the proportion of infants who are breastfed at 12 months to 54.1% (Office of Disease Prevention and Health Promotion, n.d.). In 2020, breastfeeding rates were well below these objectives, with only 21.6% of New York (25.4% United States) infants breastfeeding exclusively through 6 months and 38.2% of New York (37.6% United States) infants continuing to breastfeed at 12 months (Centers for Disease Control and Prevention, 2024).

Prior to the Coronavirus Disease-2019 (COVID-19) pandemic, breastfeeding rates increased for all racial and ethnic groups; however, significant disparities remain, especially between non-Hispanic White and non-Hispanic Black infants (Li et al., 2019) and among lower income populations. In 2019, the difference across racial/ethnic groups in

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breastfeeding initiation rates was less in New York (8.7%) than the United States (16.7%) (Chiang et al., 2021). However, during the pandemic, initiation dropped for all groups and has not recovered. Among New York WIC participants, in 2021, breastfeeding initiation differed 17% across race/ethnicities, from 69% (multi race), 78% (non-Hispanic Blacks), 85% (non-Hispanic whites), to 86% (Asian/Pacific Islander) of infants (New York Pediatric Nutrition Surveillance System, 2021).

The causes of breastfeeding disparities are complex, and there is no single solution to address them. Systemic barriers, including historical racism and traumas, healthcare access barriers, (Brown et al., 2021; Center for Social Inclusion, 2015) and local context all contribute to these disparities (U.S. Department of Health and Human Services Office of the Surgeon General, 2011). The purpose of this study was to investigate breastfeeding disparities in New York and identify strategies to end them. Although international and national guidance exists to address breastfeeding disparities, (U.S. Department of Health and Human Services Office of the Surgeon General, 2011; World Health Assembly 71, 2018) studies at the state and local levels in the United States are needed to better understand local contributing factors and community-specific interventions that may be most successful (U.S. Department of Health and Human Services Office of the Surgeon General, 2011). The findings of this qualitative study of New York and national breastfeeding experts presented here will also inform the New York State Department of Health (DOH) and a legislatively-mandated report (Amended Bill S.6707 and A.6986-A New York State Legislature. 2019-2020). Throughout this manuscript, the term "breastfeeding" will be used; it also incorporates "chestfeeding" and "lactating" when discussing infant feeding.

2. Methods

This study was approved by the University at Albany Institutional Review Board (IRB Protocol: 21X130) and led by a team at the University at Albany School of Public Health, in collaboration with a team from the DOH. The academic team led all aspects of the study and met regularly with the DOH team. The first and last authors of this article have extensive qualitative research experience and provided the direction for the study design.

The study consisted of key informant interviews and surveys of New York and national breastfeeding experts. National breastfeeding experts were included to help identify promising best practices and policies from other states and countries that could potentially be implemented in New York. The survey was used to expand the study's reach and to accommodate the work demands and schedules of the research participants. The study design, analysis, and interpretations were guided by the social ecological model as applied to health promotion (McLeroy et al., 1988) and the National Institute on Minority Health and Health Disparities Research Framework (National Institue on Minority Health and Health Disparities, 2017). The study design was also influenced by the legislative mandate and DOH needs for this study.

Experts in the fields of neonatal and post neonatal pathology; maternal and infant health; breastfeeding medicine; and minority health professionals working to promote breastfeeding, provide lactation support, or conduct breastfeeding research were recruited to participate. Efforts were made to recruit participants who work directly with people most impacted by breastfeeding disparities, including DOH breastfeeding community contractors; health educators who work with maternal and child health populations; personnel from New York WIC; and stakeholders representing racial and ethnic minorities in geographic areas that have the lowest breastfeeding rates. Participants were also recruited from DOH-specific listservs, and via respondent driven sampling. All participants provided informed consent to participate in the study. No incentives were provided for participation.

Forty-five key informant interviews (35 New York breastfeeding experts; 10 national experts), averaging 30 min in length, were completed between August – December 2021. In total, 74 individuals were contacted to participate in an interview (63% response rate). Due to the COVID-19 pandemic, key informant interviews were conducted virtually using Zoom. Table 1. provides additional information, including the interview guide structure.

