

# Infant health inequality has increased since 2010, study finds

December 8 2020

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After several decades of improvement, inequality in infant health is once again on the rise in the United States, a pair of Brown University researchers has found.

Between 1989 and 2010, the [health gap](#) between [infants](#) born to the most socially advantaged [mothers](#)—those who are married, highly educated and white—and infants born to the least socially advantaged mothers—those who are unmarried, without a [high school diploma](#) and Black—steadily decreased. But according to a new study, that trend began to reverse in 2010, creating an ever-widening gulf that could last for generations.

"Lots of Americans view the U.S. as a land of equal opportunity where hard work pays off," Emily Rauscher, an associate professor of sociology at Brown. "But equality of opportunity is fundamentally impossible to achieve as long as there is inequality in [infant health](#). When babies are born in under-resourced communities, they are more likely to be born underweight or malnourished. They're already at a disadvantage before they've even had an opportunity to do anything in the world."

Rauscher conducted the study with David Enrique Rangel, an assistant professor of education—both are affiliated with Brown's Population Studies and Training Center. The results were published in the journal *Social Science & Medicine—Population Health*.

The coauthors said they were motivated to investigate the trend in infant health inequality after the possibility of a shift came to their attention in conducting research on how maternal education affects infant health. As they combined data from Rauscher's previous research on the effects of parent education levels on infant health with existing data on the effects of maternal race and ethnicity on infant health, they noticed that the data suggested a recent increase in inequality—a worrisome departure from the decades-long decline in inequality identified by Brown economist Anna Aizer in an influential 2014 paper.

The trend is a concern, Rauscher and Rangel explained, because multiple

studies have shown that when infants are born underweight or more than three weeks before their due date, they may face health complications that could affect mental, physical and economic well-being for years to come. Those health complications are more likely to occur in infants born to mothers who face social and economic disadvantages, studies show, because they are more likely to experience high levels of stress, live in areas with limited access to affordable, [nutritious food](#) and come into contact with harmful chemicals in places where they live and work.

"The social conditions of living in an under-resourced community—more exposure to carcinogens, less access to healthy food, more stress—result in poorer infant health outcomes, like issues with cognitive development," Rangel said. "That could result in a child struggling in school or an adult struggling to find a job. That could mean a child exhibiting externalizing behaviors—lashing out at peers."

To confirm that their preliminary findings were correct, the authors analyzed three decades of data from the National Vitality Statistics System, a birth registry that records key infant health statistics and maternal race, marital status and education level. Like Aizer, they found that between 1989 and 2010, health disparities between infants born to mothers at opposite ends of the socioeconomic spectrum had gradually narrowed, leading to better health outcomes for infants born in more disadvantaged communities.

"One of the major reasons why inequality decreased in these decades was because there was an increase in knowledge about what led to good fetal health outcomes," Rauscher said. "Doctors have learned that things like folic acid supplements and routine checkups can make a big difference in infant health. Nowadays, almost every OBGYN in every town has an MRI machine, which allows them to do the ultrasounds that help them catch slow growth early. They know that diabetes, pre-pregnancy hypertension and smoking during pregnancy are all major risk

factors."

However, the researchers found that that decades-long pattern of improvement seems to have reversed course in the last few years. Their data show that infant health inequality in the U.S. seems to have grown steadily over the last few years in concert with increasing income inequality, which has now reached a 50-year high. Over the last decade, the researchers observed that gaps in health between Black and white infants remained relatively stable. But health inequality increased between infants born to married and unmarried mothers and between mothers at opposite ends of the educational attainment spectrum.

For example, Rauscher said, the number of pre-term babies born to married mothers increased by 0.6% per decade before 2010, but in the 2010s, it decreased by 1.6%. Conversely, the number of underweight infants born to unmarried mothers decreased by about 0.7% per decade before 2010 but increased by 1.1% per decade after that. In other words, at the same time that health risks improved for infants born to married mothers, they worsened for infants born to unmarried mothers.

The researchers found that the steepest growth in infant health inequality was between mothers who had graduated from college and mothers who did not finish high school. In the two decades before 2010, the health of infants born to mothers with no high school degree remained fairly stable. But after 2010, rates of low birth weight increased by 1.4%. In contrast, before 2010, mothers who had a college degree experienced slight increases in underweight and preterm births—but after 2010, very low birth weight and pre-term births among college-educated mothers declined by 0.1% and 1.7%, respectively.

"The fact that we found the steepest increase in inequality when we isolated for education level suggests to us that moms without a high school degree have become increasingly marginalized in American

society," Rauscher said. "That could be because the population of Americans without a high school degree is becoming smaller and smaller—so as education levels rise, those with the lowest levels of education face more of a disadvantage in every respect."

Rauscher and Rangel found that the biggest disparity in infant health outcomes was between those whose mothers were white, married and college-educated—in other words, those who had a socioeconomic advantage due to a combination of their race, marital status and education—and those whose mothers were Black, unmarried and without a high school degree. In the former group, the rate of low birth weight had been increasing by about 0.3% per decade before 2010, but it decreased by about 0.1% after 2010. In the latter group, the rate of low birth weight declined by about 1% per decade in the 1990s and 2000s, but after 2010, the rate reversed course and increased at a rate of about 1.5% per decade.

The increase in inequality shows that improved medical knowledge alone can't drive away disparities in health outcomes, Rauscher said. The reversal of fortune in 2010 came on the heels of the Great Recession, which disproportionately impacted the most marginalized Americans, including people of color and people living below the poverty line, according to multiple economic studies—evidence that infant health can't improve until the U.S. solves major systemic issues such as food insecurity, the high cost of health care and homelessness, the researchers said.

"It's really valuable for [pregnant women](#) to go to the doctor regularly, but going to the doctor won't solve everything," Rangel said. "We know that factors like stress, poor nutrition and exposure to pollution can have negative implications for fetal development. But doctors can't wave a magic wand and give mothers secure housing or move them out of food deserts."

Both Rauscher and Rangel said they hope their data will prompt policymakers at all levels to consider large-scale reforms that would improve infant [health](#) inequality. School districts, for example, should consider improving academic support for disadvantaged high school students to minimize dropout rates, they said, and federal leaders should ponder the economic advantages of implementing a universal basic income.

"To see positive changes, there are going to have to be huge social interventions," Rangel said. "It's more than making sure pregnant women get to the doctor within six weeks. It's providing a complete social safety net, which not only helps disadvantaged mothers stay on their feet but also means the next generation is happier and healthier than the last."

**More information:** Emily Rauscher et al, Rising inequality of infant health in the U.S., *SSM - Population Health* (2020). [DOI: 10.1016/j.ssmph.2020.100698](#)

Provided by Brown University

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