



Pregnancy-related Anxiety During COVID-19: A Nationwide Survey of 2,740 Pregnant Women





Maria Muzik, MD, MS

Associate Professor, University of Michigan
Department of Psychiatry
and Department of Obstetrics and Gynecology
Co-Director, Zero To Thrive and
Women and Infants Mental Health Program (WIMHP)
Medical Director, Perinatal Psychiatry Service
Medical Director, MC3 Perinatal



Pregnancy-related anxiety during COVID-19: A nationwide survey of 2,740 pregnant women

Maria Muzik, MD, MS

Cheryl A. Moyer, PhD, MPH

Sarah D. Rominski, PhD, MPH

Elizabeth Kaselitz, MSW



Overview

- **Genesis of the Project**
- **Description of the sampling / implementation**
- **Description of the survey itself**
- **Results**

Genesis of the project

Michigan reports nearly 1,000 new COVID-19 cases, largest daily jump yet

[Craig Mauger and Sarah Rahal](#), The Detroit News

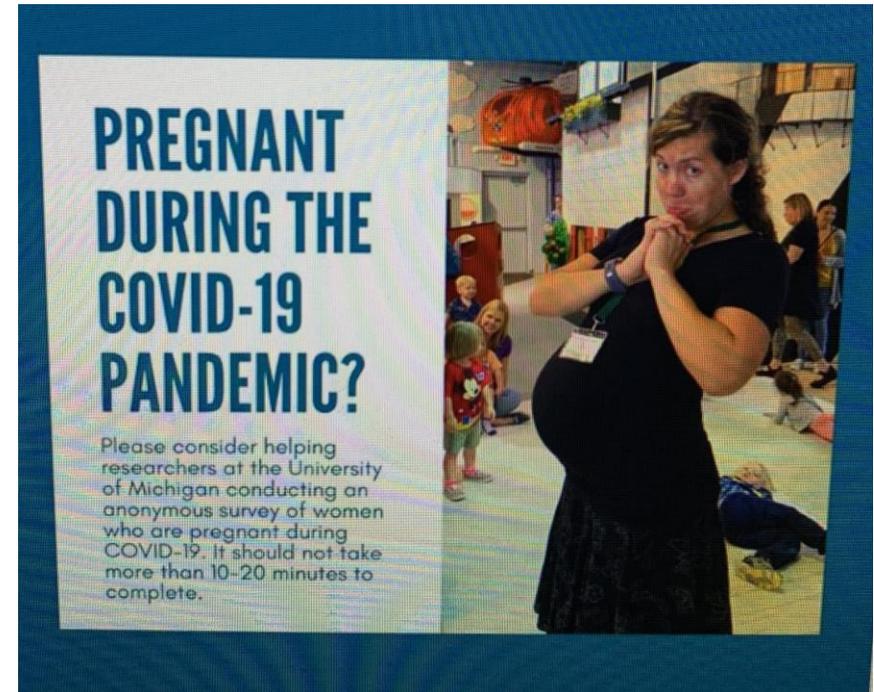
Published 3:03 p.m. ET March 28, 2020 | Updated 8:51 p.m. ET March 28, 2020

Lansing — The number of confirmed COVID-19 cases in Michigan grew by nearly 1,000 on Saturday — the largest single day jump since the state announced its first case on March 10. While the numbers are climbing statewide, they continue to spike particularly in Detroit and surrounding areas in southeast Michigan. The state's largest city now has 1,377 confirmed cases up 302 new cases from Friday. [Detroit Mayor Mike Duggan said the numbers](#) "are going to get a lot worse" as more people get tested for coronavirus.



Our question:

Given changes in prenatal care, reduced contact with providers, and uncertainty regarding delivery protocols, how are women feeling?



We launched a brief, anonymous, online survey of pregnant women on April 3.

Survey was open for a 3-week period.

Distributed via Facebook, Twitter, other social media platforms, and pregnancy-specific professional communities.

Sampling

Tweets Tweets & replies Media Likes



Cheryl A. Moyer, PhD, ... · 4/2/20 ▾

Pregnant during COVID-19 pandemic?

Share your experience.

umich.qualtrics.com/jfe/form/SV_6J...

We are conducting an anonymous survey of women pregnant during COVID-19. It should not take more than 10-20 minutes to complete. Please tell us your story or forward to other pregnant women.