An online survey was implemented using Qualtrics software (Provo, UT) housed at the University at Albany. The survey was primarily qualitative with open-ended questions designed to capture perceptions on breastfeeding disparities in New York and recommendations for addressing them. The survey could be completed using any device with Internet access. It was designed to take no longer than 20 min to complete, and participants could complete it anonymously. A total of 253 responses were included in the final analysis. Due to the recruitment methods used, a final response rate cannot be calculated. Table 1. provides information about the survey questions. Table 2. describes demographic characteristics of the survey participants.

2.1. Data analysis

In preparation for analysis of the interviews, study team members took handwritten notes during the interview. After the interview, the Zoom transcription was reviewed and inductive and deductive coding conducted. An initial list of codes was created prior to analysis based on the interview guide and study purpose; additional codes were created and added to the codebook during analysis. All team members used the same final codebook for analysis (available upon request). Each researcher had the opportunity to reflect on the data and generate additional codes for the codebook.

ATLAS.ti Web (Version 9) was used to analyze the key informant interviews. Data were grouped by code within larger categories by study question, and within the categories, themes were discussed among team members. The overarching categories and themes were synthesized into the study findings.

After the online survey dataset was cleaned and the final sample determined, the survey data were analyzed using the Qualtrics software. The responses to the open-ended questions were coded using the existing codebook and analyzed using Excel. At the completion of the study, all research participants were invited to attend an online presentation of the study findings and ask questions. They were also provided with a written executive summary of the study findings prior to dissemination to other audiences.

3. Results

This study was framed to focus on ending breastfeeding disparities in New York. Many participants stated that certain racial and ethnic groups experience greater breastfeeding disparities than others. However, the majority of participants emphasized that these disparities are most often the result of the social and commercial (Gilmore et al., 2023) (e.g., formula industry practices) determinants of health, how individuals are treated within United States society, and structural barriers, which disproportionately impact specific cultural or ethnic groups. Poverty, unstable housing, food insecurity, having to work multiple jobs, lack of paid time off to establish or maintain breastfeeding, and lack of breastfeeding education were cited as primary root causes of breastfeeding disparities in New York.

When discussing race and ethnicity disparities, study participants acknowledged cultural factors, historical traumas, and beliefs that must be taken into consideration when designing breastfeeding interventions. This is exemplified by the following participant's statement: "African American community in the United States breastfeeding your slave owners' children was traumatizing; the freedom to not have to breastfeed was considered liberating and empowering. And so that's a very personal decision, and often comes with some history that is very traumatic." Participants also stressed the importance of better understanding through future research studies how breastfeeding disparities

Table 1
Survey and Key Informant Interview Study Methods – 2021 New York Breastfeeding Disparities Qualitative Research Study.

Survey Design:
- Conducted online using Qualtrics between August-December 2021
- 253 respondents included in analysis

Survey questions pertained to:
- Title, role, type of organization where employed, and personal breastfeeding experience of the respondent
- Their perspective, from their experience, of the main facilitators and barriers for people meeting breastfeeding goals in New York state
- Perspectives on whether there are certain members of the population who are less likely to meet their breastfeeding goals
- Perspectives of the most effective breastfeeding interventions to address breastfeeding disparities in New York, as well as cultural considerations for these interventions
- Perspectives on policies at all levels of government that do or could address breastfeeding disparities

Key Informant Interview Design:
- 45 key informant interviews with breastfeeding experts (10 national experts; 35 New York experts) conducted between August – December 2021
- Conducted via Zoom

Interview guide for national experts contained questions pertained to:
- Their personal experience working in breastfeeding promotion, education or support
- Their perspective, given their professional experience on those things that are most likely to positively impact an individual's ability to successfully breastfeed
- Their understanding of the reasons people decide not to initiate breastfeeding and whether there are certain populations who are less likely to breastfeed
- The most promising and/or evidence-based policy, systems, and environmental change strategies to address breastfeeding disparities in the United States, especially within states and communities (including legislative needs; specific factors for legislative consideration)
- Culturally-responsive breastfeeding support interventions, as well as cultural factors that should be considered
- Recommendations for modifications to specific settings (i.e., health care facilities, workplaces, etc.) to address breastfeeding disparities

