

## Postpartum depression study shows gene behavior differs by environment

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A recently released paper in the *Proceedings of the National Academy of Sciences (PNAS)*, "The Role of Mother's Genes and Environment in Postpartum Depression," explores the interplay between genes and environment when determining whether a mother is at high or low risk for post-partum depression. Daniel Notterman, vice dean for research at Penn State College of Medicine, was part of a multi-university team including Princeton, Columbia and University of York (UK) that conducted the study.

As part of the continuing Fragile Families and Child Wellbeing Study, launched in 1997, researchers examined the [DNA](#) of more than 1,200 mothers. The authors specifically examined two genetic markers -- 5-HTTLPR and Stin2 -- that have been linked to risk of depression.

These data were then examined against whether or not the mother was depressed in the first year of her child's life and her level of education -- with low levels of education being a proxy for a negative environment and higher levels for a positive one.

While post-partum depression affected less than a quarter -- 17 percent -- of those sampled, the rates varied depending on whether the mother carried specific variants of a gene associated with biological sensitivity to her environment and her level of education.

Not surprisingly, mothers with genetic markers that made them more sensitive to their environment were more likely than other new mothers

to become depressed if they were in a negative environment (i.e. low level of education).

Mothers without these markers looked the same across the education spectrum, with rates of depression the same regardless of environment. For these mothers, environment did not seem to have much of an impact.

However, when a mother with the ‘sensitive’ markers was in a positive environment (i.e. high level of education) she was actually less likely to become depressed than all other mothers, including those without the environmentally sensitive genetic markers.

Thus, the term “depression gene” is not quite right. In fact, the [genetic markers](#) previously linked with depression are actually signaling a more environmentally sensitive genetic makeup. This results in mothers with the sensitive genetic make-up actually being better off than other mothers in a positive [environment](#), but worse off than others in harsher environments.

Provided by Pennsylvania State University

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