

Promoting Mental Well-Being in Patients with Irritable Bowel Syndrome Using Probiotics

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Probiotics have long been valued for their health benefits, particularly their positive impact on digestive well-being. However, advancements in medical research have expanded our understanding, revealing that probiotics may positively influence other areas of health.^{1,2} One of the areas that researchers have turned their attention to investigating the effects of probiotics is mood changes following regular and adequate amounts of probiotics consumption.

Introduction to Probiotics

Probiotics are known as the “good” bacteria. They are live microorganisms that are clinically proven, through clinical studies in humans, to provide beneficial effects on our overall health when consumed in adequate amounts.³

Beneficial bacteria can be found in fermented food sources (e.g. yoghurt, *kimchi*), cultured milk beverages, dietary supplements (e.g. capsules, powders), and many more. These foods can be consumed to obtain beneficial bacteria, although these microorganisms may not meet the criteria to be identified as probiotics. Common approved commercial probiotics include those belonging to the *Lactobacillus* and *Bifidobacterium* genera. In Malaysia, probiotics are regulated by the Ministry of Health under the Food Safety & Quality Division.⁴

The Gut, Brain, and Mood: What’s the Link?

One of the exciting research areas is how our gut may affect our brain. Through the Gut-Brain Axis, our brain interacts with our gut through signals (i.e. hormones, enzymes, etc.).⁵ Interestingly, this communication is a two-way channel, which suggests that the gut may influence certain brain functions, too.⁵

Mood is a notable feature of humans and is controlled by the brain. It is determined by a diverse range of neurotransmitters (chemical message carriers used by the nervous system), including dopamine, norepinephrine, and serotonin.⁶ Among these chemicals, serotonin emerges as a key player in the Gut-Brain Axis. In fact, 90% of our body’s serotonin is produced in the gut, highlighting the intricate connection between the digestive system, serotonin, and mood.⁶ In addition, research has found that changes to the gut microbiome (such as those seen after the consumption of probiotics) can influence the production, release, and reuptake of serotonin in the body.⁶

Can Probiotics Influence Mood?

Taking this one step further, a group of Malaysian researchers set out to explore the question, ‘Can probiotics influence mood?’. As such, researchers from the UKM Gut Research Group and other universities in the country recently conducted an experiment investigating the effects of probiotic-containing cultured milk on mood in irritable bowel syndrome (IBS) patients.

Irritable bowel syndrome (IBS) patients were chosen as the research subject because the group’s previous research found that IBS patients are more prone to developing depression, anxiety, and insomnia – consequently, low mood levels.⁷ The previous study found that, due to the chronic nature

of the condition, IBS patients are “associated with a moderately high prevalence of subthreshold depression”.⁷

As such, the probiotic study involved IBS patients with subthreshold depression consuming two bottles of cultured milk drinks containing probiotics (*Lactobacillus acidophilus* and *Lactobacillus paracasei*) daily for 12 weeks to see if it would affect their mood. The results suggest that consumption of such beverages may “alleviate mood and depression scores in IBS patients with subthreshold depression”.⁸ Moreover, it may also provide “beneficial effects in relieving abdominal symptoms experienced with IBS”.⁸

To summarise the study, research participants experienced the following:

- **Improved mood** (≈47% increase in blood serotonin levels).
- Reduced depression symptoms (≈42% reduction in depression scores).
- Increased quality of life scores (≈7.1% increase in quality of life scores).
- Reduced IBS symptoms (i.e. severity, bowel habit dissatisfaction, and abdominal pain).

[BOX]

What Does “Improved Mood” Mean?

The study found that at the end of the 12-week probiotic regimen, IBS patients with subthreshold depression saw an increase in serotonin (the “happy hormone”) and reduction in cortisol (the “stress hormone”) levels in the blood. This therefore suggests that these two hormones play significant roles in improving mood.

What Is the Role of Serotonin?

Serotonin is a neurotransmitter that is primarily found in the gastrointestinal tract and central nervous system, and is known for its role in regulating mood, appetite, and various other bodily functions.⁹

Probiotics for Good Gut Health

It is widely accepted that probiotics can improve gut health for all. They help to create a balanced environment in the digestive system, helping to neutralise the “bad” bacteria and supporting the lining of our intestines.¹⁰ This improves digestion and helps our gut absorb nutrients better.

Another study by the Gut Research Group at Hospital UKM, together with other local universities in Malaysia, found that the consumption of probiotic-containing cultured milk resulted in “improvements in constipation-related symptoms, namely straining during defecation, passing hard stool, number of bowel movements per week and incomplete emptying sensation after bowel movement”.¹¹ Moreover, the study found that the intestinal transition time (ITT) – defined as the amount of time food takes to travel through the bowels, was reduced following probiotic consumption in IBS patients.¹¹

Probiotics and Immunity

Many people must know the gut's critical function in bolstering the immune system. The gut is home to 70-80% of immune cells, which work together with the immune system to provide a robust defence against many pathogens.¹² Also, a well-balanced diet and healthy gut microbiota can positively influence one's immune responses, particularly regarding inflammation.¹² In fact, the

studies from the UKM Gut Research Group and in collaboration with other local universities in Malaysia also concluded that the daily consumption of probiotic-containing cultured milk drinks “improved clinical symptoms and reduced cytokines”, citing a reduction in the level of pro-inflammatory chemicals (cytokines) in IBS patients.¹¹

Conclusion

In conclusion, depression in IBS patients is an important aspect to consider. Probiotics are becoming more well-known for their health benefits, particularly in maintaining digestive health and supporting the immune system. New applications, such as their potential to support mood, are being explored. Therefore, adding adequate probiotics consumption to our daily routines can be a straightforward yet promising step towards promoting our general well-being.

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