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THE MICROBIOTA REVOLUTION: HOW MICROBIOTA SCIENCE IS CHANGING ANXIETY CLINICAL PROTOCOLS

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Psychological assessment should integrate Microbiota–Gut–Brain–Mind interactions

Why current models are incomplete

Current models of anxiety primarily focus on psychological processes and brain mechanisms, often considering them in relative isolation. However, recent advances in microbiota research indicate that anxiety arises from dynamic interactions extending beyond explanations based exclusively on brain mechanisms or psychological processes (for example gut inflammation).

Gut microbiota, gut permeability, immune signaling, endocrine regulation, and microbiota-derived metabolites continuously interact with neural and psychological processes through bidirectional communication.

These findings suggest that anxiety cannot be fully understood using exclusively psychological or neurobiological perspectives. A more comprehensive framework is therefore needed to integrate biological and psychological processes across multiple levels of organization, providing a broader foundation for research, assessment, and clinical intervention.

The proposed framework

An Integrative Microbiota–Gut–Brain–Mind (MGBM) Framework

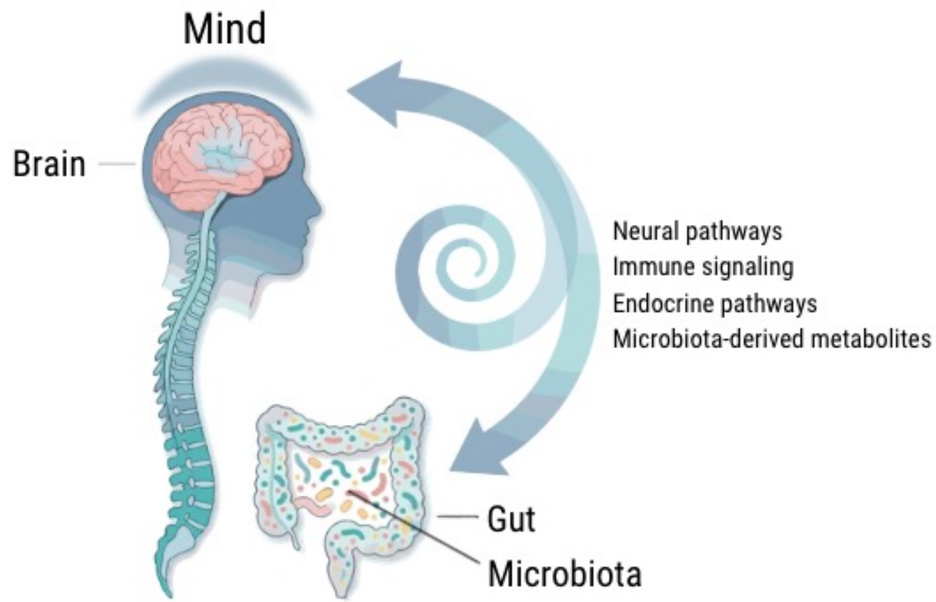

Figure 1. Proposed integrative Microbiota–Gut–Brain–Mind (MGBM) framework. Bidirectional communication between the microbiota, gut and brain contributes to the emergence of mental processes through neural pathways, immune signaling, endocrine pathways, and microbiota-derived metabolites.

How does this change clinical practice?

The proposed framework expands psychological assessment beyond traditional cognitive and brain-centered approaches by integrating biologically relevant variables into clinical decision-making. In particular, clinicians should routinely assess gastrointestinal well-being (microbiota, nutritional and vagal function included) reflecting the multidimensional and integrated assessment advocated by contemporary psychogastroenterology. This broader assessment may facilitate a more comprehensive understanding of anxiety, support interdisciplinary collaboration, and promote personalized interventions that integrate psychological, behavioral, and biological dimensions of mental health.

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