

Household chemicals may affect the mental health of new & expecting moms

Research from the CHILD Cohort Study has found that common chemicals found in house dust may contribute to increased anxiety among moms in late pregnancy and with newborns..

The chemicals in question are organophosphate ester flame retardants and plasticizers (OPEs). For fire safety purposes, they are a common component of building materials. They are also used in many other household consumer goods including furniture, textiles, and cosmetic and baby products.

EVIDENCE OF NERVOUS SYSTEM IMPACTS

“Because of their similarity to certain pesticides, there has long been concern that these chemicals might affect the nervous system,” comments senior author Dr. **Jeff Brook** of the University of Toronto.

“Various studies have supported this association; some have suggested these chemicals may influence the nervous system of children. We wanted to see if OPEs might also affect the mental health of expecting and new mothers—potentially contributing to postpartum anxiety or depression.”

MORE OPEs: HIGHER ANXIETY IN MOMS

Published in [Environmental Research](#), the study found that moms living in homes with higher levels of OPEs in house dust experienced higher levels of stress during pregnancy and in the first months after giving birth, compared to moms in homes with lower levels of OPEs. The

researchers also observed a minor difference in levels of depression among these moms.

The study used data from 718 CHILd participants. The researchers assessed the presence of OPEs by analyzing house dust that was collected from the participants’ homes three to four months after the mothers gave birth. The mental health of the mothers was measured based on questionnaire responses provided by those moms at two timepoints during pregnancy, and at two timepoints in the first year after giving birth.

EFFECT STRONGEST JUST BEFORE GIVING BIRTH

“Our results suggest that exposure to OPEs in house dust is associated with a small increase in maternal stress during the prenatal and postpartum periods,” comments lead author **Stephanie Foster**, a postdoctoral scholar at Oregon State University.

“This effect appeared to be strongest immediately preceding birth and to diminish gradually after birth.

“While associations with depression were not statistically significant, our study suggests that higher OPE exposure may be related to a small increase in depression score.”

COMPREHENSIVE HOME ASSESSMENTS

The dust was collected as part of [comprehensive home assessments](#) led by co-author Dr. **Tim Takaro** of Simon Fraser University, which analyzed exposure to dust, mould, furry pets, chemicals and [cleaning products, cooking emissions, second-hand smoke, and traffic-related air pollution.](#)

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Higher anxiety
among moms in homes with higher levels of OPEs in house dust

Slightly more depression
among the same moms

Organophosphate ester flame retardants and plasticizers (OPEs) are chemicals commonly used in building materials and many consumer goods.

Effect on moms' mental health was strongest immediately preceding birth (at 36 weeks gestation) and gradually diminished after they gave birth.

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Foster SA et al., Environ Res. (2023)



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