Interview guide for New York breastfeeding experts contained questions pertained to:
- Their personal experience working in breastfeeding promotion, education or support
- Their perspective, given their professional experience on those things that are most likely to positively impact an individual's ability to breastfeed
- Stories from their communities or the population they serve on reasons people decide not to initiate breastfeeding, as well as those who decide to stop breastfeeding earlier than planned
- Their perspective on whether there are certain communities or populations where it is harder to start or continue breastfeeding and those factors that impact breastfeeding in these communities
- Recommendations for how New York organizations and agencies can support individuals who wish to breastfeed, especially those who are less likely to breastfeed – including recommendations for modifications to specific settings

Table 2
Demographic Characteristics of Survey Participants – New York and National Experts, 2021 New York Breastfeeding Disparities Qualitative Research Study.

Geographic Region Served Through Their Professional Role	
New York City	67 (26.5 % of sample)
NY[1] Metropolitan Area	47 (18.6 %)
Central NY	53 (20.9 %)
Western NY	40 (15.8 %)
NY Capital District	35 (13.8 %)
More than one NY region	8 (3 %)
National Expert Outside NY	3 (1 %)
Workplace Setting of Participant	
Healthcare	96 (33 % of sample)
Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	115 (39 %)
Academia	9 (3 %)
Community-based Organization	44 (15 %)
Government Agency	18 (6 %)
Other (private lactation consultant practice; national and statewide non-profit organization; home-visiting)	13 (13.4 %)
Breastfeeding Promotion Experience (years)	
0–1	30 (11.9 % of sample)
2–5	61 (24.1 %)
6–10	48 (19.0 %)
More than 10	112 (44.3 %)

[1] NY=New York.

vary and exist within races, ethnicities, and cultures; a recommendation supported by recent research (Marks et al., 2023).

Participants noted that breastfeeding disparities also exist for individuals with disabilities or with chronic conditions. Significant concerns were raised for individuals from the deaf community due to the lack of providers who are trained to assist them. A participant emphasized, "There is a big disparity in working with deaf moms who want to breastfeed. They'd like to breastfeed, but they need help, and there aren't many certified lactation counselors (CLCs) or International Board Certified Lactation Counselors, or even nurse CLCs [who] can sign, and it's challenging to have to have an interpreter in there to teach breastfeeding. With the CLC, a number of them have tried to take the CLC certification course through Healthy Children, and it's not available in closed caption or any way for either deaf doulas or deaf other health care professionals that want to take the course."

Participants emphasized the need to provide support to individuals from communities who have historically experienced difficulties accessing the healthcare system due to discrimination or structural barriers, including members of the lesbian, gay, bisexual, transgender, queer, intersex, asexual, and more (LGBTQIA+) community. There is increasing recognition that breastfeeding support must become more inclusive, as demonstrated by a participant who stated, "I am aware that there are chestfeeding and breastfeeding individuals who do not necessarily go under the title of woman or female……and you have to have an understanding of the culture and the language in order to successfully work in that area."

Analysis by geographic location found that study participants providing breastfeeding services in rural areas expressed greater concerns about the lack of available breastfeeding services, lack of transportation and accessibility to services for birthing people, an aging lactation counseling workforce with a limited pipeline, more conservative beliefs about breastfeeding in public, and the strong influence of external family members on the birthing person. As stated by one participant, "Rural moms have a lack of access to free support services if they fall above the WIC income threshold." Although some participants recommended there be more telehealth lactation services to address accessibility issues, it was acknowledged that many in rural areas "don't

have internet access or can't afford to pay for Internet access."

A common concern expressed by participants was the racism and discrimination displayed by some health care providers who may have preconceived ideas about which individuals are more or less likely to be successful at breastfeeding. Because of time constraints, this may impact who the healthcare provider chooses to support, or how much time they spend. In addition, participants noted that the healthcare workforce, especially lactation counselors, is not diverse. To improve breastfeeding support, it is important that healthcare and lactation providers represent the people in the communities most likely to experience disparities. Participants acknowledged there are significant barriers associated with lactation counseling training and certification (e.g., time, cost, exams available only in English).

