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Poor Sanitation in India May Afflict Well-Fed Children With Malnutrition

By GARDINER HARRIS JULY 13, 2014

SHEOHAR DISTRICT, India — He wore thick black eyeliner to ward off the evil eye, but Vivek, a tiny 1-year-old living in a village of mud huts and diminutive people, had nonetheless fallen victim to India's great scourge of malnutrition.

His parents seemed to be doing all the right things. His mother still breast-fed him. His family had six goats, access to fresh buffalo milk and a hut filled with hundreds of pounds of wheat and potatoes. The economy of the state where he lives has for years grown faster than almost any other. His mother said she fed him as much as he would eat and took him four times to doctors, who diagnosed malnutrition. Just before Vivek was born in this green landscape of small plots and grazing water buffalo near the Nepali border, the family even got electricity.

So why was Vivek malnourished?

It is a question being asked about children across India, where a long economic boom has done little to reduce the vast number of children who are malnourished and stunted, leaving them with mental and physical deficits that will haunt them their entire lives. Now, an emerging body of scientific studies suggest that Vivek and many of the 162 million other children under the age of 5 in the world who are malnourished are suffering less a lack of food than poor sanitation.

Like almost everyone else in their village, Vivek and his family have no toilet, and the district where they live has the highest concentration of people who defecate outdoors. As a result, children are exposed to a bacterial brew that often sickens them, leaving them unable to attain a healthy body weight no matter how

much food they eat.

“These children’s bodies divert energy and nutrients away from growth and brain development to prioritize infection-fighting survival,” said Jean Humphrey, a professor of human nutrition at Johns Hopkins Bloomberg School of Public Health. “When this happens during the first two years of life, children become stunted. What’s particularly disturbing is that the lost height and intelligence are permanent.”

Two years ago, Unicef, the World Health Organization and the World Bank released a major report on child malnutrition that focused entirely on a lack of food. Sanitation was not mentioned. Now, Unicef officials and those from other major charitable organizations said in interviews that they believe that poor sanitation may cause more than half of the world’s stunting problems.

“Our realization about the connection between stunting and sanitation is just emerging,” said Sue Coates, chief of water, sanitation and hygiene at Unicef India. “At this point, it is still just an hypothesis, but it is an incredibly exciting and important one because of its potential impact.”

This research has quietly swept through many of the world’s nutrition and donor organizations in part because it resolves a great mystery: Why are Indian children so much more malnourished than their poorer counterparts in sub-Saharan Africa?

A child raised in India is far more likely to be malnourished than one from the Democratic Republic of Congo, Zimbabwe or Somalia, the planet’s poorest countries. Stunting affects 65 million Indian children under the age of 5, including a third of children from the country’s richest families.

This disconnect between wealth and malnutrition is so striking that economists have concluded that economic growth does almost nothing to reduce malnutrition.

Half of India’s population, or at least 620 million people, defecate outdoors. And while this share has declined slightly in the past decade, an analysis of census data shows that rapid population growth has meant that most Indians are being exposed to more human waste than ever before.

In Sheohar, for instance, a toilet-building program between 2001 and 2011

decreased the share of households without toilets to 80 percent from 87 percent, but population growth meant that exposure to human waste rose by half.

“The difference in average height between Indian and African children can be explained entirely by differing concentrations of open defecation,” said Dean Spears, an economist at the Delhi School of Economics. “There are far more people defecating outside in India more closely to one another’s children and homes than there are in Africa or anywhere else in the world.”

Not only does stunting contribute to the deaths of a million children under the age of 5 each year, but those who survive suffer cognitive deficits and are poorer and sicker than children not affected by stunting. They also may face increased risks for adult illnesses like diabetes, heart attacks and strokes.

“India’s stunting problem represents the largest loss of human potential in any country in history, and it affects 20 times more people in India alone than H.I.V./AIDS does around the world,” said Ramanan Laxminarayan, vice president for research and policy at the Public Health Foundation of India.

India is an increasingly risky place to raise children. The country’s sanitation and air quality are among the worst in the world. Parasitic diseases and infections like tuberculosis, often linked with poor sanitation, are most common in India. More than one in four newborn deaths occur in India.

Open defecation has long been an issue in India. Some ancient Hindu texts advised people to relieve themselves far from home, a practice that Gandhi sought to curb.

“The cause of many of our diseases is the condition of our lavatories and our bad habit of disposing of excreta anywhere and everywhere,” Gandhi wrote in 1925.

