



Expecting A Baby During the COVID-19 Pandemic:

Mental Health Concerns in Pregnant Women Warrant New Treatment Approaches

Overview

We surveyed 641 pregnant women in spring 2020, during the first wave of the COVID-19 pandemic when social distancing was at its peak in the United States. Expectant mothers described elevated psychological distress, perceived stress, loneliness, and many behavior changes. More than half of the women in the sample endorsed depressive symptoms above clinical threshold and two-thirds reported clinically significant anxiety, with higher average scores for depression, anxiety, and stress compared to pre-pandemic samples.

Given this early evidence for heightened distress, treatment to support perinatal women is needed. We highlight the promising role of telehealth modalities and discuss specific interventions, such as Interpersonal Therapy, that may be particularly useful in treating perinatal women in the wake of the COVID-19 pandemic.

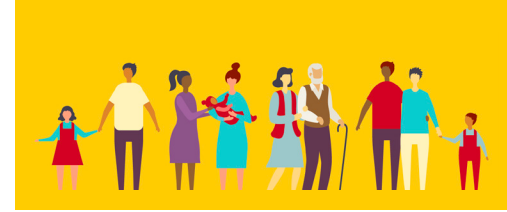
Introduction

The COVID-19 pandemic quickly transformed the global social landscape, as widespread lockdowns reshaped work, travel, and leisure behaviors. In particular, the experience of pregnancy, birth, and new parenthood changed dramatically. As the pandemic worsened in early spring 2020, women preparing for childbirth – often a time of joyful anticipation – reported fear and uncertainty. Hospitals sought to reduce the spread of infection by restricting the number of people permitted to attend birth, and some women delivered infants alone, without partner or family support. In many cases, women with suspected COVID-19 infection were separated from their newborns or prohibited from breastfeeding. Pregnant women also experienced disruptions to their prenatal medical care and to their ability to seek social connection. The transition to parenthood often prompts an outpouring of extended family and community support, but many expectant parents relinquished baby showers, bris and christening ceremonies, and other rituals that help to mark their new baby's arrival.

“There’s so much uncertainty and nobody has answers.

I’m sad that my son can’t come meet his brother in the hospital.

I’m terrified of not being able to have my husband with me during labor and delivery and I’m terrified of the baby being taken from me.”



The transition to parenthood is a time of heightened need for both medical and social support.¹ Moreover, perinatal mood and anxiety disorders can have pervasive effects on both parental and child well-being. Exploring how the COVID-19 pandemic intersects with perinatal mental health is a critical public health priority. This report highlights results from a survey of over 600 expectant mothers conducted in spring 2020.

PERINATAL MENTAL HEALTH DURING STRESSFUL TIMES

Perinatal mental health disorders are the most common pregnancy complication, affecting between 10 to 40% of women during the perinatal period.² These disorders impact not only mothers but also children. Maternal prenatal mental health problems are associated with higher rates of birth complications and long-term risks to child development.³

Natural disasters, terrorist attacks, and other large-scale societal disruptions have been found to affect maternal and child health.⁴ The COVID-19 pandemic is a unique event that has affected health and mortality, economic well-being, and social behavior. Communities often come together to grieve and rebuild after natural disasters, but the need to maintain social distance during the pandemic has reduced opportunities for social contact – especially for pregnant women, who are often considered high-risk and need to follow social distancing measures more strictly.

Social support is a key buffer of risk for perinatal mental health disorders.⁵ During the COVID-19 pandemic, “safer-at-home” orders may limit access to social support and connection. Several recent studies point to rising rates of mood and anxiety disorders in pregnant women during the COVID-19 pandemic.⁶⁻⁸ A Stanford study of pregnant women in the San Francisco Bay Area also noted elevated depressive symptoms compared to pre-pandemic samples, with 51% of pregnant women sampled during the pandemic scoring above the clinical cutoff vs. 25% of a demographically matched pre-pandemic sample.⁹

THE CURRENT STUDY

The USC Coronavirus, Health, Isolation, and Resiliency in Pregnancy (CHIRP) study launched on April 6th, 2020 and surveyed 641 pregnant women between April and July of 2020. Most (90%) responses were received within the first month of the survey’s launch. The week of April 7th represented the peak of “sheltering in place” behavior in the U.S., with Americans spending 93% of their time at home.¹⁰ Participants provided consent and completed a 20-30 minute questionnaire online. All study procedures were approved by USC’s Institutional Review Board. Expectant parents were recruited via social media and online advertisements. Participants were compensated through entry into a gift card lottery.

