



Can a mom's distress during and after pregnancy increase her baby's allergy risk?

New research sheds light on the link between a mom's psychological wellbeing and the immune health of her newborn.

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Video presentation

<https://youtu.be/cGPwue1yWl8>

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What is this research about?

Pregnancy and raising a newborn can be stressful. It is relatively common for women to experience psychological distress, such as stress, depression and anxiety, while pregnant and during the weeks and months after delivering a baby.

Several studies have suggested that there is a link between a mother's distress and her child developing an allergy, but exactly how one leads to the other has been unclear. Other research has associated childhood allergies with early changes in a baby's gut immune system. This research brings these two threads together by investigating whether a mother's distress leads to immune changes in her newborn, which, in turn, may be an early step in developing allergies.

As a measure of immune function, the study focused on secretory Immunoglobulin A, or sIgA, an important immune antibody (protein) found in an infant's gut. sIgA blocks harmful pathogens from entering the gut and helps a baby's immune system to mature, which may reduce allergy risk later on.

What did the researchers do?

The researchers studied 403 infants and their mothers who are participating in the Canadian Healthy Infant Longitudinal Development (CHILD) Study—a national study that is following 3,500 Canadian children and their families from before birth to school age and beyond to identify the root causes of asthma, allergy and other chronic conditions.

Mothers in the study completed detailed questionnaires about their distress levels throughout their pregnancy and after their babies were born. Mothers and caregivers also provided information about their breastfeeding and infant feeding practices, medication use and home environment.

When the infants were three months old, the researchers measured sIgA levels in their stool and compared the babies' sIgA levels and their mothers' level of distress to look for a relationship between the two.

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Since sIgA is passed from moms to infants through breastmilk, the researchers also wondered if breastfeeding might change the relationship between maternal distress and sIgA levels in infants. Using information from the health questionnaires, researchers classified the infants into three categories: exclusively breastfed, partially breastfed, and not breastfed. The researchers then calculated the likelihood of having low sIgA levels when the mother is distressed while considering breastfeeding status and other maternal factors, such as a mother's allergies or antidepressant use.

What did the researchers find?

The researchers found that, regardless of breastfeeding status and other maternal factors:

- when mothers experienced distress both *during and after pregnancy* (prenatal and postnatal), their infants were three times as likely to have reduced sIgA levels as infants whose mothers were not distressed.
- when mothers experienced distress *only during pregnancy* (prenatal), their infants had lower sIgA levels than infants whose mothers were not distressed.

Both of these findings suggest that maternal distress is associated with lower infant sIgA levels independently of breastfeeding and other maternal factors.

The researchers also found that:

- when mothers experienced distress *only after pregnancy* (postnatal), infants' sIgA levels were reduced; however, the reduction was not significant once breastfeeding status was considered.

This finding suggests that postnatal distress affected infant sIgA levels when this distress resulted in the mother breastfeeding less, and not directly through a stress-gut immunity pathway.

How can this research be used?

This research sheds new light on the connection between maternal stress and infant gut immunity, and suggests that a mother's psychological wellbeing both during and after pregnancy may help to shape the immune health of her newborn.

The findings encourage the development of community programs and policies to assist mothers in distress, and highlight the need for family and healthcare professionals to support women during pregnancy and in the months after birth.

Finally, these results may help to inform policies to promote breastfeeding, which, as an important source of sIgA in a baby's first few months of life, can counter the negative effects of maternal stress on infant gut immunity.