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Maternal and infant health in disasters: Texas's high-risk landscape

Disasters are events in which "widespread disruption and damage to a community exceeds its ability to cope and overwhelms its resources."[1] The people of Texas have experienced more than disruptions—they know that disasters can impact their families and communities. Disasters can also cause physical trauma for pregnant people and infants[2] and are associated with other complications in pregnancy and birth.[3]

In 2017, approximately 100,000 homes along the Texas gulf coast were destroyed by Hurricane Harvey. Many communities were still reeling from Hurricane Harvey when in February of 2021, Winter Storm Uri caused millions to lose access to electricity during life-threatening cold temperatures across the Northwest and into the Southern United States. The historic winter storm was linked to the deaths of 210 Texans, primarily from hypothermia, vehicle crashes, carbon monoxide poisoning, and chronic medical conditions compounded by the severe weather. Of the deaths attributed to the storm, at least one child froze, and three others died from a house fire after using their fireplace to keep warm after losing access to electricity.

Disasters can exacerbate pre-existing structural vulnerabilities[4] which is a serious concern for maternal and infant health in Texas. In addition to pediatric health concerns, maternal mortality doubled in Texas between 2011 and 2012, causing a renewed concern about the root causes of maternal deaths. However, there has been less attention on the topic of maternal and infant well-being in disasters, and how to prevent harm in disasters for this specific group of the population.

One way to reduce disaster vulnerability is to promote public health practices prior to disasters happening. For example, breastfeeding is the safest way to feed a baby in a disaster or crisis setting because it prevents dehydration, facilitates bonding between the caregiver and infant, and reduces the risk of infection.[5] Despite the considerable safety of breastfeeding in emergencies, formula companies have used disasters for mass distribution and marketing of infant formula and remain unregulated in the United States context. Free infant formula samples arrive in the mail through lists of names obtained and shared by maternity product companies and sold to infant formula companies. (The first iteration of this paper was written before the shortage of infant formula in the United States in 2022. The shortage highlights the importance of furthering research on infant feeding in emergencies including aspects of logistics, distribution, and risk communication). This aggressive marketing is not unlike marketing by big tobacco used between the 1950s through the present, often specifically targeting minority and low-income communities. The result of aggressive breastfeeding marketing tactics toward minority communities has resulted in lower baseline rates for breastfeeding for Hispanic, Black, and Indigenous women,[6] who also experience higher rates of property damage, displacement, and death during disasters.[7]

In addition to marketing formula post-disaster, supplies, support, and space for pregnant and lactating families are often not central in planning or preparedness within evacuation shelters. Specifically, breastfeeding space should be included in emergency sheltering space, as well as supplies for sanitizing infant bottles. While WIC volunteers may be at some emergency shelters, it is also unclear what protocols are in place to ensure evacuees receive the specific support they need after leaving the shelter. Past research suggests that an evacuation can change access and decisions about infant feeding.[8]

Evacuating far away from a health provider, such as a trusted pediatrician or lactation support person, can negatively impact breastfeeding. During the COVID-19 pandemic, respondents in a more recent study indicated that being discharged from a hospital earlier interrupted their access to lactation support services.[9] Lactation support and infant feeding are not only of concern in emergency shelters but for families who shelter-in-place or who evacuate to hotels, family, or friends. Power outages from disasters like Winter Storm Uri or Hurricane Harvey can be devastating, resulting in thawed stored breastmilk and food insecurity for young children. Power outages and subsequent effects like water quality can also affect maternal access to healthy foods and clean water to support lactation, prepare infant formula, or sanitize bottles.

Together, these findings suggest that when barriers to breastfeeding support are higher, infant feeding is impacted and will require emergency managers, health care professionals, and maternal health support providers to focus on infant feeding and maternal needs for emergencies and disasters. This problem also reflects an overall system of emergency management and disaster services that do not support the critical needs of pregnant and birthing people, as well as infants.

The link between healthcare legislation maternal and infant health

Texas passed several aggressive abortion laws in September 2021, including the "fetal heartbeat bill," which bans abortion at the point of the first detectable heartbeat, usually occurring around six weeks of pregnancy. Then, in May of 2022, documents were leaked suggesting Supreme Court support for overhauls in federal abortion policy.[10] In addition to the passing of aggressive reproductive healthcare laws, some crisis pregnancy centers used disasters like Winter Storm Uri or, more recently, Hurricane Ida as an opportunity to outreach to potential clients in crisis. While some of these centers might provide free or low-cost diapers, support groups, or counseling services, they also have significant harmful impacts on women, pregnant people, and teenagers. While some of the crisis centers provide infant formula, it is unclear to what extent they have capabilities and expert training for lactation support services. Instead of providing comprehensive, evidence-based care and clinical information to women regarding their pregnancy, crisis pregnancy centers remain free from regulatory oversight and license requirements that traditionally apply to health care clinics and hospitals,[11] ultimately persuading women into making choices that best align with center beliefs, instead of that of the client.