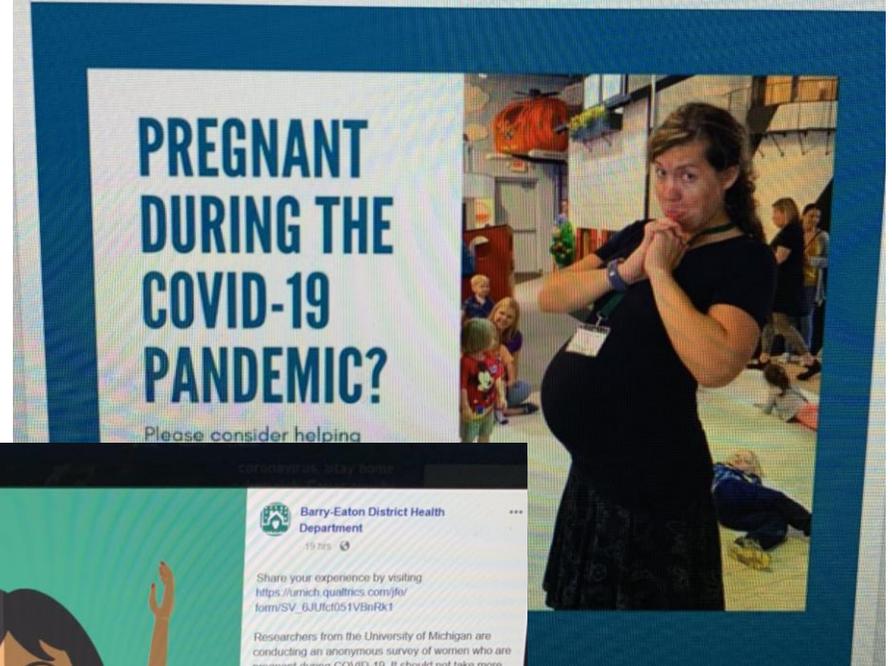
1 6 6

5 to ONE Neighborhood Network
21 hrs · 🌐

Pregnant during COVID-19 pandemic? Researchers at the University of Michigan want to hear from you. Share your experience.

https://umich.qualtrics.com/jfe/form/SV_6JUfct051VBnRk1

Thank you in advance for telling us your story!



Pregnant during the COVID-19 Pandemic?

Share your experience by visiting https://umich.qualtrics.com/jfe/form/SV_6JUfct051VBnRk1

Researchers from the University of Michigan are conducting an anonymous survey of women who are pregnant during COVID-19. It should not take more than 10-20 minutes to complete. Thank you in advance for sharing your story!

1 Comment 0 Shares

Like Comment Share

Most Relevant

Write a comment

Pregnancy Survey -- Qualtrics, 20 Qs

- **Demographics**

- Age, State/Country of residence, Urban/periurban/rural, education, race, marital status, weeks pregnant

- **Health-related factors**

- Previous health conditions, previous dx of anxiety/depression/MH issues

- **Pregnancy-related factors**

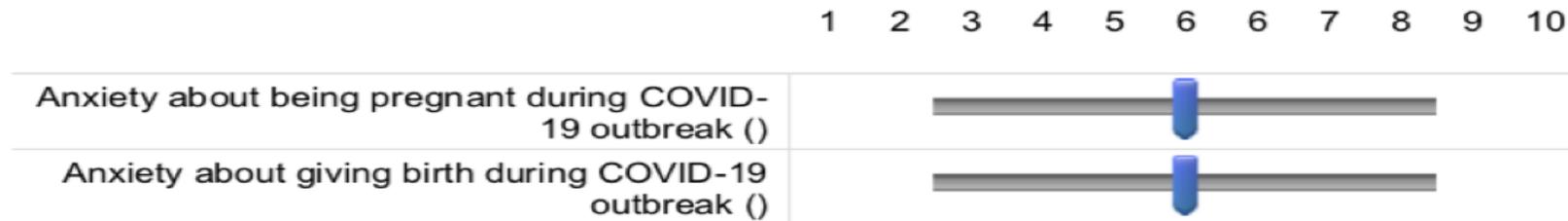
- Number of previous pregnancies, dx with pregnancy-related complications (e.g. preeclampsia), dx with anxiety/depression/MH issues during pregnancy