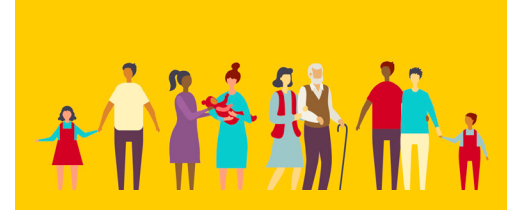
PARTICIPANTS

This sample was mostly based in the United States (96.4%) and, compared to general U.S. population estimates¹¹ had a slightly higher concentration of White respondents (77.1% of CHIRP sample vs. 76.3% of the U.S. population) and fewer respondents that identified as Black or African American (5.9% vs. 13.4%), Hispanic or Latinx (8.1% vs. 18.5%), and American Indian or Alaska Native (0.3% vs. 1.3%), and similar numbers of respondents who identified as Asian or Pacific Islander (5.9%), and Multiracial or Other (2.3%). This sample was also highly educated, with 20.3% holding

“Having to attend prenatal appointments without my partner is isolating and sad.

I’m feeling a lot of anticipatory loneliness about not being able to meet new parent friends before or after the birth.

It’s hard being separated from family and friends, unable to anticipate events (like a baby shower) that would give shape to the pregnancy.”



a professional or doctoral degree, 25.3% holding a master’s degree, 29.6% percent holding a bachelor’s degree, 6.1% an associate’s degree, 10.3% some college, and only 8.7% having a high school degree or less.

