



Channing Microbiome Seminar

November 5th, 2021, 9-10AM (ET)

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Shanlin Ke, PhD

Channing Division of Network Medicine
Brigham and Women's Hospital
Harvard Medical School

The relationship between emotions and gut microbiome in a women adult cohort

Accumulating evidence suggests that positive and negative emotions, as well as emotion regulation, play key roles in human health and disease. Recent work has shown the gut microbiome is important in modulating mental and physical health through the gut-brain axis. Yet, its association with emotions and emotion regulation are understudied. Here we examined whether positive and negative emotions, as well as two emotion regulation strategies (i.e. cognitive reappraisal and suppression), were associated with the gut microbiome composition and functional pathways in healthy women. Participants were from the Mind-Body Study (N = 206, mean age = 61), a sub-study of the Nurses' Health Study II cohort. In 2013, participants completed measures of emotion-related factors. Two pairs of stool samples were collected, 6 months apart, 3 months after emotion-related factors measures were completed. Analyses examined associations of emotion-related factors with gut microbial diversity, overall microbiome structure, and specific species/pathways and adjusted for relevant covariates. Alpha diversity was negatively associated with suppression. In multivariate analysis, positive emotions were inversely associated with the relative abundance of Firmicutes bacterium CAG 94 and Ruminococcaceae bacterium D16, while negative emotions were directly correlated with the relative abundance of these same species. At the metabolic pathway level, negative emotions were inversely related to the biosynthesis of pantothenate, coenzyme A, and adenosine. These findings offer human evidence supporting linkages of emotions and related regulatory processes with the gut microbiome and highlight the importance of incorporating the gut microbiome in our understanding of emotion-related factors and their associations with physical health.

Hosted by Yang-Yu Liu