- **Healthcare utilization factors**

- Number of prenatal visits for this pregnancy; since COVID, stopped face-to-face prenatal care, used video visits for PNC, used phone visits for PNC; previous birth location intention; since COVID, birth location intention

Pregnancy Survey: Assessments of Anxiety

- 10-point Visual Analog Scale r.e. anxiety about **being pregnant** during the COVID-19 epidemic (1 being not at all anxious, 10 being extremely anxious, respondents used a slide bar to answer)
- 10-point Visual Analog Scale r.e. anxiety about **giving birth** during the COVID-19 epidemic



- Open ended: “Can you take a minute to explain your answer? What makes you the most anxious? What keeps you from being anxious?”
- A modified version of the Pregnancy-Related Anxiety Scale (PRAS)

Modified Pregnancy-Related Anxiety Scale (PRAS)

(Rini et al., 1999)

Pre-COVID PRAS

- Before COVID-19, I was confident of having a normal childbirth
- Before COVID-19, I had a lot of fear regarding the health of my baby
- Before COVID-19, I was worried that the baby could be abnormal
- Before COVID-19, I was afraid that I might be harmed during delivery
- Before COVID-19, I was worried about how the baby was growing and developing inside me
- Before COVID-19, I was worried about losing the baby
- Before COVID-19, I was worried about having a hard or difficult labor and delivery
- Before COVID-19, I was worried about taking care of a new baby

All items scored 1-5, Strongly Disagree ->Strongly Agree; Possible range 8-40

Modified Pregnancy-Related Anxiety Scale (Rini et al., 1999)

Pre-COVID PRAS	PRAS during COVID
• <u>Before COVID-19</u> , I was confident of having a normal childbirth	1. I am confident of having a normal childbirth
• <u>Before COVID-19</u> , I had a lot of fear regarding the health of my baby	2. I have a lot of fear regarding the health of my baby
• <u>Before COVID-19</u> , I was worried that the baby could be abnormal	3. I am worried that my baby could be abnormal
• <u>Before COVID-19</u> , I was afraid that I might be harmed during delivery	4. I am afraid that I might be harmed during delivery
• <u>Before COVID-19</u> , I was worried about how the baby was growing and developing inside me	5. I am worried about how the baby is growing and developing inside me
• <u>Before COVID-19</u> , I was worried about losing the baby	6. I am worried about losing the baby
• <u>Before COVID-19</u> , I was worried about having a hard or difficult labor and delivery	7. I am worried about having a hard or difficult labor and delivery
• <u>Before COVID-19</u> , I was worried about taking care of a new baby	8. I am worried about taking care of a new baby

All items scored 1-5, Strongly Disagree ->Strongly Agree; Possible range 8-40

Additional COVID-specific anxiety questions

- Because of COVID 19, I have felt increased stress about...
 - **Food running out** or being unavailable
 - **Losing a job** or decrease in family income
 - **Loss of childcare** / taking care of children at home
 - **Tension / conflict** between household members
 - Myself, my baby, or someone in my family **getting infected** with COVID-19
- Which applies to you?
 - Self or family member **works in healthcare** with potential exposure to COVID
 - Self or family member works in **essential services** that require leaving home
 - Live in a state with **'shelter in place'** orders
 - Have been practicing **social distancing**
 - Live in a community/city with a **high number of COVID-19 cases**

Additional COVID-specific Open-ended questions

- [“Can you take a minute to explain your answer? What makes you the most anxious? What keeps you from being anxious?”]
- “Can you tell us more about how your birth plans been affected? How have your desires and plans for birth changed, and how have they remained the same? “
- “Is there anything else you would like to tell us about your experiences with pregnancy related to COVID-19? “

Results

- 4,200 respondents from 21 countries and 47 states
- 2,740 from the USA with complete surveys
- 333 from outside the USA with complete surveys
 - Norway = 158
 - Canada = 75
 - Australia = 30
- **These results reflect the 2740 respondents from the USA, collected between April 3, 2020 and April 24, 2020 (3-week period)**

some #s by state

- MI=549
- OH=192
- IL=181
- CA=165
- MA=141
- PA=140
- TX=126
- NY=119

Who are these women?

