



HOMOEOPATHY AND THE GUT-BRAIN AXIS- A SYNERGISTIC APPROACH

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BACKGROUND

The concept of the gut-brain axis was introduced by scientists over several decades as research increasingly revealed the connection between the gastrointestinal (GI) system and the central nervous system (CNS). However, it is not attributed to a single individual. Early hints of this connection date back to the 19th century, but modern understanding began to take shape in the mid-20th century, mainly through the work of neurogastroenterologists. Significant contributions came from neurobiology, microbiology, and gastroenterology research, highlighting how the gut and brain communicate through neural, hormonal, and immune pathways. This article emphasizes the action and scope of homoeopathy in the gut-brain axis.

METHODOLOGY

A comment article emphasizes commenting on innovative conceptual understanding by referring to a concept described by different authors



DISCUSSION

THE EVOLUTION OF THE CONCEPT OF THE GUT-BRAIN AXIS

The gut-brain axis gained significant attention in the late 20th and early 21st centuries as researchers began to understand the complex communication network between the central nervous system (CNS) and the gastrointestinal tract, which includes the enteric nervous system, the immune system, and the gut microbiota¹. One of the pivotal figures in this field is Dr. Michael Gershon, often called the "father of neurogastroenterology," who introduced the idea of the "second brain" in the gut through his work on the enteric nervous system in the 1990s. This concept has evolved into what we now understand as the gut-brain axis.

RELATION OF EMOTIONS WITH GUT-BRAIN AXIS

Emotions can significantly impact gastrointestinal (GI) complaints due to the strong connection between the brain and the gut, often called the "gut-brain axis." Stress and anxiety can lead to an increase in stomach acid production, potentially causing acid reflux, gastritis, or ulcers². They can also trigger or worsen conditions like irritable bowel syndrome (IBS), leading to symptoms such as abdominal pain, bloating, diarrhea, or constipation. Depression is associated with altered gut motility, which can slow down or speed up digestion, leading to symptoms like constipation or diarrhea³. It may also affect the balance of gut bacteria, contributing to dysbiosis and related GI issues. People often eat in response to emotions like sadness, boredom, or stress, which can lead to overeating, poor food choices, and subsequent GI discomfort like bloating or indigestion.

GUT-BRAIN COMMUNICATION AND PSYCHOSOMATIC EFFECTS:

The gut and brain communicate bidirectionally via the vagus nerve, neurotransmitters, and hormones. Emotional distress can disrupt this communication, leading to GI symptoms. Conditions like IBS are often linked to heightened gut-brain sensitivity, where emotional states can directly influence gut function. Emotions can manifest physically, and the gut is particularly sensitive to these changes. For example, stress can cause a "knot in the stomach" feeling, or anxiety can lead to nausea. Long-term emotional stress can alter gut permeability (the "leaky gut" phenomenon), leading to inflammation and a higher risk of developing chronic GI disorders⁴.

Addressing the emotional aspects of GI complaints through stress management, therapy, or relaxation techniques can be a crucial part of treatment and symptom management.



ROLE OF HORMONES:

Gastrointestinal Hormones:

Ghrelin: Often called the "hunger hormone," ghrelin is produced in the stomach and signals the brain to stimulate appetite. It also affects mood and cognition. **Cholecystokinin (CCK):** Released in the small intestine in response to food, CCK helps induce satiety by signalling the brain to stop eating. **Peptide YY (PYY):** Another hormone that promotes satiety, PYY is released after eating and inhibits appetite by acting on the brain. **Motilin:** Involved in regulating gastrointestinal motility, motilin affects the contraction of muscles in the gut and can influence feelings of hunger.

Neurotransmitters and Neuromodulators:

Serotonin: About 90% of the body's serotonin is in the gut. It regulates bowel movements and also influences mood, sleep, and appetite through its actions in the brain⁵. **Dopamine:** Though primarily known as a brain neurotransmitter, dopamine is also produced in the gut and affects both gut motility and mood. **GABA (Gamma-Aminobutyric Acid):** Produced by gut microbiota, GABA has calming effects on the brain and helps regulate anxiety and stress.

Stress Hormones:

Cortisol: The stress hormone cortisol, produced by the adrenal glands, can affect gut function by altering gut permeability, microbiota composition, and motility⁶. Chronic stress and elevated cortisol levels can lead to gastrointestinal issues like irritable bowel syndrome (IBS). **Adrenaline/Noradrenaline:** These hormones, also produced during stress, can influence gut motility and secretion, often leading to diarrhea or constipation.

Microbiota-Derived Hormones:

The gut microbiota can produce and modulate various hormones and neurotransmitters influencing brain function. Certain gut bacteria can produce short-chain fatty acids (SCFAs), which can affect brain health and behavior.

