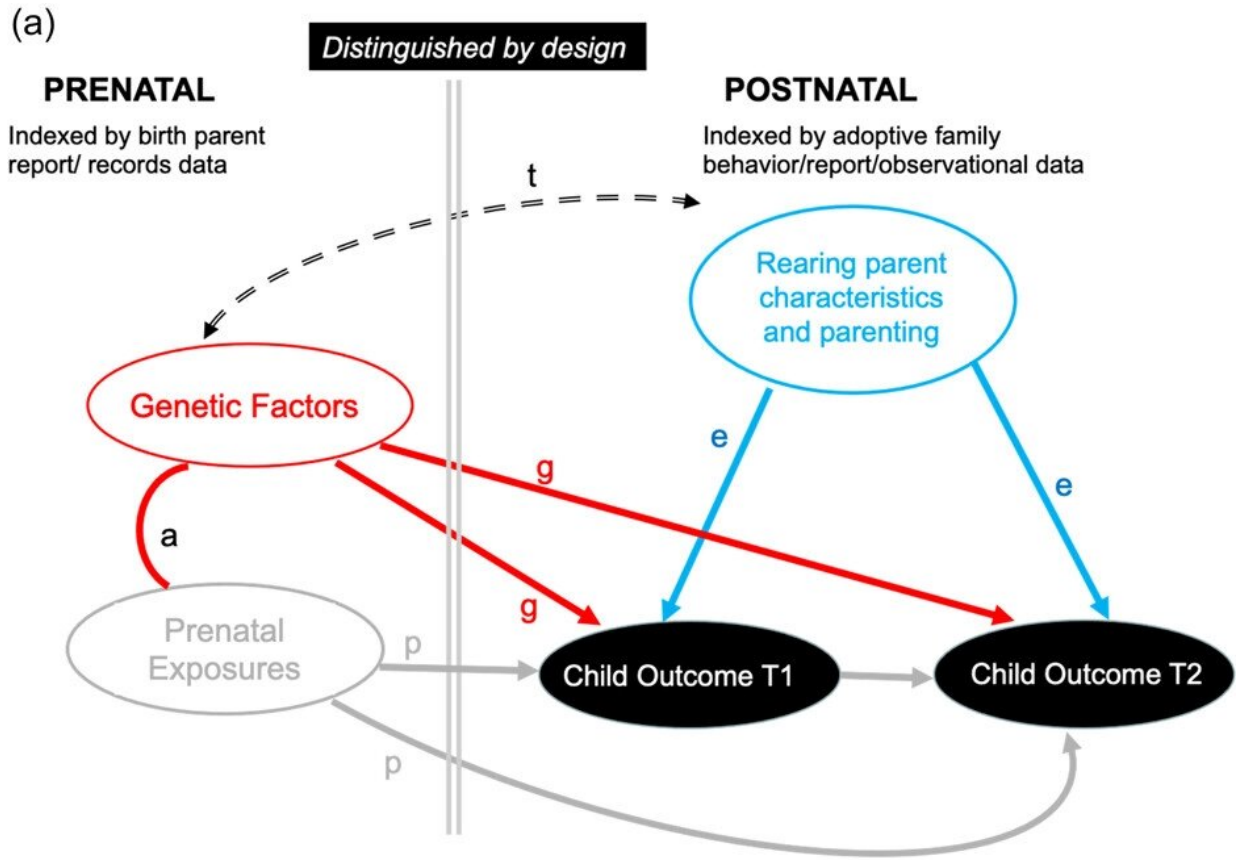
Adoption study shows impact of young children's genetic makeup on parents

