

Researchers show economic disparities impact infant health

August 20 2014

Women who are poor experience higher cortisol levels in pregnancy and give birth to infants with elevated levels of the stress hormone, putting them at greater risk for serious disease later in life, according to a new research from the University of Colorado Denver.

The study, published online recently in the *American Journal of Human Biology*, is the first to measure cortisol in infants and relate it directly to the socioeconomic status of their mothers during pregnancy.

"There have been several studies relating [cortisol levels](#) in teenagers and adults to [socioeconomic status](#), but this is the first to look at this relationship among pregnant women and their babies," said study author Zaneta Thayer, PhD, assistant professor of anthropology at CU Denver, a major center of timely, topical and relevant research. "The results offer new insights into how health disparities can be inherited across generations."

Cortisol is a [stress](#) hormone produced by the hypothalamic pituitary adrenal (HPA)-axis which, if overproduced, can contribute to a host of chronic ailments including cardiovascular disease and mental illness.

In her study of 64 pregnant females in New Zealand, Thayer found that poor women had higher cortisol levels during pregnancy and gave birth to infants with elevated cortisol responses to stress.

"The babies of lower socioeconomic mothers had higher cortisol

response to the stress of the vaccination," Thayer said. "Such changes have elsewhere been associated with differences in cognition, temperament and physical health."

The women were assessed for 19 key stress markers during their pregnancy. These included significant life events such as job loss, divorce, death of a friend, and physical or emotional abuse.

Other questions included:

- Have you personally been forced to buy cheaper food so you could pay for other things needed?
- Have you put up with feeling cold to save on heating costs?
- Have you made use of food banks or food grants because you didn't have enough money for food?
- Have you gone without fresh fruit or vegetables so you could pay for other things you needed?
- Have you received help in the form of clothes or money from community organizations like the Salvation Army?

Those reporting the greatest stress and material deprivation had the highest cortisol levels and also gave birth to infants with higher cortisol.

"Our findings suggest that stressful social environments experienced by a mother impact her offspring...and that this is already detectable in the first weeks after birth," the study said. "These findings point to an early origin in social disparity-based differences in biological function."

How best to deal these problems remains complex but Thayer believes it begins with stress reduction.

"Social support is needed to alleviate stress," Thayer said. "By improving the health and well-being of socially disadvantaged women you may help

to improve the health and well-being of their children and therefore society overall."

Provided by University of Colorado Denver

Citation: Researchers show economic disparities impact infant health (2014, August 20)
retrieved 6 May 2024 from

<https://medicalxpress.com/news/2014-08-economic-disparities-impact-infant-health.html>

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