Findings from research suggest an association between restrictive abortion policy and maternal health outcomes, specifically that states with stricter abortion policies showed higher maternal mortality rates.[12] Regarding COVID-19, pregnant women have an increased risk for severe illness or death from COVID-19, which disproportionately affects Black and Hispanic women and women with underlying medical conditions like diabetes.

Pregnant women continue to have one of the lowest vaccination rates in the country, around 25% of eligible women as of September 2021,[13] with vaccine hesitancy and misinformation, primarily from social media, representing common reasons for vaccine refusal. This may also be why also as of September, Texas ranked among the nation's highest for pediatric COVID death tolls.[14] In Texas, mitigation of the coronavirus has been controlled by politicization rather than research-based mitigation policies. Despite the widespread acknowledgment that COVID-19 has more severe consequences for pregnant women than non-pregnant women, the Texas Department of State Health Services does not currently collect vaccination data on pregnant women or collect data on COVID-19 hospitalizations or deaths for the vulnerable group.[13] Without state data, it will be more difficult to track the effect of COVID-19 infection and vaccination within the pregnant population in Texas.

Future questions on the state of maternal and infant health in crises and disasters

In a state like Texas that is prone to public health legislation that harms reproductive care, hurricanes, and other hazards, it is important to gather comprehensive data about the specific ways in which disasters impact maternal and infant health. For instance, while there were secondhand stories about infant sleep and warmth concerns during the Texas ice storm, it is not clear what the long-term impacts might have been to families who experienced power outages and psychological stress. If hurricane or ice storm exposure increases instances of formula feeding, how will this change long-term health outcomes for caregivers and infants? When patients are separated from their prenatal care providers in disasters, what are the long-term implications? What is the impact of psychological trauma associated with the pandemic and hazard events on maternal and infant well-being?

While federal programs such as Women, Infants, and Children (WIC) and state health outreach programs such as Hear Her are designed to improve health outcomes, there is still a lack of clarity around the specific impacts of disasters on maternal and infant health. The guidance for Mass Care, Emergency Assistance, Temporary Housing, and Human Services should include specific guidance for supporting maternal and infant health. This would include assessments at sheltering sites, comprehensive support services including lactation and feeding support, mental health referral services, and social services to connect evacuees and disaster survivors with the appropriate maternal and infant health care.

Our call to action for Texas and disaster planning for maternal and infant health includes four main steps:

1. Data collection by the Texas Department of State Health Services on COVID-19 hospitalizations and deaths among pregnant and birthing people.
2. Comprehensive COVID-19 vaccine outreach for pregnant and birthing people.
3. Data gathering and analyses of maternal and infant stress indicators after disaster events such as Winter Storm Uri, Hurricane Harvey, and other significant hazard events.

4. Emergency management and shelter managers to outline clear protocols for supporting lactation and infant feeding in disaster evacuations and providing long-term support after the disaster. Shelter and disaster responders should be trained in Infant and Young Child Feeding in Emergencies (IYCFE).

Through these steps, families will be healthier after disasters. Supporting reproductive care is critical, especially in areas prone to natural hazard events. These policies should also center on the needs of marginalized groups such as Black, Hispanic, and Indigenous people to ensure health access and thriving communities, especially in the context of the on-going COVID-19 pandemic.

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Sarah E DeYoung: Conceptualization; Writing—original draft.
Roni J Fraser: Conceptualization; Writing—review & editing.
Logan Gerber-Chavez: Conceptualization; Writing—review & editing.

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ORCID iD

Roni J Fraser https://orcid.org/0000-0002-6981-9677

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Sarah E DeYoung[1], Roni J Fraser[1] and Logan Gerber-Chavez[2]
[1]Disaster Research Center, Department of Sociology and Criminal Justice, University of Delaware, Newark, DE, USA
[2]Disaster Research Center, Joseph R. Biden, Jr. School of Public Policy and Administration, University of Delaware, Newark, DE, USA

Corresponding author:
Roni J Fraser, Disaster Research Center, Department of Sociology and Criminal Justice, University of Delaware, 3323 Ashleys Way, Marion, TX 78124, USA.
Email: rfraser@udel.edu