

# Parenting begins in pregnancy

A science explainer on why we need a two-generation approach to wellbeing

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**When I was born my mother had severe postpartum depression. I don't have memories of this, but I later learned how painful this was for her, and understood that this pain doesn't come out of nowhere. My mom had significant trauma in her background and around the time of my birth there was essentially no mental health care or psychological support for her. Medical professionals didn't talk about postpartum depression at all, and nor did friends and family.**

My commitment to a two-generation approach to improving the health of mothers and children is rooted in this personal place, and has only grown through my and others' research on the subject over the past three decades. Parenting begins before birth. Science is increasingly making it clear that a mother's psychological struggles and traumatic experiences before and during pregnancy have long-term implications. Through a variety of biological mechanisms, stress experienced by a pregnant woman can negatively affect a child's social and emotional development, sometimes in ways that can last a lifetime. The good news is that we can

prevent these adverse outcomes. Treatments and interventions during pregnancy can nurture the mother's own wellbeing and improve the physical and mental health of the next generation.

One of the most-cited studies looking at this (O'Donnell et al., 2014) comes from a dataset from England on children between the ages of 4 and 13 years. It shows that high levels of maternal anxiety during pregnancy predicted a doubling of children's risk for behavioural health problems such as ADHD and anxiety. Similar results are found for high levels of maternal stress and depression symptoms (O'Donnell et al., 2014; Babineau et al., 2022).

We also have growing evidence that greater mental wellness during pregnancy can positively affect the child's future wellbeing. Research shows that more social support provided to a mother during pregnancy is related to a reduced risk of children having a developmental delay at 3 years old (Imanishi et al., 2024). This might include a pregnant woman having people around on whom she can rely to support her with practical or emotional needs.



Photo: Su Arslanoglu

**“More social support provided to a mother during pregnancy is related to a reduced risk of children having a developmental delay.”**

Another study found that stress during pregnancy is closely connected to a lack of social support, and that the less stress and more social support a woman has during pregnancy, the less likely she is to give birth pre-term (Walsh et al., 2019).

### **The biology of mother–child wellbeing during pregnancy**

Other research sheds light on the biology of these effects. In one study from my team at Columbia, we found that depression during pregnancy is associated with different functional brain connectivity in the newborn, or the way connections

between different brain areas develop during pregnancy. Specifically, this change affects a part of a circuit that helps regulate fear responses, and is associated with greater reactivity and less capacity to modulate fear or novelty-linked responses in the child’s future (Posner et al., 2016). We know that people who have difficulty regulating moods or emotions, particularly around fear and anxiety, have less connectivity in the area of the brain responsible for dampening down the fear response. A young child with less connectivity in this region of the brain may grow up to have more intense negative reactions to novelty, changes in routine, and new people. Conversely, a child with healthy connectivity in this region is likely to be more flexible, trusting, and can more easily adjust to new experiences.

Finally, our research group (Monk et al., 2019), as well as others (Kramer et al., 2023), has identified biological mechanisms by which maternal experiences in pregnancy are transmitted to the foetus, affecting outcomes. One of these mechanisms is epigenetics, which are modifications

to DNA that alter the functioning of genes without changing the genetic code; potentially, these marks altering the functioning of genes can be passed on to the next generation. In one study, we showed that high levels of maternal stress were associated with greater DNA methylation (turning off a gene) in the placenta in genes known to deactivate the stress hormone cortisol as it crosses into the foetal compartment. When the gene is turned off, the foetus has less protection from cortisol and therefore more exposure to it – which can alter brain and stress-regulation development and lead to more anxious behaviour and less adaptive development. We also found that this increased DNA methylation in the placenta is associated with indications of slower foetal central nervous system development (Monk et al., 2016).

In another report (Scorza et al., 2023), childhood trauma experienced by the mother herself was associated with differential DNA methylation in male newborn cord blood in genes related to neural development in the cerebellum – the part of the brain involved with movement and, newer data suggests, emotional regulation – among other areas. This research from my group is some of the first that suggests that intergenerational trauma can be transmitted through biological mechanisms. [Other research](#) (Monk et al., 2019) has documented the way pregnant women's stress can negatively impact the immune system, microbiome, and inflammation levels of babies *in utero*.

### **How better care can help**

Based on our research and my experience with pregnant women in the integrated mental health practice I oversee in our Obstetrics & Gynecology Department, I believe that when a pregnant woman feels supported and safe, has adequate resources, and feels less stress related to childcare and parental leave issues, she will feel more comfortable and at ease during the transition to parenthood. Overall, she will experience better wellbeing. I see this happen in real time during psychotherapy sessions; when women experience relief through being able to unburden their stress and learn new tools for managing stress, they become better able to experience the joys of this unique period in life.

Also, their tolerance of unknowns, of which there are many in pregnancy and new parenthood, increases. Ultimately, this improvement in wellbeing helps both the mother and her future child.

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Interventions to help relieve stress during pregnancy, helping both mother and child, would involve better integration of mental health programmes in maternity care. Prenatal appointments with doulas, and other community partners, shouldn't just be about the physical health of the mother and child, such as weight gain and foetal heartbeat, but also should support the psychological transition to motherhood (Monk et al., 2022). However, we need to be careful to not put more demands on obstetricians, gynæcologists or midwives; we can collaborate with all birthing experts, community leaders and peer support networks to promote wellbeing during this time of unprecedented use of the healthcare system.

Postpartum drop-in groups via Zoom, with medical, psychological and community experts facilitating the conversation, can be a low-investment approach to generating support and minimising isolation, as well as ensuring sharing of reliable information. Social media is another tool for disseminating science-based messages to improve maternal wellbeing. For example, pregnant women could hear about how ambivalence<sup>1</sup> is a normal part of the experience of becoming a new mother – it is okay to have conflicting feelings and it doesn't mean you shouldn't be a parent. Knowing this would relieve stress for many.

<sup>1</sup> For more on this theme, see the interview with [Sarah Blaffer Hrdy](#) on pages 34–38.

I have also found that when it comes to the perinatal period, it is best to strike while the iron is cold. This means providing information and help prior to the birth of the child, when there is less chaos and an opportunity to frame realistic expectations. For example, resources during pregnancy can address: realistically identifying adequate social support before the baby is born; critically assessing how conflict with their partner is navigated, as conflict is inevitable in raising a child; and knowing the signs of postpartum mental illnesses.

Today we have nearly three decades of science on prenatal programming that tell us that pregnancy is, without a doubt, influential for children's futures. It is important to note that pregnancy is not deterministic, and not every child who has a stressed mother will

be negatively affected. But when we look at the research overall, we see the importance of reducing stress for new mothers through better economic, social and political policies, as well as by increasing mental health interventions and support during pregnancy. The good news is that providing these interventions requires a small investment that yields large returns.

➤ Find this article online at [earlychildhoodmatters.online/2025-8](https://earlychildhoodmatters.online/2025-8)

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