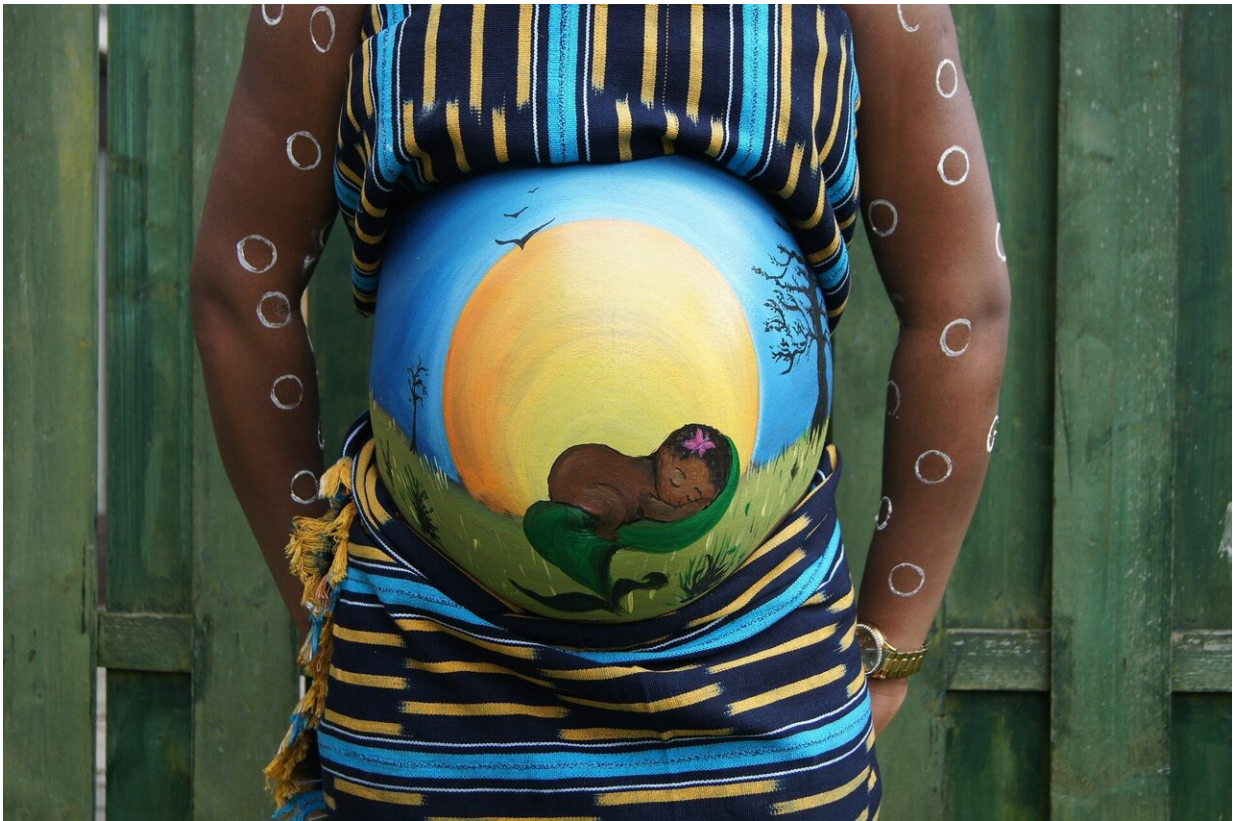


# Genetics plays important role in when people first have sex, and when they have kids

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An Oxford-led team, working with Cambridge and international scholars, has discovered hundreds of genetic markers driving two of life's most momentous milestones—the age at which people first have

sex and become parents.

In a paper published today in *Nature Human Behaviour*, the team linked 371 specific areas of our DNA, called genetic variants (known locations on chromosomes), 11 of which were sex-specific, to the timing of first sex and birth. These variants interact with environmental factors, such as socioeconomic status and when you were born, and are predictors of longevity and later life disease.

The researchers conducted a Genome-Wide Association Study (GWAS), a search across the entire human genome, to see if there is a relationship between reproductive behavior and a particular genetic variant. In the largest genomic study ever conducted to date, they combined multiple data sources to examine age at first sex (N=387,338) and birth (N=542,901) in men and women. They then calculated a genetic score, with all genetic loci combined explaining around 5-6% of the variability in the average age at sexual debut or having a first child.

Professor Melinda Mills, Director of the Leverhulme Centre for Demographic Science at the University of Oxford and Nuffield College, and the study's first author says, "Our study has discovered hundreds additional [genetic markers](#) that shape this most fundamental part of our lives and have the potential for deeper understanding of infertility, later life disease and longevity."

The genetic signals were driven by [social factors](#) and the environment but also by [reproductive biology](#), with findings related to follicle-stimulating hormone, implantation, infertility, and spermatid differentiation.

Professor Mills adds that they "already knew that childhood socioeconomic circumstances or level of education were important predictors of the timing of reproduction. But we were intrigued to find

literally not only hundreds of new genetic variants, but also uncover a relationship with [substance abuse](#), personality traits such as openness and self-control, ADHD and even predictive of some diseases and longevity ."

Professor Mills says that they "demonstrated that it is a combination of genetics, social predictors and the environment that drives early or late reproductive onset. It was incredible to see that the genetics underlying early sex and fertility were related to behavioral dis-inhibition, like ADHD, but also addiction and early smoking. Or those genetically prone to postpone sex or first birth had better later life health outcomes and longevity, related to a higher [socioeconomic status](#) in during childhood."

Genetic factors driving reproductive behavior are strongly related to later life diseases such as Type 2 diabetes and cardiovascular disease.

"It is exciting that the genetics underlying these reproductive behaviors may help us understand later life disease."

Professor Mills concludes, "Starting your sexual journey early is rooted in childhood inequality but also has links with health problems, such as cervical cancer and depression. We found particularly strong links between early sexual debut, ADHD and substance abuse, such as early age at smoking. We hope our findings lead to better understanding of teenage mental and sexual health, infertility, later life disease and treatments to help."

**More information:** Mills, M.C. et al, Identification of 371 genetic variants for age at first sex and birth linked to externalising behaviour, *Nat Hum Behav* (2021). [DOI: 10.1038/s41562-021-01135-3](https://doi.org/10.1038/s41562-021-01135-3)

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