

Natural childbirth linked to stronger baby bonding than C-sections

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The bonds that tie a mother to her newborn may be stronger in women who deliver naturally than in those who deliver by cesarean section, according to a study published by Yale School of Medicine researchers in the October issue of *Journal of Child Psychology and Psychiatry*.

The researchers, led by Yale Child Study Center Assistant Professor James Swain, M.D., recruited two groups of parents from postpartum wards. One group of 12 mothers had cesarean sections and the other delivered naturally (vaginally). All women were interviewed and given brain scans two to three weeks after giving birth. During the brain scans, parents listened to recordings of their own baby's cry during the discomfort of a diaper change. The researchers then conducted interviews to assess the mothers' mood as well as their thoughts and parenting.

The team found that compared to mothers who delivered by cesarean section, those who delivered vaginally had greater activity in certain brain regions in response to their own baby's cry as measured by fMRI. These brain areas included cortical regions that regulate emotions and empathy, as well as deeper brain structures that contribute to motivation, and habitual thoughts and behaviors. The responses to their own baby's cry in some of these regions varied according to mood and anxiety.

Swain said that no parent in the small study developed clinical depression, making it hard to assess the significance of the findings without replication and follow-up studies. "I suspect that the parental

brain is 'primed' by vaginal delivery and affected by neurohormonal factors such as oxytocin, a hormone linked to emotional connections and feelings of love," said Swain. "C-sections may alter these neurohormonal factors and increase the risk of problematic bonding and postpartum depression."

"These results provoke many questions and may help expectant mothers as they consider their options carefully," said Swain. "There are plenty of good reasons for cesarean sections, and we would not want our work to be misinterpreted as proving that mothers who opt for c-sections are destined for trouble. On the contrary, we hope to provoke support from family and perhaps health professionals after C-sections. In the future, it may be possible to prevent postpartum depression."

Swain is pursuing studies on populations at risk for postpartum mental health problems. He expects to undertake genetic studies in addition to brain imaging and interviews to improve basic understanding and to eventually translate the research into tailored treatments.

Source: Yale University

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