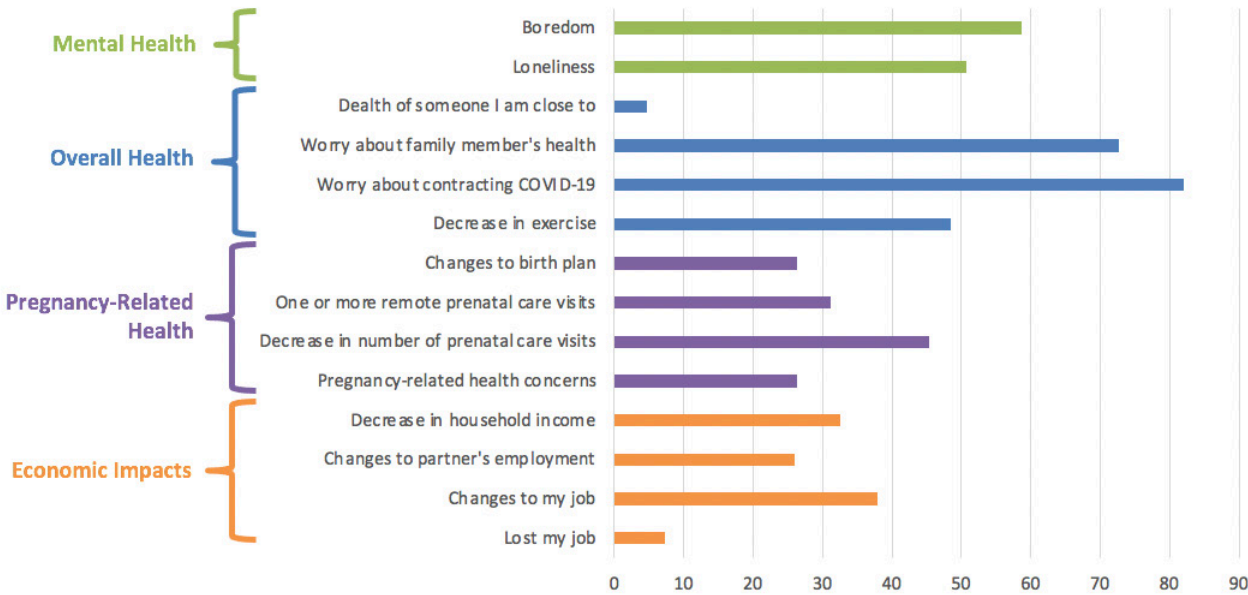
MEASURES

The survey assessed COVID-19 impacts on social connection, prenatal health care, and income and employment. The survey also assessed psychological distress and mental health using standardized measures (the Perceived Stress Scale,¹² State Anxiety Inventory,¹³ Beck Depression Inventory,¹⁴ and loneliness adapted from the Center for Epidemiologic Studies Depression Scale (CES-D))¹⁵ that have been extensively used within other research studies and show high validity and reliability.

Results

Only 4.8% of women who responded to the CHIRP survey had a suspected or confirmed case of COVID-19 as of spring 2020, and 4.7% had experienced the death of someone close to them due to the pandemic. However, 97.1% reported that their community had issued a stay-at-home or shelter-in-place order. Women also described wide-ranging changes to social behavior.

Figure 1. Percent of participants endorsing changes in experiences related to their mental health, overall health, pregnancy-related health, and economic impacts.



Overall, 61% of women reported that the pandemic has had “very” or “somewhat” negative impacts on their social relationships. Almost two-thirds said that they had experienced at least some loneliness over the previous week, and a similar number felt more lonely than usual due to the pandemic.

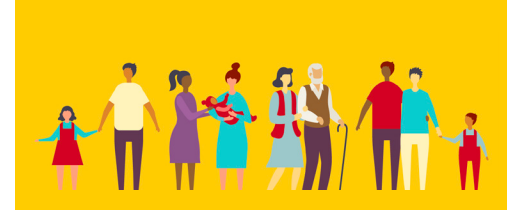
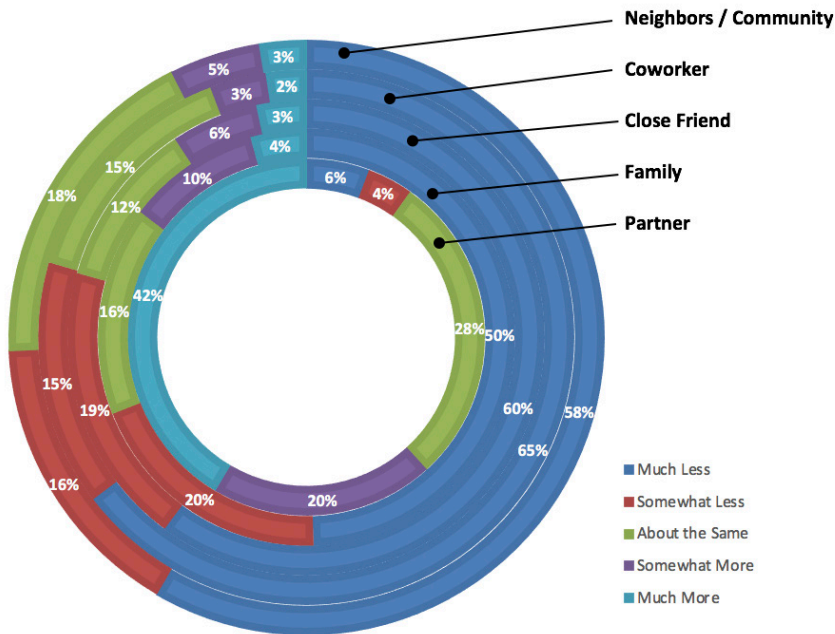