Inflammatory Cytokines:

Inflammatory cytokines like $\text{TNF-}\alpha$ and IL-6, produced in the gut during infections or chronic inflammation, can cross the blood-brain barrier or signal the brain via the vagus nerve, influencing mood and cognitive function.

Leptin:



Leptin is a hormone produced by fat cells that signals the brain to regulate energy balance and appetite. It can also affect gut function and has been linked to the gut-brain axis in the context of obesity and metabolic disorders.

CORRELATION WITH DISEASE CONDITION

Small Intestine Bacterial Overgrowth (SIBO) can have a profound impact on mental health, with symptoms often manifesting as anxiety, depression, brain fog, memory loss, and mood swings. The gut-brain axis plays a crucial role in this connection, as the small intestine's bacterial imbalance can produce toxins that affect neurotransmitter production and neural function. The increased levels of inflammatory cytokines and oxidative stress can also contribute to mood disturbances and cognitive impairment. Furthermore, the malabsorption of essential nutrients and vitamins, such as vitamin B12, can exacerbate mental health symptoms. The physical discomfort and pain associated with SIBO can also lead to emotional distress, creating a vicious cycle of mental and physical suffering. Addressing the underlying gut imbalance and promoting a healthy gut microbiome is essential to alleviating SIBO-related mental health symptoms and restoring overall well-being⁷.

The pathology behind SIBO-related mental health symptoms involves a complex interplay of factors. The overgrowth of bacteria in the small intestine produces toxic metabolites, such as lipopolysaccharides, which can cross the blood-brain barrier and activate inflammatory pathways in the brain. This can increase levels of pro-inflammatory cytokines, oxidative stress, and mitochondrial dysfunction, ultimately disrupting neurotransmitter production and neural function. Additionally, the malabsorption of essential nutrients and vitamins, such as vitamin B12, can impair synaptic function and exacerbate mood disturbances. The gut-brain axis is also affected, with altered gut motility, permeability, and microbiota composition contributing to the development of mental health symptoms. Furthermore, the gut microbiome can influence the release of neuroactive compounds, such as serotonin and dopamine, leading to mood dysregulation and cognitive impairment. This intricate interplay of factors highlights the importance of addressing the underlying gut pathology to manage SIBO-related mental health symptoms effectively.⁸

Irritable bowel disease (IBD), encompassing conditions like Crohn's disease and ulcerative colitis, has a profound impact on mental health, with symptoms often manifesting as anxiety, depression, fatigue, and cognitive impairment. The chronic inflammation and oxidative stress associated with IBD can lead to changes in brain chemistry and function,



influencing mood and cognitive processes. The unpredictable nature of IBD, coupled with the need for ongoing medical treatment, can contribute to feelings of uncertainty and loss of control, exacerbating mental health symptoms. Additionally, the physical symptoms of IBD, such as abdominal pain, diarrhea, and weight loss, can lead to emotional distress and decreased quality of life. The gut-brain axis plays a crucial role, as alterations in the gut microbiome can influence neurotransmitter production and neural function, contributing to mood dysregulation and cognitive impairment. Furthermore, the social and emotional impact of living with a chronic and often stigmatized condition can lead to feelings of isolation, shame, and anxiety, highlighting the need for comprehensive treatment approaches that address both physical and psychological aspects of IBD^{7,8}.

Crohn's disease, a type of inflammatory bowel disease (IBD), has a profound impact on mental health, with symptoms often manifesting as anxiety, depression, fatigue, and cognitive impairment. The chronic inflammation and oxidative stress associated with Crohn's disease can lead to changes in brain chemistry and function, influencing mood and mental processes. Additionally, the physical symptoms of Crohn's, such as abdominal pain, diarrhea, and weight loss, can contribute to emotional distress and decreased quality of life. The unpredictable nature of the disease, coupled with the need for ongoing medical treatment, can also lead to feelings of uncertainty and loss of control, exacerbating mental health symptoms. Furthermore, the gut-brain axis plays a crucial role, as alterations in the gut microbiome can influence neurotransmitter production and neural function, contributing to mood dysregulation and cognitive impairment. Overall, the mental health implications of Crohn's disease are complex and multifaceted, requiring a comprehensive treatment approach that addresses both physical and psychological aspects of the disease⁸.

Ulcerative colitis (UC), a chronic inflammatory bowel disease, has a significant impact on mental health, with symptoms often manifesting as anxiety, depression, fatigue, and cognitive impairment. The chronic inflammation and oxidative stress associated with UC can lead to changes in brain chemistry and function, influencing mood and mental processes. The unpredictable nature of UC, coupled with the need for ongoing medical treatment, can contribute to feelings of uncertainty and loss of control, exacerbating mental health symptoms. Additionally, the physical symptoms of UC, such as abdominal pain, diarrhea, and weight loss, can lead to emotional distress and decreased quality of life. The gut-brain axis plays a crucial role, as alterations in the gut microbiome can influence neurotransmitter production and neural



function, contributing to mood dysregulation and cognitive impairment⁸. Furthermore, the fear of flare-ups, hospitalizations, and surgery can lead to increased stress and anxiety levels. At the same time, the impact on daily activities, relationships, and self-esteem can contribute to depression and decreased mental well-being, highlighting the need for comprehensive treatment approaches that address both physical and psychological aspects of UC.

