



Systematic review: Association between gut microbiota and mental health

Revisão sistemática: Associação da microbiota intestinal e a saúde mental

DOI: 10.56238/isevjhv3n1-019

Receipt of originals: 16/01/2024

Publication acceptance: 06/02/2024

Bruno Henrique da Silva¹

ABSTRACT

Depression and anxiety, characterized by many today as the disease of the century, represent a serious public health problem. The intestinal microbiota, on the other hand, consists of the set of microorganisms that have the human intestine as their natural biological habitat and are responsible for several functions, being essential for the maintenance of homeostasis and are in communication with the central nervous system through the gut-brain axis. With some changes that may occur in this communication, they may have a direct relationship with mental pathologies, such as anxiety and depression.

Keywords: Gut microbiota, Mental health, Anxiety, Depression.

INTRODUCTION

The gut microbiota is the largest and most varied group of microorganisms and begins to form from the moment of birth, when the baby comes into contact with the mother's bacteria. In adulthood, it is estimated that the microbiota is made up of trillions of microorganisms and can weigh up to 2 kilograms.

The Axis-Gut-Brain concept has been around for more than three decades and the contributions of scientific evidence have resulted in the acceptance of a linkage, signaling system between the gut and the Central Nervous System (CNS), which involves the Enteric Nervous System (ENS).

The ENS is part of the intestine, which in turn is connected to the group of microorganisms that modulate the systems. It is already known that the cells present in the intestinal tract produce dopamine, noradrenaline and adrenaline, as well as the existence of probiotic bacteria such as *Lactobacillus sp* and *Bifidobacterium spp* can produce neuromodulators such as aminobutyric acid (GABA), which is considered an inhibitory neurotransmitter of the Nervous System and plays an important role in anxiety and mood disorders.

¹ Postgraduate student in Advanced Microbiology at Asgard Cursos and Teaching Specialist in Higher Education



Depression is characterized by sadness, low self-esteem, and a lack of desire and interest in various types of activities and moments. Anxiety, on the other hand, is known as a form of mood disorder, a nervous, endocrine, and immunological pathophysiology.

The colony of bacteria present and existing in the intestine is responsible for the development and maturation of the immune and endocrine systems, a process that signals the functioning of the CNS.

The intake of an adequate diet and the adoption of good healthy lifestyle habits can reduce the incidence or help in the symptoms of pathologies of disorders related to mental health.

METHODOLOGY

The main objective of this study, and based on published research and studies, is to associate the gut microbiota and the central nervous system, which are interconnected due to the commensal bacterial community present in the gut responsible for regulating responses to stress and anxiety. In this way, this article will contribute to scientific advancement and become a basis for research. A research was carried out in the form of a literature review and included scientific articles published in recent years in databases such as Scielo and Pubmed.

RESULTS AND DISCUSSION

The gut microbiota is a fundamental part of the function of the Central Nervous System due to the bidirectional communication between the gut and the brain, resulting in gastrointestinal and immune functions. Emotional factors can influence the composition of the intestinal epithelium and alter the permeability, which, when accentuated and irritated, triggers an inflammatory process evidenced in patients with depression.

In patients with anxiety disorders, they are associated with physiological changes and linked to the neurobiological systems of defense and response to stress, which can have repercussions on both immunity and metabolism functions such as appetite.

As time goes by, research has emerged and demonstrated in its results that diet and intestinal health are related to stress, depression and anxiety and, when necessary, multidisciplinary treatment in psychotherapy and psychiatry, complementary therapeutic strategies, such as nutritional treatment and probiotic supplementation, can be included and with positive results in the treatment of these emotional disorders.



CONCLUSION

From the research base for the production of this article, the intense relationship between the microbiota, the gut-brain axis, and diseases, mental health, is clear. The beneficial effects of the balance of the gut microbiota on the occurrence of symptoms of depression and anxiety are noted.

Finally, lifestyle is a direct influencer for better microbiome performance and the gut-brain relationship and changes in food quality, diet, can improve and decrease symptoms of these mental pathologies.



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