Figure 2. Change in time spent with social circles



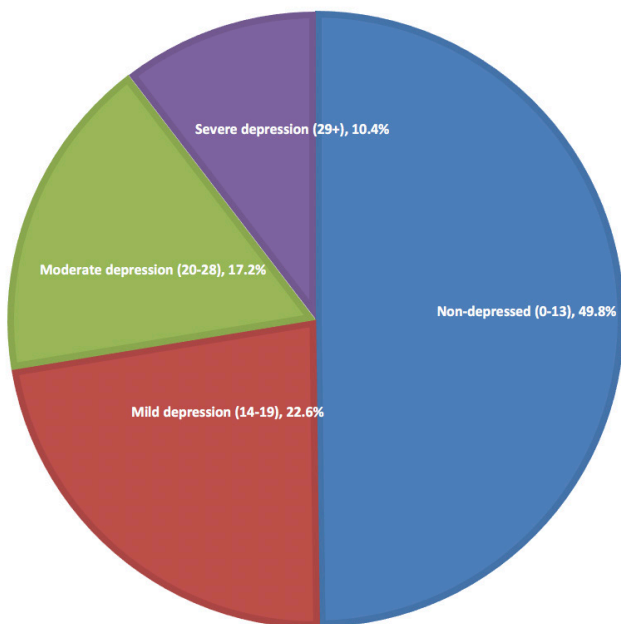
Most women reported that, as compared to before the start of the pandemic, they experienced much less contact with neighbors and community members (58%), coworkers (65%), close friends (60%), and family members (50%). However, 42% reported much more contact with their partner than before the pandemic.

ECONOMIC AND HEALTHCARE IMPACTS

About a third of women reported decreases to their household income, and 7% lost their job as of spring 2020. Many women also reported changes to their job (38%) or their partner's job (26%). About a third of women (35%) said that the pandemic had changed their plans for taking time off after the birth. Of those, approximately half (46%) planned to take more time off than planned, 28% less time off, and 26% were unsure.

About a fourth of the sample - 26% of women - reported that they had experienced pregnancy-related health concerns. Women also reported changes to their prenatal care, with 31% reporting that they had one or more remote doctor visits. Additionally, 26% made at least one pandemic-related change to their birth plan, including changes to whether their partner could be present at birth (11%) or if another support person could be present (20%).

Figure 3. Depressive symptoms



MENTAL HEALTH

Almost three-fourths (74%) of the sample reported that the COVID-19 pandemic had an overall negative effect on their mental health. The mean Beck Depression Inventory score for women in this sample fell in the clinically significant range and is almost a full standard deviation higher than published pre-pandemic means from other studies, suggesting a meaningful statistical change.¹⁶ Half of the sample endorsed a Beck Depression Inventory score above 14, indicating clinically significant depression symptoms,¹⁷ with 28% endorsing moderate-to-severe symptoms.

State anxiety levels were also high. More than half - 62% - of women scored >45, exceeding a clinical threshold that has been specifically used in perinatal women.¹⁷ The mean STAI-S score in this sample fell above this clinically significant threshold and more than a standard deviation higher than found within published pre-pandemic samples.¹⁸

Perceived stress was also high, with an average score in this sample that is a full standard deviation higher than prenatal PSS scores reported in a pre-pandemic study of over 10,000 pregnant women.¹⁹ In that study, <11% of their first and third trimester samples had scores >21; in contrast, four times as many (44%) of the current sample had scores exceeding this threshold.

