

Gut feelings: a thematic review of the links between acute gastrointestinal illness and anxiety and depressive disorders



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The current state of global health care systems emphasizes the divide between physical and mental illnesses. Despite the growing body of evidence that concludes physical and mental states are interconnected,¹ direct and tangential barriers exist to a model of holistic care.¹ Patients within these systems can undergo a lack of continuity in their care, which may result in poor health management and thus poor health outcomes.² In recent years, there has been more realization within the clinical space that non-communicable, chronic diseases such as cardiovascular illness, diabetes, and cancer are associated with higher rates of psychiatric illness.^{3,4} Integrated medical and psychiatric care models are blossoming, yet this persistent distinction betrays that the two fields are seen as separate entities. In terms of clinical care, a large gap still exists that does not recognize the co-morbidity and relationships between communicable diseases and mental illness. A review of the literature from 1980 to 2015 shows how it is increasingly being recognized that infectious illness and mental status are related, using acute gastrointestinal illness (AGI) and depressive and anxiety disorders as a representative case study.

AGI has many causative agents, including bacterial, viral, and parasitic organisms.⁵ All of these

infections have the possibility of altering the gastrointestinal flora, otherwise known as the bacterial microbiota, that functions to aid in digestion, supply nutrients, and defend against invasive colonization.⁶ These effects to the microbiome can be temporary or long-term. It is largely undetermined what governs the potential impacts of the infection.⁷ Findings suggest that direct and indirect linkages between AGI and anxiety and depressive disorders exist between three main mechanisms: i) the microbiome,⁸ ii) the vagal nervous system,⁹ and iii) the immune system.¹⁰ Direct signaling pathways and co-causative agents are evidence of the fact that mental and physical health are not separate entities. Thus, integrated care is necessary in order to achieve the World Health Organization Constitution's declaration of each human's fundamental right to "the highest attainable standard of health." This is defined as a "complete state of physical, mental and social well-being, and not merely the absence of disease or infirmity".¹¹ It is important to note that these are new fields of study and much work remains to be done. Expanding animal models to human observational studies and clinical trials will further our understanding of how clinicians can incorporate these connections into practice to effect real change in the lives of their patients.

Global Health Relevancy

- Bidirectional communication along the gut-brain axis allows infectious pathogens to influence anxiety and depressive states, as well as these states exacerbating the risk of acute gastrointestinal illness
- Physical and mental illnesses are related, and must be addressed together to achieve the highest attainable standard of health.