

Peer Review

# Review of: "The Bio-Psycho-Social Holobiont Model of Health: Integrating the Biopsychosocial Paradigm, Microbiota Science, and Psychoneuroendocrinoimmunology"

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Although I really appreciated the paradigm shift, and I thought the paper was organized and well-written, the challenge I have is how to make the model work clinically. Though the bio-psycho-social model misses the mark in a lot of areas, there are still distinct biological, psychological, and social factors that impact health. These factors can be screened for during an assessment or when an individual is developing a case formulation.

Since 1977, there have already been multiple additions or extensions to this initial concept. The first is the bio-psycho-social-cultural model, which addresses cultural factors and their implications in overall health. The Australasian Society of Lifestyle Medicine has started advocating for a bio-psycho-social-lifestyle model. It relies upon the same foundation that Engel proposed, but it also includes aspects from lifestyle medicine: exercise, diet, sleep, stress management, connectedness, and avoidance of substance use. Many within the lifestyle medicine community have placed the gut microbiota within the diet pillar.

These are examples of actual clinical models with screening tools that help increase their relevance. The paper gives examples of medical conditions that have been associated with an unhealthy gut microbiota, but there is no discussion on how to assess for these factors clinically or how to incorporate them into a diagnostic assessment.

## Declarations

**Potential competing interests:** No potential competing interests to declare.