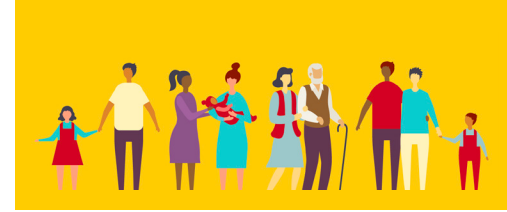
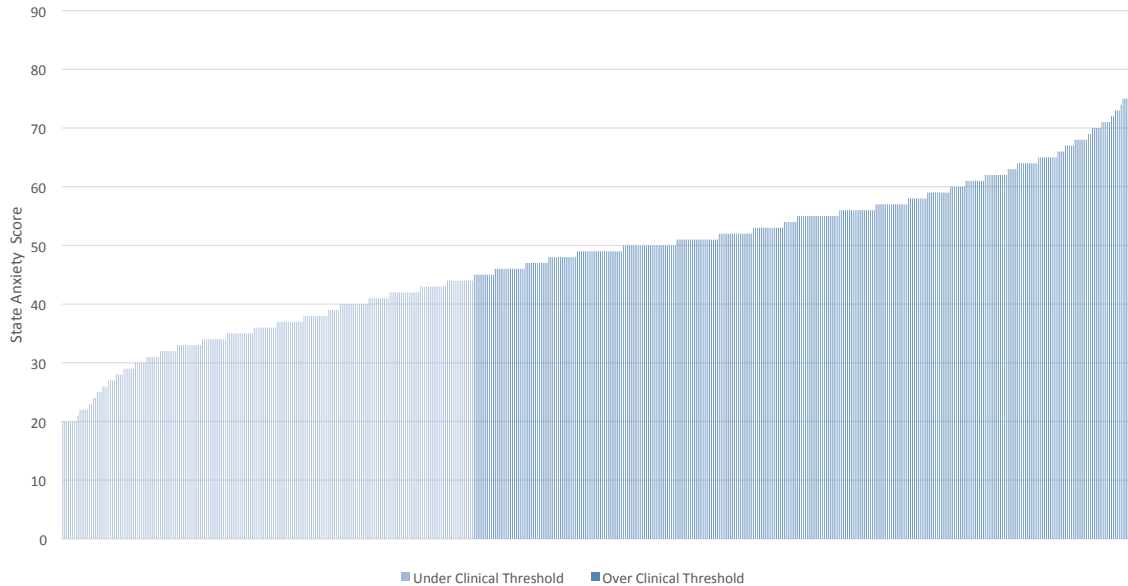


Figure 4. State anxiety



Summary and Recommendations

Our results suggest that the first wave of the COVID-19 pandemic had a significant impact on social connection, economic and health care impacts, and psychological distress for pregnant women. In particular, self-reported depression and anxiety symptoms exceeded clinical cutoffs for most women in this sample, and depression, anxiety, and stress all appeared elevated compared to pre-pandemic studies. Creative approaches to delivering mental healthcare are needed.

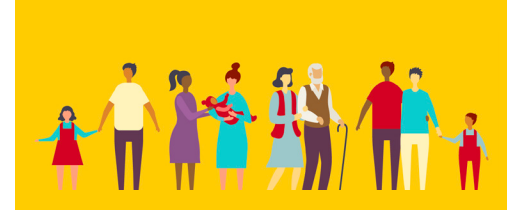
TELEHEALTH

Healthcare visits offered through video conference, phone, or other remote modalities can allow for continuity of care while maintaining social distance. The COVID-19 pandemic has created a unique catalyst for overcoming telehealth hurdles, with federal and state regulations shifting to accommodate virtual care,²⁰ and providers increasingly recognized the value of this tool.²¹ Thus, the use of telehealth has been quickly expanding to various disciplines and populations, including family support.²² Many families report that telehealth increases their access to services, and reduces stress, cost, and time. Today's young parents are digital natives, comfortable with online interfaces, meaning that the increasing demand for computer-mediated parent support may continue even as the pandemic resolves.

About a third of women in our sample had one or more remote healthcare visits during their pregnancy. Over the course of a typical pregnancy, women may attend a dozen or more obstetrics visits. This high degree of interface with the healthcare system, paired with potentially increased risks from COVID-19, make pregnant women a high priority group for telehealth.

“Expecting to deliver my baby during the peak of the pandemic is extremely difficult.

My parents will not be there to meet their first grandchild. I will not have the support of friends and family after the baby is born.”