Homoeopathic Medicines

Lycopodium

This treat bloating and a feeling of fullness that persists even after consuming modest food. It is recommended for slow digestion; late afternoon and evening are when symptoms usually get worse. The person may have a solid after-meal ache despite needing hot beverages and sweets. this cure is best suited for people who lack confidence and fear failure. Despite their seeming confidence, they may be insecure on the inside. There is a propensity for uncertainty, nervousness, and embarrassment fright. Individuals who require Lycopodium frequently attempt to take charge of the community.

Nux Vomica

Indigestion, constipation, and hyperacidity are common conditions for which nux vomica is recommended. People who experience regular nausea, bloating, constipation, or an ineffective need to urinate might find it very helpful. It is also beneficial when excessive consumption of food, alcohol, or stimulants is the cause of digestive problems. This remedy is linked to short temper, irritation, and irritability. Individuals who require Nux vomica are frequently competitive, ambitious, and prone to irrational rage, mainly when things don't go according to plan. Overwork may also cause them to become mentally exhausted.

Carbo Veg

Extreme bloating, gas, and belching are common conditions for which carbo veg is prescribed. A bloated belly and a feeling of heaviness in the stomach are common signs that the person feels like their digestion is unusually slow. A sense of suffocation may cause the person to yearn for fresh air. Apathy, indifference, and tiredness are psychologically linked to carbo veg. The person could appear emotionally flat, cognitively exhausted, and unaffected by their environment. A common cause of their lack of interest in activities and social interaction is physical and mental exhaustion.

Compared to the other medicines mentioned, Caulophyllum is less frequently linked to specific symptoms related to the gastrointestinal tract. On the other hand, it can be applied to



menstrual cycle-related problems that also impact the digestive system, such as nausea or abdominal pain associated with cramps or problems with the uterus. The emotional and mental disorders connected to delivery and reproductive health are the main indications for this therapy. It is frequently used by women who experience anxiety, irritability, or restlessness, particularly before or during labor. Additionally, there could be fear or a feeling of powerlessness related to giving birth.

CONCLUSION

The synergistic relationship between homeopathy and the gut-brain axis offers a promising avenue for holistic healthcare. By addressing not only the physical symptoms but also the emotional and psychological aspects connected to gastrointestinal disorders, homeopathic treatment provides a comprehensive approach. Remedies like *Lycopodium*, *Nux Vomica*, and *Carbo Veg*, among others, target both digestive and emotional disturbances, demonstrating the profound impact of homeopathic intervention in regulating gut-brain communication. As research in this field continues to expand, the integration of homeopathy in managing conditions linked to the gut-brain axis holds immense potential for improving overall health and well-being.

REFERENCES

1. Mayer, E. A., Knight, R., Mazmanian, S. K., Cryan, J. F., & Tillisch, K. (2014). "Gut Microbes and the Brain: Paradigm Shift in Neuroscience." *The Journal of Neuroscience*, 34(46), 15490–15496.
2. Cryan, J. F., & Dinan, T. G. (2012). "Mind-altering microorganisms: the impact of the gut microbiota on brain and behaviour." *Nature Reviews Neuroscience*, 13(10), 701-712.
3. Collins, S. M., Surette, M., & Bercik, P. (2012). "The interplay between the intestinal microbiota and the brain." *Nature Reviews Microbiology*, 10(11), 735-742.
4. Gupta G, Vyas H, Bansal A, Jain R, Sikarwar A. ROLE OF HOMOEOPATHY IN IRRITABLE BOWEL SYNDROME
5. Suchiang EL, Kumar D, Yeasmin S, Singh M, Michael J, Pal G. Gut Microbiota: In Dynamics of Life and Homoeopathy. *Homœopathic Links*. 2021 Jun;34(02):119-22.
6. Foster JA, McVey Neufeld KA. Gut-brain axis: how the microbiome influences anxiety and depression. *Trends in Neurosciences*. 2013 May;36(5):305-12. doi: 10.1016/j.tins.2013.01.005.



7. Burokas A, Moloney RD, Dinan TG, Cryan JF. Microbiota regulation of the Mammalian gut-brain axis. *Advances in Applied Microbiology*. 2015;91:1-62. doi: 10.1016/bs.aambs.2015.02.001.
8. Carabotti M, Scirocco A, Maselli MA, Severi C. The gut-brain axis: interactions between enteric microbiota, central and enteric nervous systems. *Annals of Gastroenterology*. 2015 Apr-Jun;28(2):203-

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