Addressing workplace challenges is also seen as key to closing the breastfeeding disparities gap. Many participants stated that if an employee does not feel their decision to breastfeed will be supported upon their return to work, they may not even try to initiate breastfeeding. Participants discussed the challenges of those working multiple jobs, having employers who do not know and/or follow laws related to workplace lactation accommodations, and/or working in settings that are not supportive. Examples of jobs where it is difficult to take regular, private breaks to express breastmilk include bus drivers, fast food workers, grocery store workers, and public safety personnel. The K-12 education sector was also mentioned because of the lack of lactation support, limited/no time for lactation breaks or lack of private lactation space. Participants shared stories of teachers pumping behind classroom white boards or in their cars in the school parking lot. Table 3. lists breastfeeding barriers, themes identified, and exemplar quotes.

The recommendations provided on how best to end breastfeeding disparities in New York are summarized in Table 4. Study participants emphasized the need to use a social ecological approach to identify and address these disparities, which is consistent with how other maternal and child health-related issues and their interventions have been conceptualized (Salm Ward and Doering, 2014). Consequently, Tables 3 and 4 are arranged by social ecological level and setting.

4. Discussion

Study participants emphasized that breastfeeding education and support prenatally through the postpartum period are critical for the birthing person and their close partners/family members, and has been shown to result in improved breastfeeding outcomes (U.S. Preventive Services Task Force, 2016). Normalizing breastfeeding was noted by all participants, with many participants expressing support for additional breastfeeding education for the general population and a breastfeeding campaign statewide or in local communities, using culturally and linguistically responsive messages (e.g., billboards, buses, social media); a recommendation also supported by the literature (Hirani, 2021). It was repeatedly recommended that healthcare providers, especially obstetricians, gynecologists, and pediatricians, receive more education and training about breastfeeding and providing lactation support. This is reiterated in other studies focused on reducing breastfeeding barriers in the clinical setting, especially among racial and ethnic groups who often experience discrimination in this setting (Davis et al., 2021). There were numerous examples of individuals with low milk supply or poor infant weight gain who were told to stop breastfeeding or start using formula instead of being referred to a lactation counselor. Study participants strongly recommended lactation education during residency and continuing education for all clinicians who may be promoting or providing breastfeeding education or support to pregnant/birthing/postpartum people. In recent studies, lactation education training has been effective in increasing clinicians' knowledge and perceived confidence in providing breastfeeding support (Albert et al., 2017).

Many participants stressed the need to diversify and expand the lactation counseling workforce by recruiting people from the communities most impacted by breastfeeding disparities and reducing barriers

Table 3
Breastfeeding barriers by social ecological level – Themes and exemplar quotes from research participants – 2021 New York Breastfeeding Disparities Qualitative Research Study.

Social ecological level or setting	Theme	Exemplar quotes
Individual/ Intrapersonal Level	Key themes: • Difficult pregnancy or birthing experiences • Lack of prenatal and postpartum education Additional themes: • Age factor (e.g., teens) • Cultural beliefs that breast milk is not enough • Personal, mental and physical well-being • Medication and misinformation on contraindications • Substance abuse • Fear of pain or discomfort • Personal choice/ convenience • Victims of domestic violence, personal trauma • Tongue tie	• "I think people who have had difficult pregnancies and difficult birth experiences, it ends up being just one more thing on a very difficult path, that's just sometimes a little bit too much and they say 'I just can't do this." • "I think that prenatal counseling is so important as far as the health benefits. I don't think in some cases that women are knowledgeable about the health benefits and consider formula equivalent to breastfeeding." • "Mothers do not receive instruction on how to properly breastfeed or how to manage any pain that may come with breastfeeding. They are not aware of techniques that may help them work through pain or get more milk or even how to properly hold the baby. Some women may think they aren't producing enough because they just don't have the education of what is 'normal' or 'right.' Women get frustrated with these setbacks so they just stop."
Interpersonal	Key theme: • Unsupportive personal networks Additional themes: • Single individuals • No family history or role models • Negative stories from family or friends • Family members wanting to share in the "feeding" to bond with the child • Perception of the use/ purpose of breasts • Balancing demands of family life, multiple children	• "I think that some cultures are not particularly encouraging of breastfeeding. It's just less common, women didn't see their sisters doing it, their friends doing it." • "Family could not successfully breastfeed and sharing bad stories reduces their confidence to try breastfeeding."
Community Level	• Community norms – -Feelings of unacceptance -Formula use is the "American way" • Lack of community resources	• "So, for example, some immigrant women may decide that they're not going to breastfeed because even if they've breastfed previous children in their home country, because they think that formula is the American way, they want to assimilate." • "But I think there's also - what does it look like in the community? When it's not the middle of COVID,

