

Abstract ID: 92040

Student: Mairinger Marco

Area of Research: Sustainable Health Research and Clinical Science

PhD Programme: Erweiterungsstudium Medizinische Forschung

Semester: 2

Gut Microbiome Composition and Its Association with Sleep in Major Psychiatric Disorders

Marco Mairinger; Alexander Maget; Jolana Wagner-Skacel; Sabrina Moerkl; Armin Birner; Frederike T. Fellendorf; Martina Platzer; Kathrin Kreuzer; Robert Queissner; Bernd Reininghaus; Melanie Lenger; Karin Fabisch; Werner Fitz; Alexandra Kohlhammer-Dohr; Alexandra Krammer; Anna Holl; Annamaria Painold; Alfred Häussl; Tatjana Stross; Franziska Schmiedhofer; Adelina Tmava-Berisha; Karoline Pahsini; Julian Wenninger; Michael Lehofer; Omid Amouzadeh-Ghadikolai; Angela Horvath; Gudrun Kainz; Birgit Gallé; Susanne Bengesser; Eva Z. Reininghaus

Introduction: Sleep disturbances are highly prevalent across most major psychiatric disorders. Alterations in the hypothalamic-pituitary-adrenal axis, neuroimmune mechanisms and circadian rhythm disturbances partially explain this connection. The gut microbiome is also suspected to play a role in sleep regulation and recent studies suggest that certain probiotics can improve sleep quality.

Methods: We aimed to assess the relationship between gut-microbiota-composition, psychiatric disorders and sleep quality, in this cross-sectional, cross-disorder study. We recruited 103 participants, 63 patients with psychiatric disorders (Major Depressive Disorder n=31, Bipolar Disorder n=13, Psychotic Disorder n=19) along with 40 healthy controls. Sleep quality was assessed with the Pittsburgh Sleep Quality Index (PSQI). The fecal microbiome was analyzed using 16S rRNA sequencing, and groups were compared based on alpha- and beta-diversity metrics as well as differentially abundant species and genera.

Results: A transdiagnostic decrease in alpha diversity and differences in beta diversity indices were observed in psychiatric patients, compared to controls. Correlation analysis of diversity metrics and PSQI score showed no significance in the patient and control groups. However, three species, *Ellagibacter isourolithinifaciens*, *Senegalimassilia faecalis* and uncultured *Blautia* sp. and two genera, *Senegalimassilia* and uncultured *Muribaculaceae* genus were differentially abundant in psychiatric patients with good sleep quality (PSQI > 8), compared to poor sleep quality patients (PSQI ≤ 8).

Conclusion: In conclusion, this study raises important questions about the interconnection of the gut microbiome and sleep disturbances.