- Mean age: 32.7
- Mean weeks pregnant: 24.3
- % in 3rd trimester: 41.2%
- Mean # previous pregnancies: 1.7
- First pregnancy: 15.6%
- Previous depression / anxiety: **35.9%**
- Pregnancy dxed dep/anx: **5.6%**
- Mean prenatal care visits: 6.5

Region of residence (N=2695)	
Northeast	536 (19.9)
Midwest	1159 (43.0)
South	619 (22.9)
West	381 (14.1)
Area of residence (N=2736)	
Urban	725 (26.5)
Peri-urban	1559 (56.9)
Rural	452 (16.5)
Education (N=2740)	
High school graduate or less	176 (6.4)
College graduate or less	1182 (43.1)
Master's degree	701 (25.6)
Doctoral/professional degree	681 (24.9)
Caucasian Race (N=2721)	2388 (87.7)
Married (N=2740)	2430 (88.7)

What has COVID-19 meant for their care?

26% = Stopped in-person visits for PNC

15% = Used video visits for prenatal care

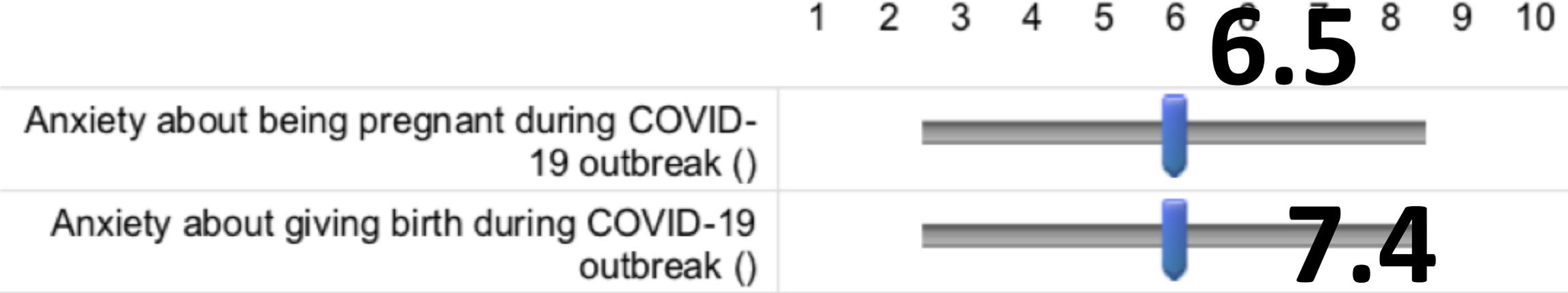
32% = Used phone visits for prenatal care

96% = Planning to deliver in a hospital before COVID

87% = Planning to deliver in a hospital since COVID

What has COVID-19 meant for their anxiety?

- On a scale of 1-10, with 1 being not at all anxious and 10 being extremely anxious....



What are women worried about?

on **Additional COVID-specific anxiety questions:**

60% = fear of food running out or not being available

64% = fear of losing a job or loss of family income

56% = concerns about loss of childcare

38% = stress about increased conflict within the home

93% = fear of self, baby, or family member getting infected

What are women's risks?