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Table 3 (*continued*)

Social ecological level or setting	Theme	Exemplar quotes
		can I go out and get a cup of coffee and feed my baby at the restaurant, or the coffee shop or whatever it is? Or can I take my baby with me…or I will take my baby with me when I'm in the grocery store or, you know, shopping for school clothes for my other kids and the baby's hungry what happens when I just pull over the little cart and plug the baby in? What are the messages that are sent?" • "You get support you need in the hospital, but then when you leave the hospital there's such little support out there."
Healthcare Sector	Key themes: • Lack of culturally competent provider education • Lack of cultural and structural competence • Lack of diverse providers to serve diverse populations – including: Barriers to becoming certified as lactation counselors such as cost, language • Lack of medical provider support – including: 1. Mixed messaging with formula promotion in offices 2. Competing influences from family members 3. Less support for overweight women 4. Conflicting guidance from medical providers and lactation professionals 5. Lack of staff who are representative of the community they serve 6. Assumptions individual will not want to breastfeed in subsequent pregnancies 7. Separation of birthing individual-infant after delivery 8. Not knowing when/where to refer 9. Use of formula to manage complex, challenging cases or low weight gain 10. Providers and lactation consultants not working together • Implicit bias • Lack of health insurance coverage for high quality breastfeeding supplies • Need for more Baby-Friendly Hospitals in underserved areas and accountability in implementation • Formula availability - Formula promotion in hospital and doctor office, samples from registries Additional themes:	• "Many of the images that we see…we talked about the breast and we say, 'If the breast is pink, know more about this.' What does a brown breast look like? So there are things that health professionals aren't taught to look at when they're taught about mastitis and when they're talking about (other breast conditions). It is only against the white breast and they aren't trained enough to detect some of those very same problems in the black or brown breasts. Do they manifest themselves a little bit differently in a different colored breast? And is that incorporated in the training that we're doing?" • "We *really* (need) to work at diversifying the workforce in lactation support. I can normalize my experience, but there is missing context as I am a white woman who comes from a privileged background. We need more non-English speaking CLCs[1]/IBCLCs[2]! We need more BIPOC[3] CLCs/IBCLCs. We need more support groups that center on the experiences of marginalized communities." • "But the support piece I think is a really big part of it because when a health care system tells people you should breastfeed, but then we don't offer breastfeeding support within the system, we're basically saying 'You should, but it's not actually important, like it doesn't really matter

Table 3 (*continued*)

Social ecological level or setting	Theme	Exemplar quotes
	• Lack of mental health support and counseling • Limiting to "breast is best" messaging • Use of formula to manage complex/challenging cases	because we're not doing anything to make that happen for you. Not doing anything to educate you; we're not doing anything to support you, and when you do have problems, we're going to offer you formula instead.' That really kind of sends the opposite message of the words 'You should breastfeed." • "And then, I see there being a big difference between women who are able to get a breast pump that has a high-quality motor versus a breast pump that does not have a high-quality motor." • "So, the marketing, I think the marketing formula companies are very insidious, and I think that also, you can get a prenatal appointment at your doctor and a week later you will get a case of formula delivered to your door, so I think that has a lot to do with it."
Specific Setting: Workplaces	• Returning to work – including: 1. Accommodations not being provided, particularly in service industries, schools (for both staff and students), and healthcare settings; 2. No dedicated lactation space; 3. Unsupportive supervisors/ employers; 4. No flexibility with breaks; 5. Birthing individuals unaware of policies that would support them at work; 6. Birthing individuals' perceptions that they will not be supported when returning to work; 7. Fears of losing job; 8. Paid Family Leave – including: Limited or no paid leave benefits due to type of job/part-time work; Unable to take full paid leave for financial reasons; -Leave benefits insufficient for low SES[4] individuals	• "Moms think that if they're going to have to jump through all these hoops that seem impossible 'What's the point in even starting to breastfeed?" • "If an individual is fortunate enough to have Paid Family Leave, that's one thing, but others have to rush back to work shortly after having a baby." • "I mean I've heard these crazy stories about women in certain positions like a bus driver story where she said … 'we get a 15 minute lunch break to pump and couldn't efficiently do it in 15 minutes plus' - Where did she go? She ended up in the emergency department so engorged that she could not get the milk out because her job didn't support her."
Specific Setting: Childcare	• Lack of support within the childcare setting • Childcare not on site of the workplace	• "Childcare staff or directors feel like they're dealing with some sort of toxic substance when [parents] bringing in breast milk. But it's almost like bodily fluids coming out of a person. Family daycares especially will not accept babies that are breastfed because they don't want to deal with people's breast milk."

