# Data contradict fears of COVID-19 vaccine effects on pregnancy and fertility

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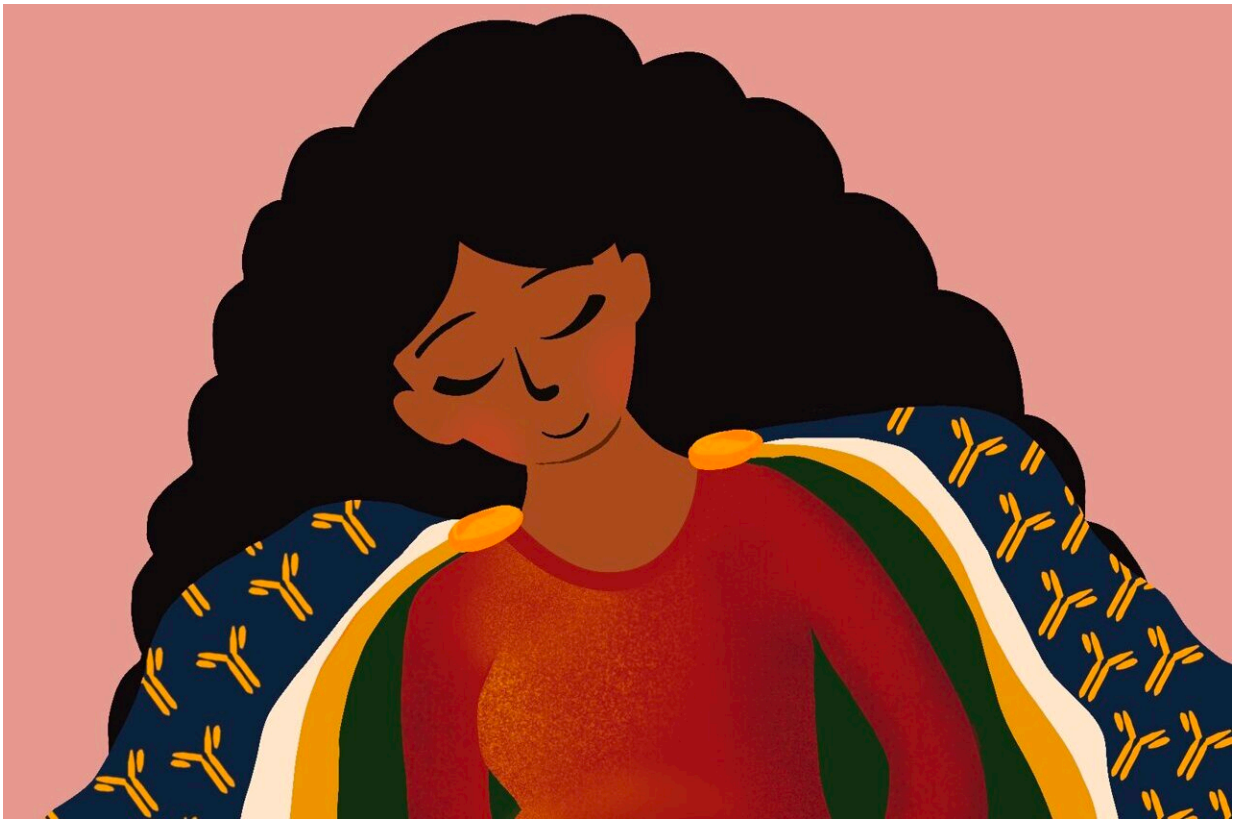

This study provides more evidence that Covid vaccination is safe for both current and future pregnancies, and shows in a mouse model that immunization during the earliest stages of pregnancy provides antiviral antibodies to the fetus throughout the rest of pregnancy. Credit: Hannah J. Lee (CC-BY 4.0, https://creativecommons.org/licenses/by/4.0/)

New experiments conducted in mice add to mounting evidence in opposition to a popular claim that COVID-19 vaccination during early pregnancy may cause birth defects or fetal growth problems. The study also counters claims that COVID-19 vaccines reduce fertility through their effects on the protein syncytin-1. Alice Lu-Culligan of the Yale School of Medicine, US, and colleagues present these findings in the open-access journal *PLOS Biology*.

Despite growing evidence that COVID-19 vaccination during pregnancy can benefit both mother and child, safety concerns are a significant cause of vaccine hesitancy. Popular claims in particular hold that vaccination during pregnancy could harm the fetus, and that vaccination prior to pregnancy could reduce female fertility.

To investigate those claims, Lu-Culligan and colleagues first conducted experiments in pregnant mice. They found that administering a COVID-19 vaccine early in pregnancy did not affect the size of the fetus, nor was it associated with any birth defects. In addition, they found that fetuses had high levels of antibodies against COVID-19 infection, suggesting that the protective effects of vaccination passed from pregnant mice to their fetuses. These findings are consistent with a growing body of data on pregnant humans reported by the US Centers for Disease Control and other research groups.

The scientists also injected other pregnant mice with a substance known as poly(I:C), which simulates viral infection; fetuses from these mice had reduced growth. Overall, the mouse experiments suggest that vaccination during pregnancy is safer for both mother and fetus than infection during pregnancy.

Next, the researchers collected blood samples from both vaccinated and unvaccinated human volunteers. They found that those who had been vaccinated did not have elevated levels of antibodies against the protein

syncytin-1, suggesting that fears of reduced fertility due to COVID-19 vaccination's effects on this protein are unfounded.

The authors note that, as more people are vaccinated and clinical trials progress, the resulting data will continue to help address widespread concerns about vaccination. In particular, they note, it will be useful to confirm that COVID-19 vaccination is safe at all stages of pregnancy.

"This work provides evidence in a mouse model that vaccination in early pregnancy does not harm fetal growth or development and instead protects the fetus throughout later stages of pregnancy," Lu-Culligan adds. "It also directly challenges misinformation deterring many nonpregnant people from vaccination—we show that the antibodies generated by vaccination do not target a rumored placental protein and that these misconceptions around infertility are not supported by the data."

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