Social and economic hardships in childhood may alter gut bacteria in Hispanic adults

March 19 2024, by Laura Williamson

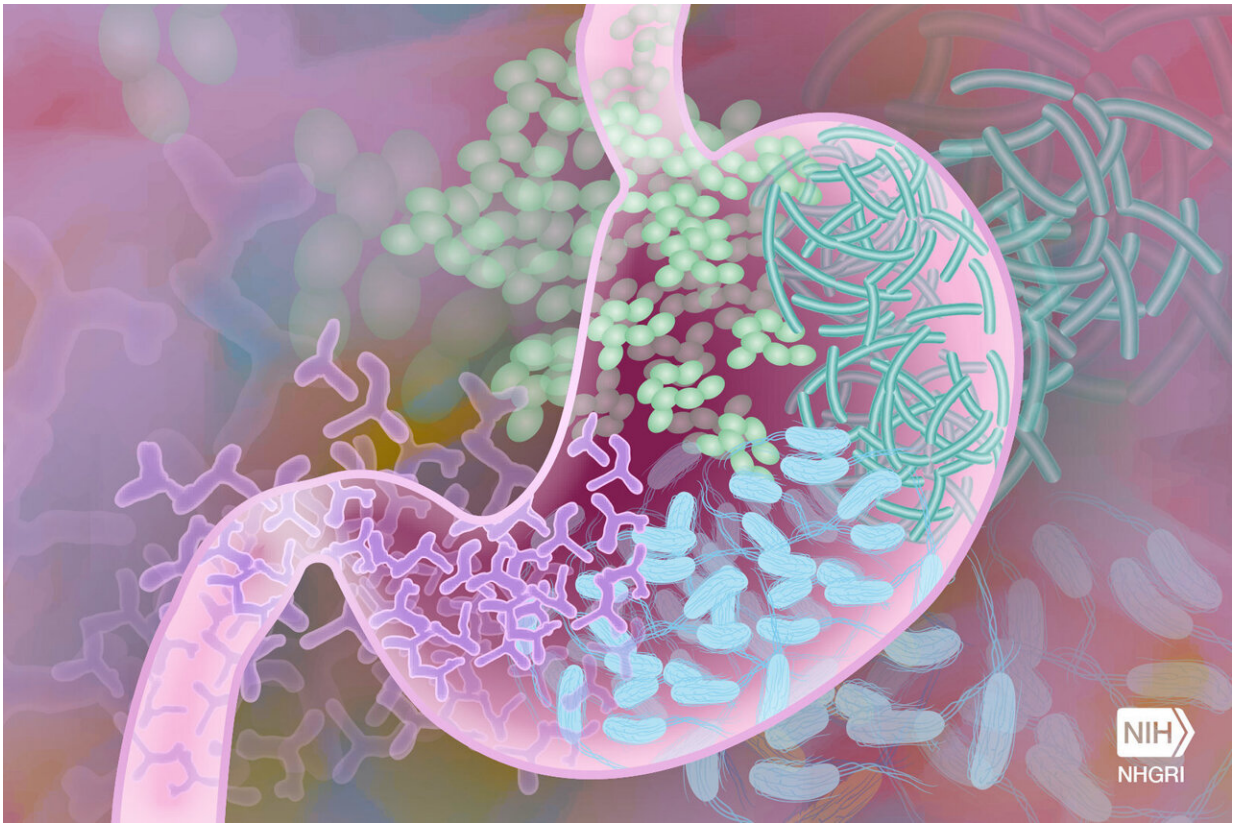

Illustration of bacteria in the human gut. Credit: Darryl Leja, National Human Genome Research Institute, National Institutes of Health

Experiencing financial hardship or other socioeconomic challenges growing up may change the bacteria that live in the gut, new research

among Hispanic adults suggests. The findings could help researchers better understand how some social determinants of health are linked to disease later in life.

The study, presented Monday, March 18, at the American Heart Association's Epidemiology, Prevention, Lifestyle and Cardiometabolic Health conference in Chicago, showed an association between low childhood socioeconomic status and changes in the gut microbiome, or bacteria inside the human digestive tract, as an adult. Bacteria in the gut microbiome play an important role in maintaining good health.

"This is a first step in trying to understand how this could have an impact on future disease," said lead researcher Dr. Monica Batalha, a postdoctoral research fellow at Albert Einstein College of Medicine in New York City.

A healthy gut microbiome includes a balance of numerous bacteria that number in the trillions. A growing body of research links changes in that balance to possible increased vulnerability to heart disease, kidney disease, high blood pressure and other conditions.

Because of societal and systemic inequities and other factors, the Hispanic population can often have lower socioeconomic status and higher rates of some diseases. Batalha said that made her want to explore how the gut microbiome may be affected within this group.

She and her colleagues analyzed data from the Hispanic Community Health Study/Study of Latinos, the largest long-term study of Hispanic and Latino health in the U.S. Stool samples taken from 2,540 participants allowed them to determine composition of the gut microbiome.

The analysis showed participants with low socioeconomic status in

childhood—which considered factors such as a parent's education level and the family's ability to pay for food, housing and other basic needs—were linked to a higher abundance of certain bacteria.

In adulthood, less education, lower income and higher financial hardship were associated with lower levels of certain bacteria strains.

The findings are considered preliminary until full results are published in a peer-reviewed journal.

Batalha noted that some types of bacteria in the gut are harmful, while others are beneficial.

"In our study, for children and adults with lower socioeconomic status, we found a lower abundance of species related to producing metabolites such as short-chain fatty acids, which play an important role in maintaining health," she said. "Maybe if we have less of these bacteria, a person could be more susceptible to some diseases."

But exactly how those bacteria affect health remains unclear.

"Just finding an association with gut bacteria composition does not mean it will have impacts on health," said Dr. Noel Mueller, an associate professor in the department of pediatrics at the University of Colorado School of Medicine and department of epidemiology at the Colorado School of Public Health in Aurora. "The next step is to home in on these species and see whether or not they have links with cardiovascular and inflammatory diseases that have been linked to socioeconomic disadvantage."

Mueller was not involved in the new research, but he was the senior author of a different study published recently in the *American Journal of Clinical Nutrition* that suggests following a healthy plant-based diet may

have beneficial effects on gut bacteria.

For now, Batalha said, the findings don't show that having poor socioeconomic status as a child will lead to poor health as an adult, but they are "a first step toward investigating these links."

What the study does show, Mueller said, is that the conditions under which a person grows up can affect what's in their gut. The next step is to investigate how.

"It suggests that the environmental conditions in which you are raised are one factor that influences the types of microbes in your gut microbiome," he said. "Now, we need to learn how these types of bacteria are associated with health outcomes."

More information: Life-Course Socioeconomic Status and the Gut Microbiome in the Hispanic Community Health Study/Study of Latinos (HCHS/SOL). www.abstractsonline.com/pp8/#! … 343/presentation/189

Provided by American Heart Association