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Table 3 (*continued*)

Social ecological level or setting	Theme	Exemplar quotes
Social determinants of health	• Lack of transportation • Housing insecurity • Poverty / Low income • Safety Issues • Lack of Education • Food insecurity • Systemic Racism	• "The other thing is, if they're in a house that they don't need to be in that house. Rats, roaches every kind of thing that you would not want to live with is in that house, they're too busy fighting off those things where it's just, they can't store their milk. They can't leave anything out for a few minutes." • "Several unmet basic needs: housing, work, safety, food, those living in shelters sofa surfing - their day is tenuous, they don't know what the day is going to look like."

[1] CLC=Certified Lactation Counselor.
[2] IBCLC=International Board Certified Lactation Counselor.
[3] BIPOC=Black, indigenous, and people of color.
[4] SES=Socioeconomic status.

to their receiving training and certification. This recommendation is also stressed in the literature (Asiodu et al., 2021).

Participants discussed the *Baby-Friendly Hospital initiative* (Baby-Friendly, 2024) and stressed that incrementally implementing the "*Ten Steps to Successful Breastfeeding*" (WHO, 2024) may be more impactful than achieving the Baby-Friendly Hospital designation. A systematic review conducted by Pérez-Escamilla et al. (Pérez-Escamilla et al., 2016) found a dose–response relationship between the likelihood of improved breastfeeding outcomes and the number of Baby-Friendly Hospital initiative's Ten Steps to Successful Breastfeeding to which women are exposed. In addition, ensuring community breastfeeding support (Step 10), was essential to sustaining these impacts in the long term.

Some participants expressed concern that Baby-Friendly Hospitals are not adequately funded to support the continued implementation of the steps, and there may not be enough accountability during the five years between designation and re-designation. Some participants also expressed concern that Baby-Friendly Hospitals are more commonly located in areas where breastfeeding rates are already high, which may lead to increasing disparities.

Participants said that lactation support needs to be available "24/7" and available in different settings. Virtual lactation support was seen as an additional option (not a substitute), to be provided when in-person options are not available. An example is the Washington D.C. WIC program which provides participants with no-cost access to the Pacify app which offers 24/7 virtual support (DC Women, Infants, and Children, n.d.). Easily accessible lactation services, such as Baby Cafés (Jenkins et al., 2020) and peer support groups, should also be available in community settings.

Continued efforts to provide improved lactation accommodations within the workplace are needed. Although there are state and federal laws to protect and support breastfeeding employees, the majority of participants stated that many employers still do not know or implement these laws. It is often left to the breastfeeding individual to file a report when their employer is not in compliance. Participants felt this was unrealistic and that the responsibility for enforcing the laws should not be placed on the employee. Employers should be required to provide reasonable breaks and adequate, private lactation space that is not a restroom, as well as refrigerators for breastmilk. Notably, returning to work has been found to be the most frequent barrier to breastfeeding reported by African American women (Johnson et al., 2015).

Table 4
Overview of recommendations on how best to address breastfeeding disparities in New York State – Synthesis of findings from 2021 New York Breastfeeding Disparities Qualitative Research Study.