Virtual visits cannot fully replace the need for in-person prenatal care, but providers can consolidate in-person testing and deliver services, including mental health visits, virtually for many pregnant women. Several different types of care fall under the telehealth umbrella: eHealth, or electronic health strategies, can include remote or web-based strategies. mHealth is the use of mobile and wireless devices (cell, phones, tablets, etc.) to improve health outcomes, with several examples shown in table on page 6. Increasingly, these services have been supported by insurance providers.

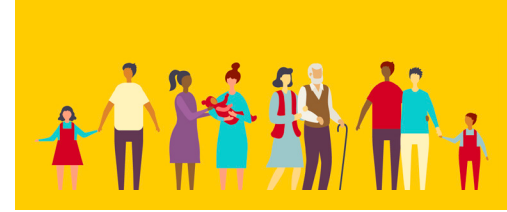
Interventions aimed at the partner relationship may be particularly promising during the COVID-19 pandemic. As reported above, pregnant women in this sample reported reduced contact with most people in their social worlds, but increased contact with their partners. Given this shift in social contact, cohabitating partnerships may be a relevant focus for perinatal intervention efforts, e.g. efforts to improve communication skills and social support provision. On the other hand, efforts to shore up social connection outside the partner relationship, such as through online support groups, are also warranted.

Telehealth and internet-based mental health services may also help parents with infants in Neonatal Intensive Care Units, or NICUs to access mental health services. Several NICUs already employ web-based cameras, Skype, and FaceTime to allow parents to check on their hospitalized children and hold NICU parent support groups. Augmenting these virtual connections might be a natural next step. Online staff education modules can also improve knowledge and attitudes regarding mental health care.²⁹

Mobile Health (mHealth) solutions that address perinatal mood disorders for new parents

Name of Mobile Health Application	Purpose of Application	Comments
Apps that are centered around community forums		
Smart Moms ²³	Community of moms who provide support and advice	125,000 users, English only
Peanut	Community of moms, with platform that supports chat and dedicated forums	300,000 users, English only
Apps that are gathering information for a study		
Mom Genes; Fight PPD ²⁴	A research study (previously called PPD ACT) including an app-based survey that asks about mood and anxiety with feedback	targeting 100,000 users, English, Spanish and Danish
Apps that engage licensed therapists/psychologists		
Happify ²⁵	App provides research-supported activities and games to challenge negative thoughts, stress	In-app extended membership fees; available in multiple languages
Talkspace ²⁶	App matches users with a licensed therapist	Weekly use fees, available in multiple languages
Apps that highlight stress relief, mindfulness, relaxation		
Breathe2Relax ²⁷	Stress management tool educates users about stress	English only
Calm ²⁸	App to manage sleep, medication and relaxation with guided meditation, sleep stories and mindfulness topics	Subscription options, available in multiple languages

*All mobile health solutions are available on the Google Play and Apple App stores



BEYOND THE PRENATAL PERIOD

While the current study focused on the prenatal period, continued access to mental health care during the postpartum period is essential for ongoing family health. Compelling evidence suggests that counseling interventions such as talk therapy can not only relieve but also prevent perinatal mood disorders.³⁰ The most widely studied psychosocial treatments for PPD, cognitive-behavioral therapy (CBT) and interpersonal psychotherapy (IPT), have been shown to be superior to usual care.³¹ Other non-pharmacological interventions studied in PPD include complementary and alternative approaches (e.g., yoga, light therapy), collaborative care, supportive therapies, exercise, and Acceptance and Commitment Therapy (ACT), but data are as of yet too limited to draw definitive conclusions about efficacy. Many of these interventions can be delivered by paraprofessionals in a group format, making it possible to scale them widely at relatively low cost.

