

# Mother knows best: Plant knowledge key to childhood health in remote Amazon

March 22 2007

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In a remote area of the Amazon, globalization is threatening the time-honored transmission of plant knowledge from generation to generation, with adverse effects on childhood health and nutrition. In a novel study published online this week in the Proceedings of the National Academy of Sciences, researchers report that parents, and especially mothers, who know more about plants and how to use them, have healthier children, independent of other factors such as education, market participation or acculturation.

The researchers, from the universities of Brandeis, Northwestern, Georgia (Athens), and Autonomous University of Barcelona, studied the Tsimane', an indigenous horticulturalist and foraging society in the lowlands of Bolivia who use local plants daily for medicine, firewood, construction and food. The Tsimane' rely on wild and domesticated plants for more than half of their household consumption, while purchased goods account for a tiny fraction of consumption.

"Like other remote rural populations around the world, the Tsimane' must rely on their ability to exploit natural resources to maintain the health of their children," said Victoria Reyes-García, PhD, coauthor and visiting researcher at Brandeis University. "However, many Tsimane' are pursuing new economic opportunities that undermine this aspect of their culture. It seems to be one of the many unintended consequences of globalization."

The study evaluated the health of 330 Tsimane' two-to-ten year-olds and

interviewed their mothers and fathers to assess their ethnobotanical skills and knowledge. Researchers looked at three measures of child health: their immune function, as measured in C-reactive protein levels; skinfold thickness, to estimate fat stores, and height-for-age, to assess stunted growth.

Reyes-García explained that mothers who had knowledge of local plants well above the average were more likely to have children with better health, whereas mothers who had less than the average knowledge were more likely to have children with worse indicators of health and nutrition. For example, in families with mothers with low local plant knowledge, the researchers determined there is a likelihood of nearly one in five children being severely stunted, while families in which mothers possess high levels of plant knowledge have fewer than one in ten children with severe stunting. The other two measures found similar results, with knowledge of local plants significantly correlated with childhood health and nutrition.

To a great extent, Tsimane survival and well being is dependent on their knowledge of local plants, in everything from managing their environment to getting food and preventing and curing disease, explained Reyes-García. "However, globalization threatens this knowledge to the extent that formal schooling and jobs in emerging markets devalue folk knowledge and provide access to products not made from local resources, but without providing adequate medical treatment substitutes," said Reyes-García. "In a situation where local medicinal knowledge is not adequately substituted by access to medical facilities, the consequences of this lost knowledge can translate into poorer childhood health."

Source: Brandeis University

Citation: Mother knows best: Plant knowledge key to childhood health in remote Amazon (2007, March 22) retrieved 9 April 2024 from <https://medicalxpress.com/news/2007-03-mother-knowledge-key-childhood-health.html>

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