

## Sorrows and the joys of tomorrow: analyzing maternal events during delivery and post-partum in the COVID-19 pandemic through utilizing the epds

Ala Addin Sid Ahmed, MD, MS<sup>1</sup>, Maheen Irshad, MD<sup>1</sup>, Federico G. Marionna, MD<sup>2</sup>

1. Wayne State University School of Medicine, Detroit, MI, USA

2. Michigan Perinatal Associates, Dearborn, MI, USA

### Abstract

**PURPOSE:** To describe the perinatal findings associated with postpartum depression utilizing the Edinburgh Post-Partum Depression Scale (EPDS) following delivery during the first 24 months of the COVID-19 pandemic.

**MATERIAL AND METHODS:** We report a secondary analysis of 203 post-partum women aged 19 to 50 years (mean age 33.2) who delivered between February 8, 2020, and December 30, 2021, who voluntarily completed the Edinburgh Post-Partum Depression Scale (EPDS) and were cared for by a single urban-suburban obstetrical team. The self-administered EPDS was completed at the time of the first post-partum visit. Twenty-two patients were tested more than once, with three being tested thrice. The testing interval ranged from six to one hundred and 70 days for the first test, and forty-two to one hundred and 21 for any additional tests done. A score of  $\geq 10$  was utilized for the analysis. All patients were tested for SARS-CoV-2 one to five days before delivery via nasopharyngeal swab and PCR determination. The perinatal record and the results of the EPDS were merged and deidentified. Maternal and neonatal variables were listed in tables for further comparison. Simple statistics were calculated and when appropriate student T (p-value) was utilized. Once the abstraction was completed all raw subject information was destroyed. All participants consented to the use of the anonymous results. All patients that scored  $\geq 10$  on the EPDS were referred for psychiatric and/or substance use disorder consultation.

**RESULTS:** All results listed are specific to the patients who scored  $\geq 10$  on the EPDS at any point during the timeline for the analysis. EPDS scores of  $\geq 10$  in 22 patients and of 13 and over in 23 patients (22.10%) were distributed as follows: 48.8 % of White patients, 28.8 % of Black patients, 8.8 % in Hispanic and Middle Eastern, and 2.2 % of Asians and Native Americans. 88.9% of the patients tested negative for SARS-CoV-2, with 4.4% testing positive and the remainder were not tested. The average BMI for patients with elevated EPDS was 33.9 K/m<sup>2</sup>, similar to the average BMI of 34.8 that was found in the overall patient group. 5% of the patients with elevated EPDS were class III obese. The average gestational age at delivery was 38.4 weeks. For non-psychiatric comorbidities, 9 patients had a prior history of preterm birth, 6 had gestational diabetes, and 4 had neonatal admissions, among other comorbidities. 28.9% of patients delivered by primary cesarean and 20% by repeat cesarean. Elevated EPDS were recorded on mothers of 22 males and 18 females. 46.6% of patients who scored  $\geq 10$  on the scale had an associated past history of mental health issues or a current/past history of substance use relative to the 7.59% who scored an EPDS below 10. 13% of those patients were married and 5.9% were primiparous.

**CONCLUSION:** PPD is considered a major psychiatric disorder that is clinically understudied with a reported prevalence between 1.9 to 82 % in developed countries, with the lowest reported in Germany and highest in the United States, with wide variations across cultures. We report the results of utilizing the EPDS on a limited multiethnic cohort of post-partum women who delivered during the first 24 months of the Covid-19 pandemic. We demonstrated a prevalence of PPD of 22.2% within the cohort. Typically, patients are referred for psychiatric consultation if they score  $\geq 13$ , but in the cohort, the cutoff was 10. A host of related perinatal findings that are potentially associated with PPD were collected and analyzed, including but not limited to: COVID-19 status, previous history of PPD, previous history of other psychiatric diagnoses or substance use, clinical comorbidities, ethnicity, and civil status. The factors that appeared to be clearly associated with PPD were a previous history of a psychiatric diagnosis or substance use and a previous diagnosis of PPD. Patients who developed PPD had a prior history of preterm births as the most common comorbidity, along with obesity. Perinatal care providers have the optimal opportunity to identify the basic characteristics and possible risk factors in pregnant women at risk for PPD and can implement ways to decrease or avoid its occurrence following childbirth. The information obtained from our analysis may not be generalizable, owing to the limited sample size of the population. Further quality research is needed to accurately determine the effects of the COVID-19 pandemic on the incidence rate of PPD in the USA and the associated short and long-term outcomes on the affected women, their children, and their extended family. In addition, research is needed to accurately determine the relationship of the EPDS score to the severity of the maternal disease.