

Study suggests transfer of poor health from mother to child in India

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Researchers at the Harvard School of Public Health (HSPH) have found a link between a mother's height and the health of her children in a study using national data from India.

According to UNICEF, more than 2 million children younger than five years old died in India in 2006, more than in any other country and making up roughly a quarter of all child deaths worldwide. The study revealed an association between the height of mothers and several indicators of her children's health, including risk of death, risk of being underweight, and anemia. Children with mothers shorter than 4 foot 9 inches were 70% more likely to die than those whose mothers were at least 5 foot 3 inches tall. Maternal height was viewed as an indicator reflecting a mother's own childhood health environment, and thus the study suggests Indian women are effectively passing along their early health status to the next generation.

The study was conducted by Associate Professor S V Subramanian and Neetu John, a masters student, both in the HSPH Department of Society, Human Development and Health, and colleagues Leland Ackerson from the University of Massachusetts, Lowell, and George Davey Smith, the University of Bristol, United Kingdom. The research will be published in the April 22/29, 2009 issue of the [Journal of the American Medical Association](#) (*JAMA*).

The authors used data from India's 2005-06 National Family Health Survey, which is taken from a representative sample of households

across India. More than 50,000 children under age five were included in the survey. The researchers specifically looked at the height of [mothers](#) and health indicators for children under age five. Because a mother's height may reflect her own childhood health status, there is a plausible link between her stature and her child's health. Some scientists believe that the size of a woman's uterus may be the biological link between her height and her child's health, with a smaller uterus leading to more complications during pregnancy and therefore less healthy children, even though the precise mechanism through which this association is expressed remains unclear.

A key finding of the study is the critical discovery that the effects of a mother's own childhood health could impact the health of the children she may have many years later. "Our findings suggest the presence of inter-generational transfer of poor health from mother to offspring," said Subramanian. "Notably, since maternal height itself is a consequence of a mother's childhood environment, our study is suggestive of the long-run and durable adverse impact of poor childhood conditions of the mother on the health of her offspring 15 to 30 years later."

Previous research conducted in India has focused on factors during pregnancy and early childhood that influence a child's health outcomes, but there has been little research on the impact of the health of a child's parents. Paternal height was also examined in this study, and was found to be associated with an increased risk of being underweight or having stunted growth; however, paternal height was not associated with child mortality.

The researchers believe these findings have important implications for the future of global health efforts. "I think what the study shows is the critical need to invest in children, and especially girls," said Subramanian, "as the pay off is not only for them as [children](#) and adults, but for their offspring as well."

More information: Association of Maternal Height With Child Mortality, Anthropometric Failure, and Anemia in India, S. V. Subramanian; Leland K. Ackerson; George Davey Smith; Neetu A. John, JAMA. 2009;301(16):1691-1701.

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