Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Risk factors for new-onset postpartum depression or anxiety symptoms during the COVID-19 pandemic

OBJECTIVE: The rates of postpartum depression (PPD) or anxiety have increased during the COVID-19 pandemic[1]; for example, in Canada, the rates of prepandemic depression and anxiety ranged from 10% to 15%, but they are 37% during the pandemic.[2] To date, however, data remain scant on the risk factors for developing the symptoms of PPD or anxiety during the pandemic, particularly among women who did not have preexisting mental health issues. However, these data could help providers give targeted support for women delivering during the pandemic, who are at an increased risk for postpartum depression or anxiety symptoms. This study aimed to investigate the factors associated with the development of PPD or anxiety symptoms during the COVID-19 pandemic among women who delivered during the year before and did not report having symptoms of depression or anxiety.

STUDY DESIGN: Women were recruited from the Hassenfeld Study from July 29, 2020 to October 23, 2020. This study is an ongoing institutional-review-board-approved large, diverse prospective cohort study in Rhode Island; it examines the effect of environmental factors on maternal and pediatric outcomes during pregnancy and early childhood. Participants who delivered within the previous 12 months and maintained primary custody of their child were eligible for this study, which was done through a survey administered via telephone. Women completed the validated psychometric screening tools—the patient health questionnaire-2 (PHQ-2) and the generalized anxiety disorder-2 item screening (GAD-2) to assess for self-reported symptoms of PPD and anxiety, respectively. The PHQ-2 has high sensitivity for PPD symptoms,[3] whereas the GAD-2 has high specificity for perinatal anxiety symptoms[4]; by focusing on the self-reported symptoms, neither scale can diagnose major depressive disorder or anxiety disorder per the diagnostic and statistical manual version 5 criteria. Women who endorsed symptoms of depression or anxiety before the pandemic were excluded from analysis, as the aim of the study was to identify the risk factors for symptoms of postpartum depression or anxiety among women who did not have these symptoms during or before pregnancy. To identify the risk factors for developing new PPD or anxiety symptoms, women self-reported on the COVID-19 symptoms and exposures, the perceived stress before and during the pandemic (using the perceived stress score-4[5]), and employment, financial, or general concerns. The predictors were compared among those who did vs those who did not endorse new-onset PPD or anxiety symptoms during the pandemic.

RESULTS: A total of 329 women were eligible; of these, 241 (73%) participated. 204 did not endorse prepandemic symptoms of depression or anxiety. Of the 204 included women, 54 (26.7%) endorsed new-onset PPD or anxiety symptoms during the pandemic. There were no sociodemographic or obstetrical differences among the women who did vs those who did not endorse PPD or anxiety; overall, 36% were Hispanic (Table 1). Although the rates of reported stress before the COVID-19 pandemic were similar among the 2 groups, the women who developed PPD or anxiety symptoms had higher perceived stress at survey completion (perceived stress score 4 mean (standard deviation) 7.7 (2.1) vs 4.6 (2.6); $P<.0001$). Those with PPD or anxiety symptoms were more likely to endorse being concerned about the availability of food or household supplies or the lack of social distancing. Women who had PPD or anxiety symptoms were more likely to report that their own job or the job of someone they depended on financially had been designated as essential (64.9% vs 45.8%; $P=.03$), to believe that this job increased the risk of COVID-19 exposure (59.3% vs 42.8%; $P=.04$), or to report that a family member had been diagnosed with or presumed to have COVID-19 (27.8% vs 12.8%; $P=.01$) (Table 2).

CONCLUSION: In this diverse cohort of postpartum women who did not report having symptoms of depression or anxiety before the COVID-19 pandemic, more than one- fourth developed PPD or anxiety symptoms during the pandemic. The high rate of new-onset PPD or anxiety symptoms may be because of stressors associated with the COVID-19 pandemic. This is potentially compounded by social distancing practices, isolating mothers with young infants from getting in-person support from those who do not live in their households. By identifying the risk factors such as being concerned about food availability or having a household member employed as an essential worker, these findings can help guide future public health initiatives aiming to mitigate the risk of PPD or anxiety symptoms and provide targeted support for women who deliver during the current or future pandemics.

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TABLE 1
Sociodemographic and obstetrical factors affecting postpartum mental health during the COVID-19 Pandemic

	With COVID-19 onset anxiety and/or depression n=54 (26.7%)	Without COVID-19 onset anxiety and/or depression n=148 (73.3%)	*P* value
Maternal age			
Mean (SD)	30.5 (5.1)	30.6 (5.9)	.97
Maternal ethnicity			.25
Hispanic	23 (42.6)	50 (33.8)	
Non-Hispanic	31 (57.4)	98 (66.2)	
BMI at first prenatal visit			
Mean (SD)	29.7 (5.7)	28.8 (6.7)	.41
Obstetrical/perinatal factors			
Multiparous			
Yes	33 (61.1)	88 (59.5)	.83
Mode of delivery			.26
Vaginal delivery	42 (80.8)	108 (73.0)	
Cesarean delivery	10 (19.2)	40 (27.0)	
GA at delivery (wk)			
Mean (SD)	39.3 (1.6)	38.8 (2.0)	.10
Number of children <18 living at home during the time of interview			
Median (min-max)	2 (1-4)	2 (1-6)	.75
Age of infant at the time of interview (mo)			
Mean (SD)	8.8 (2.5)	9.0 (2.1)	.68

BMI, body mass index; *GA*, gestational age; *SD*, standard deviation.