41% = self or family member is healthcare worker

46% = self or family member works in essential services

42% = live in a 'high COVID' community

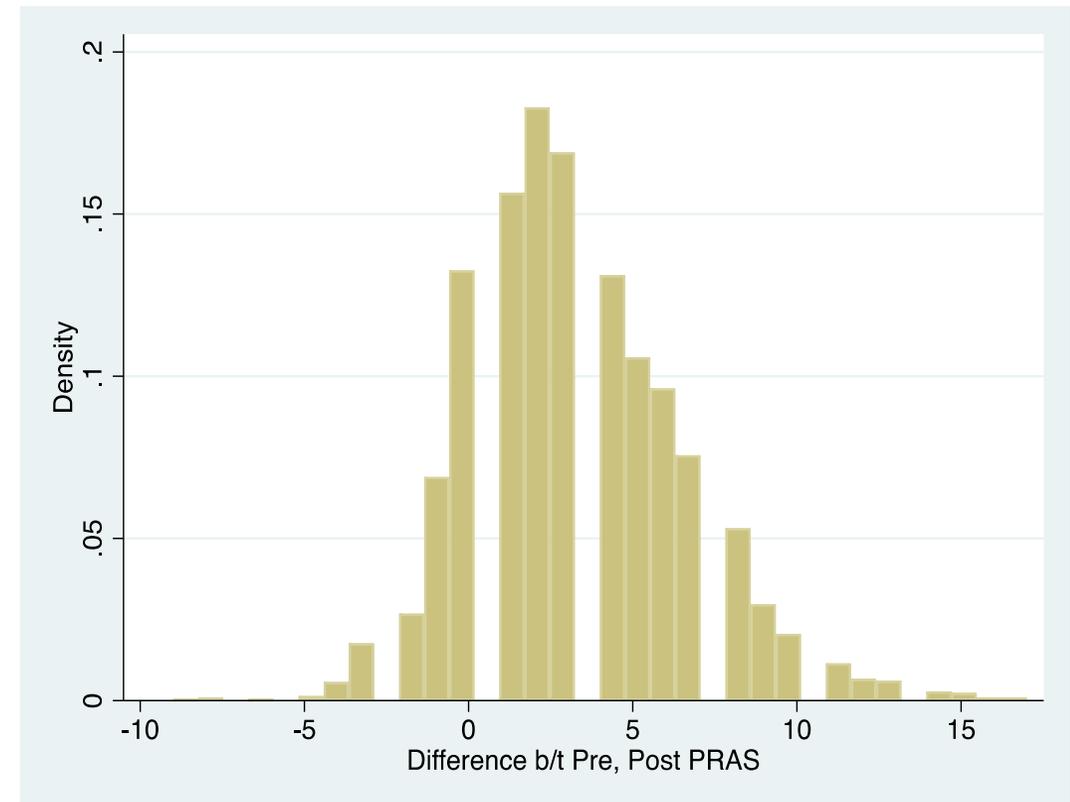
77% = live with 'shelter in place' orders

87% = practicing social distancing

What has COVID meant for their anxiety?

PRAS (Rini et al, 1999)

- Mean Pre-COVID PRAS score: **20.6**
- Mean Post-COVID PRAS score: **23.9**
- **84.6% had higher post-COVID PRAS**
- **in regression analyses we used PRAS change score as outcome**



Bivariate analysis predicting PRAS change score

PROTECTIVE (less change in PRAS)

- Older age
- Greater education
- Married
- Planned a home delivery before COVID
- Planned a home delivery post COVID
- Live with “shelter in place” orders
- Have been practicing social distancing

INCREASES PREGNANCY ANXIETY

- Being in third trimester
- Previous and pregnancy-diagnosed depression/anxiety
- Stopped in-person prenatal visits
- Used phone visits for prenatal care
- Since COVID moved birth plan away from hospital
- Increased stress about food, job loss, childcare, tension, getting infected
- Essential services worker
- High COVID community

Multivariate analyses predicting PRAS change score

- The only two **protective** variables in a multivariate model are maternal age (beta=-0.08) and practicing social distancing (beta=-0.86)
- Variables with positive significant beta coefficients are:
 - Moving away from hospital delivery plan (beta = 1.26, p<0.001)
 - Anxiety about getting infected (beta = 1.23, p<0.001)
 - Anxiety about food not being available (beta = 0.77, p<0.001)
 - Pregnancy diagnosed anxiety/depression (beta = 0.75, p=.004)
 - Being in 3rd TM (beta = 0.50, p<0.001)
 - Anxiety about tension in home (beta = 0.49, p<0.001)
 - Since COVID stopped PNC (beta = 0.42, p=.01)
 - Living in high COVID community (beta = 0.42, p<0.01)
 - self/family essential worker (beta = 0.42, p<0.01)
- Interaction between anxious about loss of income or job and high school education or less (beta = 1.32, p<0.001)

* Model included: age, 3rd trimester, education, pregnancy diagnosed anxiety/depression, stopped face to face visits, moved away from hospital delivery plan, essential worker, social distancing, living in a high COVID area, having anxiety about food, income, tension, and being infected

Qualitative Themes:

- Visit changes: “...It was suggested that the remainder of my prenatal appointments be by phone, unless I need to be in-person for a test.”
- Social distancing: “I have to wait in the car and I’m the only person allowed (no partners). In and out in 10 minutes. Doctor and MAs wearing PPEs and giving me hand sanitizer at every entry and exit point. I’m also escorted throughout the building (even during bathroom break). Overall felt more rushed and impersonal ...because they have to stay away and can’t touch me unless absolutely medically necessary.”

