

Childhood trauma life is wide-ranging and includes violence, exclusion by a peer group, separation from close family, and even premature birth. As such, it can affect anyone. At the same time, recent studies indicate that childhood trauma can affect not only our health but also the development and health of our offspring. Given this observation, detailed analyses of the long-term effects of stress in early life on the next generation seem essential to understand. Our previous study found that maternal childhood trauma affects infant body mass and head circumference during the first year of life. At the same time, scientists are trying to find factors that may transmit the childhood trauma effects to the next generation. Currently, much research is focused on studying epigenetic changes; however, we suppose the bacterial microbiome may also play a role in this process. Previous studies found that childhood trauma is crucial to gut microbiota formation, and the gut microbiota affects the bacterial composition of milk. At the same time, the milk microbiota impact children's gut microbiota. This cause-and-effect sequence indicates how important it is to study the relationship between maternal childhood trauma and the bacterial composition of milk, as well as long-term observations of the development of the offspring of people exposed to stress.

This study aims to fill this gap and compare the bacterial composition of stool and milk between women with high and low traumatic stress. Moreover, we will compare their children's gut microbiota and biological development. We suppose the women with higher childhood trauma have a lower microbiota diversity in milk and stool. Also, their children have a lower diversity of stool microbiota. In consequence, their children will tend to store more body fat.

We want to analyze data and samples from 100 women and their children to verify our prediction. The study included two stages, the first during the children's first year of life and the second when the children were six years old. We collected milk samples and data on the mother's childhood trauma during the first stage. During the second stage, we collected fecal samples from mothers and children and anthropometric measurements of the children. During this project, we would like to analyze the bacterial composition of milk and feces using the latest methods for identifying bacteria. Next Generation Sequencing. After laboratory methods, we will use tools known in physical anthropology and psychology.

This project will improve the knowledge about additional factors that may explain the observed diversity in the bacterial composition of milk. In addition, it may contribute to a better understanding of the processes underlying the transmission of trauma effects to the next generation. Our research results might contribute to ideas for new research, including applied studies.

Figure1. Graphic illustration of the research concept.