April 24 2023, by Crista Marchesseault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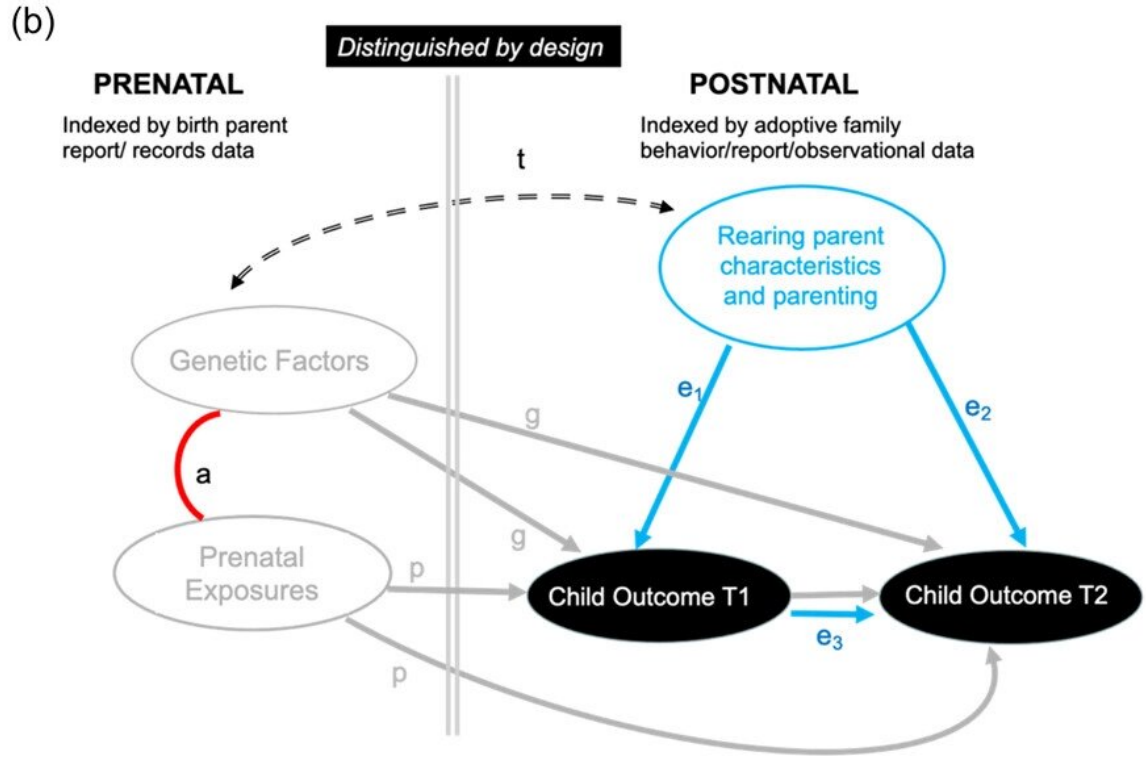
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(a) Conceptual illustration of a parent-offspring study that incorporates both birth parent and adoptive parent participants. (b) Conceptual illustration of a parent-offspring study with genetically related participants only. (c) Conceptual illustration of the evocative pathway from birth parent to child to rearing parents made possible with the adoption design. (d) Conceptual illustration of genetic moderation of environmental pathways in the adoption design. Credit: *Monographs of the Society for Research in Child Development* (2023). https://srcd.onlinelibrary.wiley.com/doi/full/10.1111/mono.12460

Findings from the ongoing longitudinal Early Growth and Development Study (EGDS), a long-term, prospective adoption study launched by a Yale psychiatrist, indicate that, while many studies have emphasized the role of parents in the development of a child, children can also influence their parents—and some of these influences are due to genetic characteristics.

A new publication by *Monographs of the Society for Research in Child Development* titled "Parenting in the Context of the Child: Genetic and Social Processes" presents study results with practical importance for policies and interventions that seek to promote children's positive social development and mental health.

Initially developed in 1994 by Yale Child Study Center (YCSC) Professor David Reiss, MD, the EDGS was led by a team of investigators across six universities who have worked together for 25 years. The EGDS has involved the cooperation of 45 adoption agencies in 15 states. The study is ongoing and has analyzed data from interviews, surveys, and direct observation of 561 children adopted shortly after birth, along with their birth and rearing parents.