IPT, in particular, demonstrates promise for the treatment of perinatal mental health, and is easily adaptable to telehealth delivery. IPT is a structured, time-limited intervention, originally developed to treat major depression, that focuses on interpersonal experiences, including, for example, common postpartum stressors such as conflict with extended family (interpersonal dispute) and loss of social/work relationships (role transitions). Across 28 rigorous randomized trials, IPT was effective in reducing PPD symptoms.³² While IPT is arguably the most effective evidence-based treatment for PPD, there remains room for improvement: only 55-60% of patients achieve long-term remission, indicating the need for further improvements in treatment for perinatal depression.³³

CONCLUSIONS

Our first wave of survey results from pregnant women reveals widespread changes to behavior, economic and healthcare impacts, heightened reports of loneliness and reduced total social contact, and striking levels of clinically significant depression, anxiety, and perceived stress. These results are notable given that pregnancy is often a time of increased need for social connection, with friends and family coming together to celebrate and provide support.

Given that perinatal mental health problems may affect the long-term health of both the mother and infant, efforts are needed to support pregnant and postpartum women during the COVID-19 pandemic. Even after the pandemic resolves, intervention may be needed to ameliorate the effects of heightened prenatal stress and distress on adjustment to parenthood and the parent-child relationship. Telehealth interventions present a promising modality for supporting women over the perinatal period during this time. There are a number of various telehealth interventions that can be implemented and integrated into perinatal care. Other psychosocial interventions, like IPT, can be delivered via telehealth or in-person and are supported by compelling evidence. Models of primary care-mental health care integration, in which expectant mothers can access psychosocial intervention through their OB-GYN practice, can help disseminate treatment to mothers most in need.

“I am worried we won’t receive adequate care during the birth and I’m terrified of separation from my newborn.

I’m afraid of dying.

My husband was fired from his job.”



LIMITATIONS

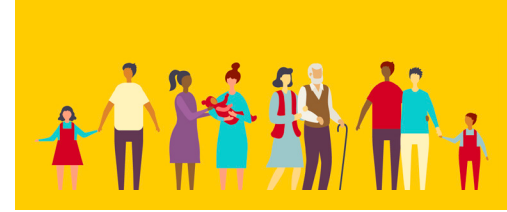
This paper reports on preliminary findings from a study of expectant parents, surveyed cross-sectionally in spring/summer 2020, shortly after many COVID-19 restrictions were implemented. Responses to this online survey came from a well-educated convenience sample recruited across social media platforms. Given well-documented associations between higher socioeconomic status and perinatal mental health in the U.S., a lower-SES sample might reveal even more striking levels of mental health vulnerability. Indeed, the pandemic's disproportionate impact on low-income communities and communities of color, underrepresented in the current sample, may magnify pre-existing disparities in maternal and infant health. Therefore, the need for mental health services may be even more acute than reflected in the current data.

RESEARCH IMPLICATIONS

There is a clear need to follow up and explore the long-term implications of the perinatal experience during the COVID-19 pandemic. Future work should assess differences in this pandemic group as compared with pre-pandemic control samples; should follow families longitudinally to better understand the effects of pandemic-related stress on families, and explore effects on fathers and children as well as mothers. Given the widespread differences in social distancing practices and regulations across the United States and globe, research can also consider differential outcomes for families in different locations. Furthermore, it would be of value to assess potential positive change linked with the pandemic, such as more time at home with baby, greater ease of breastfeeding, and more involvement from partners who can work from home. These possible upsides may also heighten disparities, as they may not be available to new parents who are essential workers or in financially precarious situations. In sum, research on the mental health and social toll of the COVID-19 pandemic can shed light on stress, health, and resilience in pregnancy and beyond.

POLICY AND PRACTICE IMPLICATIONS

Our evidence for heightened distress in expectant parents may have long term effects for both maternal and child health. Prenatal stress is known to affect child development, suggesting that children in utero during the COVID-19 pandemic may represent a population that requires later attention and intervention. Psychosocial treatments for perinatal distress have been demonstrated to be effective and can be offered through telehealth and other formats (e.g., group-based) and incorporated into primary medical care. Flexibility and creativity is needed in delivering and reimbursing mental health care in novel formats that allow for integration into routine prenatal care and ease of access for expectant parents. Moreover, policies that are known to support families of young children (paid family leave, high-quality early childcare) and that center social connection as a public health priority can help to ameliorate the long-term mental health effects of the pandemic.



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