Qualitative Themes:

- Quality of care:

- “My provider has changed 3 times. I cannot get clear answer(s) about what to expect at delivery. My breastfeeding and birthing courses were cancelled with no alternative offered. My hospital tour was cancelled and no information was provided.”
- “I am forced to continually fight to be seen and have to reiterate my situation and reasoning over and over to each new person that answers the phone. I understand that they want as few people as possible in their office, but I don't want to be out and about any more than they want me there. I got pregnant before this pandemic arrived, and now I have no choice but to advocate for myself but it has been very difficult.”
- “Care has become disjointed and care providers seem rushed and distracted. It feels a bit like I've been thrown into the deep end and told to figure it out.”

Qualitative Themes:

- Quality of care: “My prenatal care was amazing prior to COVID-19, but I believe it has only improved since the virus concerns have grown. My doctor has been informative, supportive and answered all my questions about the virus and how it could impact my pregnancy and delivery. I’m currently 38w, 2d and feel confident that my medical team will do everything in their power my keep my baby and I safe during labor and delivery.”

Qualitative Themes:

- Birthing: “.... we are leaving our OBGYN practice and planning a homebirth. I will not subject myself to oppressive hospital protocols in which I risk having to birth alone, wear a face mask while struggling through labor, and possibly be medically bullied into being separated from my infant if I test positive for COVID-19”
- "The thought of even walking into a hospital feels like I'm purposely walking into the fire! Then you want me to bring my newborn child into that?! I'm supposed to protect my baby and the idea of delivering in the hospital which a chance of not having my husband allowed has shattered me. I've cried everyday for weeks about it, I've had constant nightmares. I've never felt so stressed. "

Qualitative Themes:

- Emotional challenge: “I mostly feel a huge sense of fear, loss, and anxiety related to this pregnancy during a time when I wanted to feel excitement, joy, expectation....”
- "On top of us losing our jobs and no income right before a new baby, it's like our world is ending before it's supposed to be a new beginning. ”

Qualitative Themes:

Emotional challenge:

"I'm only 17 and this is my first baby. They have closed off sections in the store that have baby clothes and supplies and only have the diaper, wipes, food, and formula. I'm scared I will not have anything I need. My amazon registry is no longer active because all items are out of stock and unavailable. I've also not been receiving the care I've needed while pregnant. "

"It took us 3 years & IVF to conceive. We finally got our miracle & now we have to worry about giving birth in this pandemic. There is nothing calming about the situation."

In sum

- Women are pretty stressed/freaked out
- Women with the least education (although it wasn't significant) are particularly vulnerable, as are essential workers
- Even among a well-educated, largely white population, there is significant COVID-related anxiety about food security, job loss, tension in the home, and getting infected – and all of that seems to be related to increased pregnancy-related anxiety
- We felt grateful for the opportunity to give pregnant women a voice

Next steps

- **Since:**
 - we have worked with others (nationally) to develop more in depth surveys covering pregnancy, birth and postpartum
 - eager to share and collaborate
- **Epidemic – Pandemic Impacts Inventory (EPII)**
 - *Prenatal Module (EPII-P),*
 - *Labor & Delivery (EPII-LD),*
 - *Infancy Module (EPII-I)*

thank you
Q&A



Upcoming Network events

Monthly convenings – 2nd Tuesday; 4:00 – 5:00 p.m. ET

August 11, 2020

Topic: MC3 Perinatal Response to COVID-19

September 8, 2020

Topic: Substance Use Disorders

October 13, 2020

Topic: Equity

Upcoming Network events

Virtual Summit

**November 17, 2020 and November 18, 2020
12:00 – 4:30 p.m. EST both days**

Stay tuned for more details

Please contact us with additional questions

www.lifeline4moms.org



**Nancy Byatt, DO, MS, MBA, FACLP
Executive Director**

Nancy.Byatt@umassmemorial.org

**Tiffany Moore Simas, MD, MPH, MEd, FACOG
Medical Director**

TiffanyA.MooreSimas@umassmemorial.org

**Melissa Maslin, MEd
Project Director**

Melissa.Maslin@umassmed.edu

Thank you!