

# Monotherapy and Complimentary Use of Probiotics in Treatment of Anxiety and Depression

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**Background:** Major depressive disorder (MDD) is currently the leading cause of disability worldwide and is commonly comorbid with generalized anxiety disorder (GAD). Nearly half of MDD patients that are treated with current guidelines do not achieve full symptom relief. Despite the established treatments that exist for GAD and MDD, there is increasing research on the gut-brain axis as a source and/or association with psychiatric symptoms to further improve treatment options. The gut-brain axis is the communication between the central nervous system, immune system, and gastrointestinal (GI) system. Since the microbes that reside in the GI tract synthesize 90% of the body's serotonin as well as other neuroactive peptides, it has been hypothesized that dysbiosis of the gut microbiome can affect mental health as well as GI health. Therefore, probiotics may be a reasonable alternative or addition to current treatment of MDD and GAD.

**Purpose:** The purpose of this evidence-based clinical review (EBCR) review is to determine if probiotics as monotherapy or in conjunction with approved pharmacotherapeutics effectively treat MDD and/or GAD in adults when compared to a placebo. This literature will address the current gaps that exist in the research that has been completed at this point.

**Methods:** The research question was addressed by conducting an EBCR. The search and review process included searches across 3 databases (*Pubmed*, *Google scholar*, and *Medline Complete*). A meta-analysis and 2 randomized control trials were selected for inclusion after a thorough review, quality assessment, and agreement between the 3 researchers. Only articles of good quality were included. Data extractions were completed and all results were analyzed collectively.

**Results:** Probiotics were shown to be statistically significant in improving depressive symptoms in diverse patient populations across all 3 studies ( $p < 0.05$ ).

**Conclusion:** This research concludes that probiotics are safe and efficacious in the treatment for MDD and GAD. No side effects were observed in the included studies, which is in stark contrast to current available treatments such as SSRIs, SNRIs, and TCAs. However, the question remains where probiotics fit into the treatment guidelines for MDD and GAD.