Four major themes emerged from the findings. The first is that children's genetic makeup can evoke specific parenting responses.

Similarities between birth parents and adopted children are typically presumed to be genetic while similarities between rearing parents and children are presumed to be environmental.

"All working on the study are still amazed that we can predict how an adopted child is parented just from a knowledge of birth parent characteristics," said Reiss, a professor of clinical child psychiatry. For example, birth parents' lack of interest in social engagement predicts hostility in the relationships between the adopted children and their rearing parents. This appears to be due to the adopted child's indifference to engage with the adopted parents, a trait genetically influenced by their birth parents, the researchers say.

In some cases, these birth parent-child-adoptive parent associations drove the child toward behavioral problems. For example, adopted children of birth parents with highly assertive temperaments showed more anger, which elicited more parental hostility. This parental response led to increased behavioral problems in the child. Sequences such as these could be curtailed when parents had a satisfying marriage.

"The full impact of children's genetic makeup on their development depends on how parents respond to them," Reiss commented. "We were pleasantly surprised to observe that very troubling genetically influenced traits in children—such as a worrying mixture of callousness and fearlessness—could be offset by parental warmth. Favorable responses to children that offset genetic risk are enhanced if parents have a positive relationship with one another."

A second theme of the findings is that children's genetic makeup influences the kind of parenting they need. For example, children in the study whose birth parents had a broad range of symptoms and behavior problems benefitted from highly structured parenting. "In this form of parenting," commented Professor Leslie Leve, a principal investigator of

EGDS at the University of Oregon, "parents give their children clear directions and help them focus their attention." In contrast, children of birth parents with little or no evidence of psychological difficulties but who received more structured parenting showed higher levels of behavior problems.

Third, children's genetic makeup was found to serve as an accelerator or brake of downward spirals of parent and child interaction. For example, children of depressed birth mothers responded more negatively to rearing parents' adverse parenting compared with children of birth mothers with low levels of depressive symptoms. These negative responses by the children led to more increased hostility and depressive symptoms in the rearing, adoptive parents. By contrast, children whose birth parents valued social interaction—children who typically demonstrated a sunny disposition—had a lower genetically influenced risk of receiving hostile parental responses, especially from fathers. This can help halt a potential downward spiral of father-child relationships.

Finally, in addition to child effects, the study corroborated some important roles of parenting. A benefit of an adoption study design is that genes common to parents and children can be ruled out as causes of associations between rearing parents and their children. For example, adoptive parental harshness was associated with increased child aggression from age 27 months to 4.5 years. However, the effects were most pronounced for fathers and were not detected from child ages 4.5 to six years.

The EGDS provides uniquely strong data on this sensitive period for parental influence because the effects of genes common to parents and children have been ruled out. In addition, the adoption study design allowed researchers to confirm that rearing parents' depressive and anxiety symptoms can influence children's anxiety and other behavior problems, suggesting an environmental effect.

Birth parents' depressive symptoms were also associated with child behavior problems, suggesting a genetic effect combined with an environmental one. Notably, the study also found that children's symptoms influence their rearing parents' anxiety and depressive symptoms.

Reiss noted that, "two distinctive features of this work are the use of genetic tools to understand social processes in the family and the surprising role of intrinsic child characteristics in shaping these social processes."

"To be maximally effective, our findings suggest that planned efforts to enhance child development must be tailored to the unique characteristics that the child brings to the family," the authors concluded. "Thus, interventions need to heighten parents' abilities to detect, as early as possible, the signs of both the genetically influenced assets and liabilities of their children. Genetic perspectives may assist in that discovery."

More information: David Reiss et al, Parenting in the context of the child: Genetic and social processes, *Monographs of the Society for Research in Child Development* (2023). DOI: 10.1111/mono.12460. srcd.onlinelibrary.wiley.com/d … l/10.1111/mono.12460

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