Social ecological level or setting	Recommendation
Individual/ Intrapersonal Level	• Provide more education to individuals before and after pregnancy on the benefits of breastfeeding, mechanics of lactation • Provide information on where to access resources about Break Time for Nursing Mothers and Nursing Employers in Workplace (New York State Labor law for worksite accommodations); ensure education is culturally responsive • Start breastfeeding and lactation education early, including in the Kindergarten-12th grade school system • Provide mental health support
Interpersonal	• Provide more educational opportunities for immediate and extended family members on the benefits of breastfeeding, how to support the breastfeeding individual and where to access resources
Community Level	• Work with business partners to normalize breastfeeding and increase breastfeeding support by customers as well as employees • Increase access to breastfeeding resources and lactation rooms in the community to meet individuals where they are (e.g., churches, schools) • Expand services provided by other agencies and support groups to address social determinants of health (e.g., transportation, food insecurity) • Incorporate diversity into breastfeeding promotion activities • Incorporate community partners in breastfeeding promotion • Conduct a widespread breastfeeding awareness campaign across sectors to normalize breastfeeding in every setting
Healthcare Sector	• Provide training and continuing education opportunities to healthcare providers (across the continuum of care and especially in obstetrician, gynecologist, and pediatric offices) on how to deliver culturally and linguistically appropriate care to support breastfeeding • Expand lactation services in the community as well as through home visiting; provide breastfeeding support hotlines and telehealth - ensure services are accessible 24 hours per day and 7 days a week • Increase the diversity of certified lactation counselors and consultants to better meet needs of population (e.g., language spoken, LGBTQIA+[1] community, persons with disabilities including persons who are deaf or blind, etc.) • Provide training and scholarships for exams; offer the exam in languages other than English; ensure lactation counselors represent the communities they serve • Ensure accountability for Baby-Friendly Hospitals and include a greater focus on the "Ten Steps to Successful Breastfeeding;" provide funds for wider implementation in areas of the state with greatest need
Specific Setting: Workplaces	• Educate administrators and supervisors about NYS[2] Labor Law requiring accommodations for breastfeeding employees and how to support employees when they return to work • Ensure employers comply with NYS Labor Law providing paid and unpaid time and accommodations-potentially through penalties or incentives; conduct campaign to raise awareness about the law • Provide mechanisms to report lack of compliance with NYS Labor Law for workplace accommodations and disseminate information on how to report employer noncompliance through different settings, not just the workplace • Work with service industries and schools to increase accommodations in the workplace for nursing employees

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Table 4 (*continued*)

Social ecological level or setting	Recommendation
	• Ensure workplaces have private lactation spaces and allow sufficient number and duration of breaks for breastfeeding employees
Specific Setting: Childcare	• Provide education and resources to support breastfeeding/chestfeeding families in childcare settings • Improve worksite flexibility to allow for increased access to childcare • Encourage employers to include childcare services as a benefit
Funding Suggestions	• Expand and increase funding for: community collaborations and partnerships; Baby-Friendly Hospitals; community lactation support for rural and other high need areas; *Breastfeeding, Chestfeeding, and Lactation Friendly New York* (a state-funded initiative to support locally coordinated efforts)
Policy Suggestions	• Enhance New York Paid Family Leave benefits (increase amount of time) and job protections • Work to fully implement the workplace lactation accommodations provisions in the federal Affordable Care Act • Expand continuing coverage and insurance for lactation support, home visiting, telehealth, and lactation supplies • Expand breastfeeding/chestfeeding metrics collected and reported beyond birth hospitalization and provide local data to communities to use for advocacy and monitoring

[1] LGBTQIA+ = Lesbian, gay, bisexual, transgender, queer, intersex, asexual and more.
[2] NYS=New York State.

Regarding policy supports, new federal and New York state legislation was enacted since the conclusion of this study. New York's Labor Law strengthened workplace protections for breastfeeding employees and requires that employers distribute a written policy developed by the New York Department of Labor regarding employee rights to express breastmilk in the workplace (New York State Department of Labor, 2024). Paid Family Leave policies were frequently discussed by study participants. Although Paid Family Leave policies can be helpful in supporting new parents to breastfeed, participants discussed gaps in the laws (e.g., limited eligibility, length of leave, and benefits provided). Participants also acknowledged the lactation support and supplies covered under the Affordable Care Act (U.S. Department of Labor, n.d.) but discussed its shortcomings, especially related to the lack of uniform implementation of its provisions related to breastfeeding counseling and supplies. Additionally, they felt that insurance, including Medicaid, needed to provide more breastfeeding support, cover higher-quality breast pumps, and increase coverage of lactation counselors or consultants, midwives, and doulas. There was significant support for governmental action to limit formula marketing in all settings, especially the hospital setting. Finally, although breastfeeding-specific interventions were recommended by study participants, there was widespread acknowledgement that the social and commercial determinants of health must be addressed more broadly to successfully end breastfeeding disparities in New York. This recommendation aligns with other experts focused on reducing national breastfeeding disparities (Standish and Parker, 2022).

