

---

# STRESS ON MOTHERS IS LIKELY TO HAVE A LASTING IMPACT ON CHILDREN BORN DURING THE PANDEMIC

Michael Ungar and Suzanne King | May 19, 2020

*Michael Ungar is the Canada Research Chair in child, family and community resilience at Dalhousie University and a fellow of the Royal Society of Canada. Suzanne King is a professor in the department of psychiatry at McGill University and the principal investigator of Project Ice Storm.*

The stress we are experiencing during this pandemic is likely getting under our skin and changing us at a cellular level. This is a frightening situation, but it's one we can act on by drawing upon Canada's substantial body of research about human development in times of trauma.

The impact of trauma was made clear after the 1998 ice storm hit Quebec, causing power outages for three million people for up to six weeks. The long-term effects were looked at in Project Ice Storm, a study of children whose mothers were pregnant at the time.

Project Ice Storm assessed three different aspects of the stress that pregnant women experienced: their actual experience of hardship (the amount of loss, personal threat and the number of days they were without power), their subjective distress (the severity of PTSD-like symptoms) and their cognitive appraisal (whether they evaluated the consequences of the event as negative, neutral or positive). The greater the stress the mothers in Project Ice Storm suffered, the more likely their children were to experience the following: poor intellectual, language and motor development; increased risk for obesity or diabetes; and more severe levels of anxiety and depression. Many of these effects have lasted into young adulthood and may continue.

The researchers on the project are endeavouring to understand how something that happens to the mother during pregnancy can alter the development of the unborn child. While nothing can change our DNA, our environment can affect which genes are turned on or off through "epigenetic" mechanisms that include a process called methylation. These changes can continue throughout our lifetime.

When the researchers took blood samples from Project Ice Storm children at age 13, they discovered that each child's pattern of methylation was closely linked with the mother's stress from the ice storm. These patterns communicated information from the mothers' external and internal experiences to the placenta, which then altered the fetus's methylation profile. These changes then went on to influence several aspects of development that were still visible in early adolescence: the children's immune system, their body mass index (BMI) and their metabolism.

If these are the kinds of changes found in children born after a natural disaster, we are likely to see that the COVID-19 pandemic will also have broad effects well into the future. Project Ice Storm can offer us clues to the things we should be paying attention to during this crisis if we are going to prevent long-term health problems in the next generation, and even the one after that.

We now know that intergenerational transmission of stress is possible through epigenetic mechanisms. We can anticipate that the children of the children in utero during this pandemic will also be at least slightly limited in their potential: The stress pregnant women are experiencing will even affect the eggs of sperm of their offspring.

---

To reduce the impact, first we will need to control the perception of the threat, de-escalating our collective sense of dread. We need to avoid policies in hospitals that pit infection risk against healthy family development, such as a policy rolled out last month in a Montreal hospital that banned women's partners from attending births. With better testing for COVID-19 will come more accurate appraisal of the real risks to different populations.

Second, we need to decrease financial losses to families so that pregnant women are not worrying about the necessities of life such as food and shelter. (Thankfully for most of us in Canada, access to health care is only a minor concern).

And third, we need to enhance social networks. Disaster studies find that the better the expectant mothers' support from their partners and social networks, the more protected the unborn child is from the effects of stress. Pregnant and postpartum women also get social support from prenatal classes, which provide information and skills that are vital components to developing confidence during pregnancy and experiencing an easier birth. Can women obtain the same benefits from online classes? We simply do not know.

Of course, an ice storm and a pandemic do not produce the same kinds of stress. During the ice storm, people weren't forced to socially isolate, and hunkering down with extended family often generated positive appraisals of the disaster. COVID-19, however, has generated many assaults on attachments and our sense of security. The long-term consequences of this are likely to turn an already bad situation into one much worse for newborns and their mothers unless we work harder to address vulnerabilities.

Unfortunately, we did not prepare well enough for the COVID-19 pandemic, even when we had the time and the knowledge to do so. That means we can anticipate that there will be a generation (or more) of children who are prevented from reaching their full potential. Although we can't avoid being affected by this pandemic, research shows that we can limit the trans-generational damage by fostering resilience through social support and more enlightened family policies.

*This article was initially published in the Globe and Mail on May 19, 2020.*