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INFLUENCE OF GUT MICROBIOME ON MOOD REGULATION

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Relevance. A complex two-way relationship linking the gastrointestinal tract and the central nervous system (CNS), known as the gut-brain axis, has increasingly been recognized as a significant field of research. The function of the gut microbiome, which contains trillions of microorganisms, in this two-way communication connecting the gastrointestinal tract and the CNS remains essential. Recent studies indicate that alterations in the microbiome can affect brain chemistry and thereby contribute to the emergence of mood conditions including anxiety and depression. This remains a crucial research area that should be understood by individuals who face significant academic and workplace pressure that could influence their overall health status.

Aim: to evaluate the influence of the gut microbiome on emotional regulation mechanisms.

Materials and methods. Using a list of risk factors described in a PubMed-indexed study, we determined their presence in 48 medical students of various nationalities created by Google Forms. The list of questions, developed by the authors, assessed dietary patterns, fiber intake, probiotic use, gastrointestinal health, lifestyle factors and changes in mental state. Its design was informed by two previously published studies with modifications made to suit the present research context. This Google Form may serve as a standardized tool for future investigations into gut microbiome-related behaviors. To measure anxiety levels, we used the international instrument Beck Anxiety Inventory (BAI) which was additionally administered through Google Forms.

Results and their discussion. The survey included 48 participants aged 20–50 years, with 64.6% females and 33.3% males. Initial analysis showed that 41.7% of participants reported inconsistent eating patterns with low fiber intake, which is linked with reduced microbial diversity. Based on the BAI results, 71.4% of individuals with moderate–severe anxiety reported concurrent gastrointestinal symptoms compared with 32.4% minimal anxiety. Moreover, 85.7% of high-anxiety participants reported low fiber consumption, whereas only 28.6% reported regular probiotic intake compared with 59.5% among the low-anxiety group. A majority (78.6%) of participants with moderate–severe anxiety recognized a possible link between digestive health and mood, with 68.8% overall stating that dietary modifications may be considered a positive factor in mood improvement.

Conclusions. This study establishes a significant clinical correlation between gut health, dietary habits, and anxiety severity. The data support a clinically relevant association between gut microbiome composition, dietary patterns, and emotional health, highlighting the potential of gut-targeted nutritional interventions as a non-invasive strategy for anxiety management in high-risk populations. Nevertheless, to obtain more profound scientific results, the development of a standardized instrument for analyzing these factors in a larger participant sample is recommended.