

Study suggests adolescent stress may raise risk of postpartum depression in adults

April 16 2024



A Johns Hopkins Medicine-led study suggests early-life stress may lead to prolonged elevation of the hormone cortisol after childbirth and in turn, postpartum depression. Credit: Unsplash/CC0 Public Domain

In a new study, a Johns Hopkins Medicine-led research team reports that social stress during adolescence in female mice later results in prolonged elevation of the hormone cortisol after they give birth. The researchers say this corresponds to the equivalent hormonal changes in postpartum

women who were exposed to adverse early life experiences—suggesting that early life stress may underlie a pathophysiological exacerbation of postpartum depression (PPD).

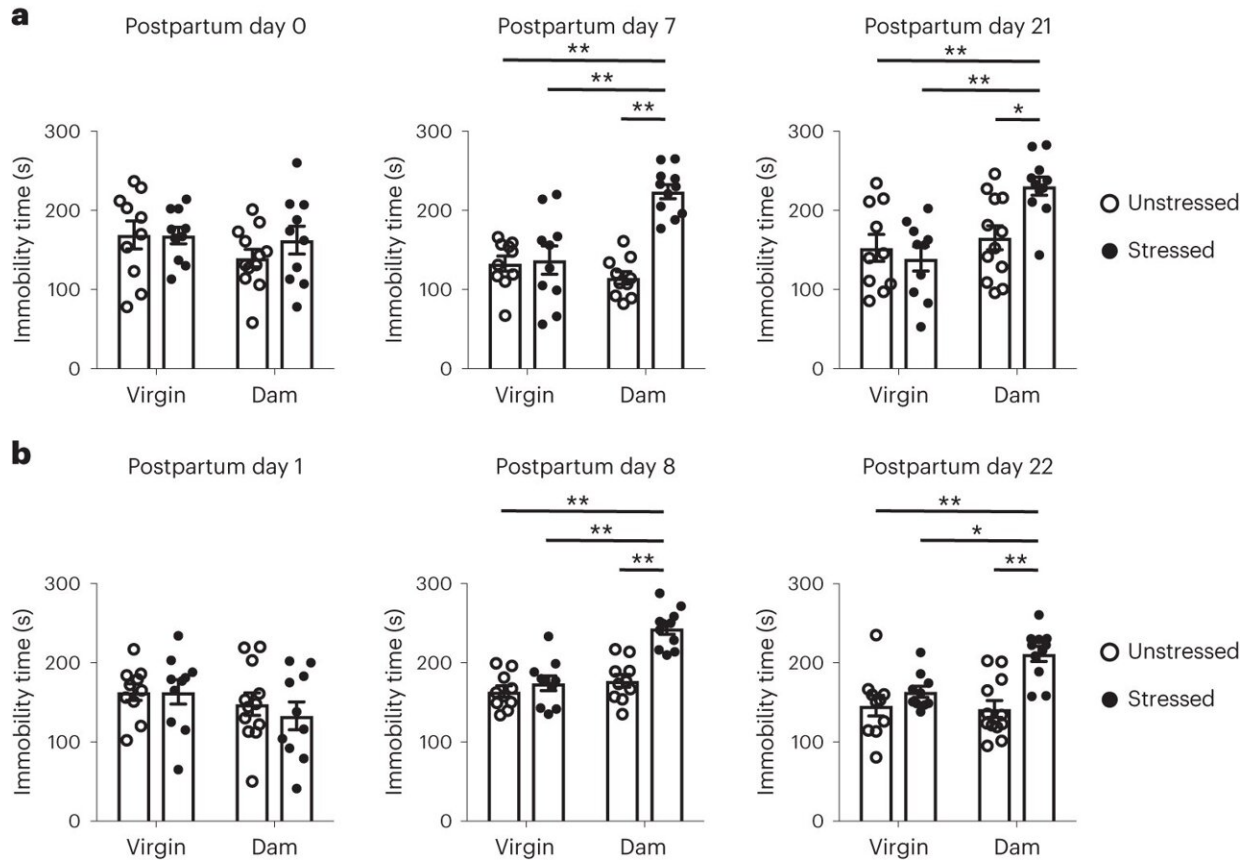
The team's findings, [published in *Nature Mental Health*](#), also suggest that current drug treatments for PPD in people may, in some cases, be less effective at targeting the relevant chemical imbalances in the brain, and that alternative methods may be more beneficial.

According to previous studies, an estimated one-third of psychiatric conditions fail to respond to current therapies, and "PPD is difficult to treat," says study senior author Akira Sawa, M.D., Ph.D., director of the Johns Hopkins Schizophrenia Center and professor of psychiatry, neuroscience, biomedical engineering, genetic medicine and pharmacology at the Johns Hopkins University School of Medicine. "The new study results add to evidence that patients with PPD are not all the same, and more individualized diagnosis and treatment—a precision medicine approach—is needed."

PPD, states the federal government's Office on Women's Health, is estimated to occur in 7% to 20% of all women, most commonly within six weeks of giving birth. Symptoms include feelings of sadness, anxiety, and fatigue, and can make it difficult to complete basic self-care tasks and care for the new baby.

The current first-line treatment for PPD is the use of a class of anti-depressant pills called [selective serotonin reuptake inhibitors](#) (SSRIs), but these are only effective in approximately half of all patients. SSRIs boost the effects of the natural brain chemical serotonin, one of many hormone-like substances that help control mood. Some patients also are treated with IV infusions of a different class of drugs that target GABAA, a brain chemical linked to nerve hyperactivity.

However, the calming infusions are costly (more than \$30,000 for a single course of one such drug) and often require hospitalization. They are generally reserved for the most severe and resistant cases of PPD.



Long-lasting behavioral changes in the TST and FST in dams exposed to adolescent social isolation. **a,b**, Immobility time (seconds) during the TST (**a**) and FST (**b**) was assessed at postpartum days 0 and 1, postpartum days 7 and 8 and postpartum days 21 and 22, respectively. Behavioral changes emerged at 1 week postpartum and remained until at least 3 weeks postpartum. No changes across groups were observed immediately after delivery. Unstressed virgins, $N = 10$; stressed virgins, $N = 10$; unstressed dams, $N = 12$; stressed dams, $N = 10$. Values are represented as mean \pm s.e.m.; ** P

Citation: Study suggests adolescent stress may raise risk of postpartum depression in adults (2024, April 16) retrieved 2 May 2024 from <https://medicalxpress.com/news/2024-04-adolescent-stress-postpartum-depression-adults.html>

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