This study has many strengths due to the study design, however, there are some limitations. The study was conducted in 2021, and thus, the data represent the perspectives at this distinct point in time during the COVID-19 pandemic – a time that disrupted many social and medical services (Papautsky et al., 2021). The majority of participants had been working in breastfeeding promotion for many years, however, and were able to draw on their extensive experience. The study did not include pregnant/birthing/lactating people who might have been able to validate the barriers or confirm the recommendations identified by study participants. Nonetheless, efforts were made to recruit participants who worked directly with priority populations throughout the state, especially from communities most likely to experience disparities. Although the study sample is fairly large, a longer timeframe may have allowed recruitment of experts serving additional populations who experience breastfeeding disparities that are not as well understood, such as Indigenous populations, immigrants/refugees, LGBTQIA+ individuals, and/or persons with disabilities.

Key informants may have experienced recall bias of the experiences by breastfeeding individuals. Data collection instruments were only available in English, which may have excluded experts whose primary language was not English. However, we did collect data from health care providers who provide support and services to the Latino and Hispanic populations in New York, and we were willing to use a translation service if requested. The lack of racial/ethnic diversity of the research team could have had an unforeseen impact on data collection or analysis. Finally, although the data collection instruments were carefully designed, they may have benefitted from additional pilot-testing.

5. Conclusions

This study captured the perspectives of 298 New York and national breastfeeding experts in 2021. Data were collected during a pandemic, which has likely exacerbated New York breastfeeding disparities, (New York Pediatric Nutrition Surveillance System, 2021) as it has for most other health-related disparities. Participants acknowledged that New York state has taken steps to support birthing individuals, however, they made many recommendations to further support these individuals, especially those most at risk of experiencing breastfeeding challenges.

Although addressing breastfeeding disparities pertaining to race and ethnicity was a focus, participants emphasized the role that implicit biases and historical and systemic racism play, and that these factors have contributed to structural barriers, the social determinants of health, and a lack of access to services. Participants described numerous examples of immigrants and refugees who would have breastfed in their home countries but after arriving in the United States, adopted formula feeding as "the American way," and did not breastfeed, demonstrating the adverse impact the culture may have on breastfeeding.

Participants also acknowledged breastfeeding disparities among other groups, including people working in certain types of jobs, individuals who have disabilities, mental health issues, or have experienced trauma (e.g., domestic violence, sexual abuse), or individuals from communities who often experience barriers in accessing culturally appropriate healthcare (e.g., the LGBTQIA+ community). Additional research to identify the most effective and specific interventions to address breastfeeding disparities for each of these groups is needed.

This study provides recommendations to address breastfeeding disparities in New York. Many of these recommendations could serve as the basis for interventions. However, before interventions are developed, members of the priority population should be engaged in future research to ensure that interventions are responsive to their needs, assets, and culture. Their communities should also be involved in implementing and evaluating any actions taken to support them.

Author contributions

CB, LR, and BE were involved in the conceptualization, data curation, and formal analysis for the study, and contributed to the original draft of this manuscript. MS and BAD were involved in the conceptualization and funding acquisition for the study and contributed to the original draft of this manuscript. All authors approved the final manuscript.

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Credit authorship contribution statement

Christine T. Bozlak: Writing – original draft, Supervision, Project administration, Investigation, Formal analysis, Data curation, Conceptualization. **Lindsay Ruland:** Writing – original draft, Project administration, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Britnee Eskew:** Writing – original draft, Project administration, Formal analysis, Data curation, Conceptualization. **Maureen Spence:** Funding acquisition, Conceptualization. **Barbara A. Dennison:** Funding acquisition, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

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