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TABLE 2
COVID-19-pandemic-related experiences, changes, and concerns among postpartum women

	With COVID-19 onset anxiety and/or depression n=54 (26.7%)	Without COVID-19 onset anxiety and/or depression n=148 (73.3%)	*P* value
Women or someone living in the household had or probably had COVID-19			.01
Yes	15 (27.8)	19 (12.8)	
Perceived stress score before the COVID-19 pandemic (PSS-4)			
Mean (SD)	3.6 (2.2)	3.0 (2.6)	.13
Perceived stress score during the COVID-19 pandemic (PSS-4)			
Mean (SD)	7.7 (2.1)	4.6 (2.6)	<.01

(continued)

TABLE 2
COVID-19-pandemic-related experiences, changes, and concerns among postpartum women *(continued)*

	With COVID-19 onset anxiety and/or depression n=54 (26.7%)	Without COVID-19 onset anxiety and/or depression n=148 (73.3%)	*P* value
Difference in PSS-4 (COVID-19 Pandemic– Pre-COVID-19 pandemic) (positive means more stressed during pandemic)			
Mean (SD)	4.0 (2.4)	1.6 (2.9)	<.01
Money situation during COVID-19 pandemic			.07
Comfortable with extras	16 (29.6)	70 (47.3)	
Enough but no extras	17 (31.5)	35 (23.7)	
Had to cut back or could not make ends meet	21 (38.9)	43 (29.0)	
Changes in work life because of COVID-19 pandemic for the mothers, their partners, or anyone else on whose income they depend[a]			
Had permanent loss of job	15 (33.3)	30 (20.6)	.34
Had a temporary loss of job (eg, furlough)	16 (29.6)	44 (30.1)	.95
Had their hours reduced	24 (44.4)	40 (27.6)	.02
Had their pay decreased	13 (24.1)	34 (23.3)	.91
Had decreased job security	17 (31.5)	28 (19.3)	.09
Had increased responsibilities	28 (51.9)	62 (42.5)	.24
Had their job designated as an essential service	35 (64.9)	66 (45.8)	.03
A job that causes an increased risk of COVID-19	32 (59.3)	62 (42.8)	.04
Moved to remote work/work from home	22 (40.7)	53 (36.3)	.56
Concerned about in relation to the COVID-19 pandemic[a]			
Not being able to pay for basic needs such as rent/mortgage, food, medicine, baby supplies	29 (53.7)	65 (43.9)	.22
Being evicted	12 (22.2)	22 (14.9)	.29
Availability of food	26 (48.2)	41 (27.7)	<.01
Availability of baby supplies (such as formula, diapers, wipes)	23 (42.6)	55 (37.2)	.48
Availability of personal care products or household supplies	32 (59.3)	55 (37.4)	<.01
Losing your job	27 (50.9)	43 (34.1)	.04
Your partner or someone you depend on for income losing their job	21 (41.2)	41 (29.3)	.12
Loss of health insurance	18 (33.3)	33 (22.3)	.14
Not being able to access medical care for yourself or your family because of the virus	26 (48.2)	62 (41.9)	.43
Not being able to access mental healthcare for yourself or your family	22 (40.7)	49 (33.1)	.32
That some people are not social distancing	41 (80.4)	86 (58.5)	<.01
Being quarantined	29 (53.7)	67 (45.3)	.29

Data is presented as number (percentage) unless indicated otherwise.

PSS-4, perceived stress score 4; *SD*, standard deviation.

[a] Only reported "yes" answers.

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REFERENCES

1. Wu Y, Zhang C, Liu H, et al. Perinatal depressive and anxiety symptoms of pregnant women during the coronavirus disease 2019 outbreak in China. Am J Obstet Gynecol 2020;223:240.e1–9.

2. Lebel C, MacKinnon A, Bagshawe M, Tomfohr-Madsen L, Giesbrecht G. Elevated depression and anxiety symptoms among pregnant individuals during the COVID-19 pandemic. J Affect Disord 2020;277:5–13.

3. SY Chae, Chae MH, Tyndall A, Ramirez MR, Winter RO. Can we effectively use the two-item PHQ-2 to screen for postpartum depression? Fam Med 2012;44:698–703.

4. Nath S, Ryan EG, Trevillion K, et al. Prevalence and identification of anxiety disorders in pregnancy: the diagnostic accuracy of the two-item Generalised Anxiety Disorder scale (GAD-2). BMJ Open 2018;8:e023766.

5. Park ER, Psaros C, Traeger L, et al. Development of a postpartum stressor measure. Matern Child Health J 2015;19:2094–101.

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