Research reveals maternal education levels during pregnancy are linked with epigenetic markers in the child

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A study from the University of Oulu, Finland, has uncovered compelling evidence linking maternal education levels at the time of pregnancy to

children's epigenetic markers (DNA methylation) at key developmental stages: birth, childhood, and adolescence.

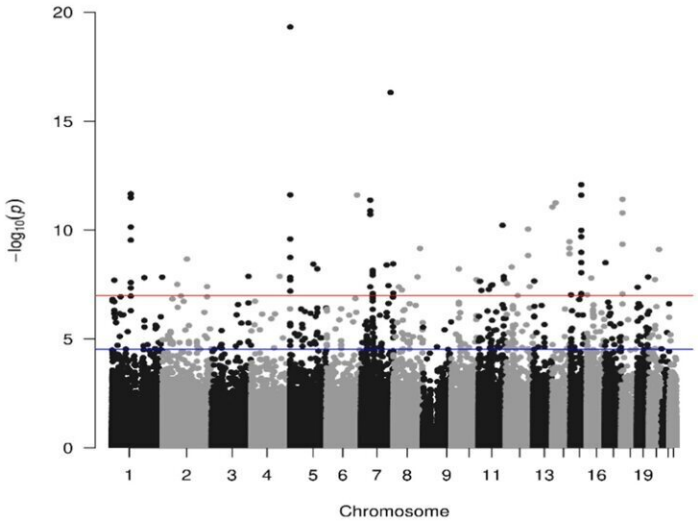
The study, the first of its kind, used a large-scale meta-analysis of data from 37 studies in high-income countries in Europe, the U.S., and Australia, under the PACE (Pregnancy and Child Epigenetics) consortia. The new findings are published in *Molecular Psychiatry*.

This research builds on previous evidence showing that early life factors such as maternal smoking during pregnancy, education, body mass index (BMI), and nutrition, can affect a child's health throughout their lives. A low level of maternal education is not a sufficient cause of offspring health per se, but it is often linked to other adverse prenatal exposures.

Prior investigations have suggested that changes in DNA methylation may serve as a plausible bridge, connecting early life exposures to long-term health outcomes in the child. However, the role of social factors in this aspect remains unclear.

This discovery suggests that socio-economic factors, especially maternal education, can have a lasting impact on a child's health and well-being. This research is a stepping stone toward unveiling biological and social linkages in human development.

a) Cord blood



b) Childhood

c) Adolescent

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Manhattan plots of the maternal education attainment EWAS model 1 in the offspring at three time points. The x axis is the chromosomal position, and the y axis is the *P*-value on a -$\log_{10}$ scale. The blue line corresponds to the first CpG site for which P_{FDR}

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