Other developing countries have made huge strides in improving sanitation. Just 1 percent of Chinese and 3 percent of Bangladeshis relieve themselves outside compared with half of Indians. Attitudes may be just as important as access to toilets. Constructing and maintaining tens of millions of toilets in India would cost untold billions, a price many voters see no need to pay — a recent survey found that many people prefer going to the bathroom outside.

Few rural households build the sort of inexpensive latrines that have all but eliminated outdoor waste in neighboring Bangladesh.

One analysis found that government spending on toilets pays for itself in increased tax receipts from greater productivity, but the math works only if every member of a family who gets a toilet uses it.

“We need a cultural revolution in this country to completely change people’s attitudes toward sanitation and hygiene,” said Jairam Ramesh, an economist and former sanitation minister.

India’s government has for decades tried to resolve the country’s stubborn malnutrition problems by distributing vast stores of subsidized food. But more and better food has largely failed to reverse early stunting, studies have repeatedly shown.

India now spends about \$26 billion annually on food and jobs programs, and less than \$400 million on improving sanitation — a ratio of more than 60 to 1.

“We need to reverse that ratio entirely,” Dr. Laxminarayan said.

Lack of food is still an important contributor to malnutrition for some children, and some researchers say the field’s sudden embrace of sanitation has been overdone. “In South Asia, a more important factor driving stunting is diet quality,” said Zulfiqar A. Bhutta, a director of the Center for Global Child Health at the Hospital for Sick Children in Toronto.

Studies are underway in Bangladesh, Kenya and Zimbabwe to assess the share of stunting attributable to poor sanitation. “Is it 50 percent? Ninety percent? That’s a question worth answering,” said Dr. Stephen Luby, a professor of medicine at Stanford University who is overseeing a trial in Bangladesh that is expected to report its results in 2016. “In the meantime, I think we can all agree that it’s not a good idea to raise children surrounded by poop.”

Better sanitation in the West during the 19th and early 20th centuries led to huge improvements in health long before the advent of vaccines and antibiotics, and researchers have long known that childhood environments play a crucial role in child death and adult height.

The present research on gut diseases in children has focused on a condition resulting from repeated bacterial infections that flatten intestinal linings, reducing by a third the ability to absorb nutrients. A recent study of starving children found that they lacked the crucial gut bacteria needed to digest food.

In a little-discussed but surprising finding, Muslim children in India are 17 percent more likely to survive infancy than Hindus, even though Muslims are generally poorer and less educated. This enormous difference in infant mortality is explained by the fact that Muslims are far more likely to use latrines and live next to others also using latrines, a recent analysis found.

So widespread housing discrimination that confines many Muslims to separate slums may protect their children from increased exposure to the higher levels of waste in Hindu communities and, as a result, save thousands of Indian Muslim babies from death each year.

Just building more toilets, however, may not be enough to save India's children.

Phool Mati lives in a neighborhood in Varanasi with 12 public toilets, but her 1-year-old grandson, Sandeep, is nonetheless severely malnourished. His mother tries to feed him lentils, milk and other foods as often as she can, but Sandeep is rarely hungry because he is so often sick, Ms. Mati said.

"We all use the bathroom," she said.

The effluent pipe that served the bathroom building is often clogged. Raw sewage seeps into an adjoining Hindu temple, and, during the monsoon season, it flooded the neighborhood's homes. The matron of the toilet facility charges two rupees for each use, so most children relieve themselves directly into open drains that run along a central walkway.

No Indian city has a comprehensive waste treatment system, and most Indian rivers are open sewers as a result. But Varanasi, India's oldest and holiest city, is so awash in human waste that its decrepit condition became a national issue in recent elections. The city's sewage plants can handle only about 20 percent of the sewage generated in the city, said Ramesh Chopra of Ganga Seva Abhiyanam, a trust for cleaning the river. The rest sloshes into the Ganges or fetid ponds and pits.

Millions of pilgrims bathe in the Ganges along Varanasi's ancient riverfront, but a stream of human waste — nearly 75 million liters per day — flows directly into the river just above the bathing ghats, steps leading down to the river. Many people wash or brush their teeth beside smaller sewage outlets.

Much of the city's drinking water comes from the river, and half of Indian

households drink from contaminated supplies.

“India’s problems are bigger than just open defecation and a lack of toilets,”

Dr. Laxminarayan said.

Suhasini Raj contributed reporting.

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