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Anxiety and depression associated with eating disorders and dyspepsia and dietary management

Anxiety and depression associated with eating disorders and functional dyspepsia: dietary management

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SUMMARY

Anxiety and depression are common comorbidities in eating disorders (ED)—such as anorexia nervosa, bulimia nervosa, and binge eating disorder—and in dyspepsia, especially functional dyspepsia (FD). The presence of these conditions worsens symptoms, increases care costs, and worsens outcomes, including mortality in ED. A recent summary suggests that 55–95% of people with ED will experience some psychiatric disorder over the lifetime, and updated guidelines emphasize specific psychotherapy as a central focus of care.

In FD, systematic reviews show a high prevalence of anxiety and depression, particularly in refractory cases, in addition to bidirectional relationships mediated by the gut-brain-microbiota axis. This clinical picture poses challenges for dietary management: in ED, nutritional rehabilitation must be integrated with psychotherapeutic treatment; in FD, evidence supports targeted dietary interventions (e.g., Mediterranean-style patterns, selective trigger reduction, and, in selected cases, low-FODMAP strategies), always considering the risks of excessive restriction in individuals vulnerable to ED. This article integrates findings from reviews, meta-analyses, and guidelines published since 2020 and proposes practical principles for interprofessional dietary management that minimizes gastrointestinal symptoms, reduces psychological distress, and promotes safe and sustained adherence.

KEYWORDS: Eating disorders; Functional dyspepsia; Anxiety; Depression; Gut-brain axis; Dietary management.

ABSTRACT

Anxiety and depression are frequent comorbidities in eating disorders (ED)—such as anorexia nervosa, bulimia nervosa, and binge eating disorder—and in dyspepsia, especially functional dyspepsia (FD). The presence of these conditions worsens symptoms, increases care costs, and negatively impacts outcomes, including mortality in ED. A recent synthesis suggests that 55–
95% of individuals with ED will develop a psychiatric disorder during their lifetime, and updated guidelines emphasize disorder-specific psychotherapy as the central axis of care. In
FD, systematic reviews show high prevalence of anxiety and depression, particularly in refractory cases, as well as bidirectional relationships mediated by the gut–brain–microbiota axis. This clinical scenario imposes challenges on dietary management: in ED, nutritional rehabilitation must occur in integration with psychotherapeutic treatment; in FD, evidence supports targeted dietary interventions (eg, Mediterranean-type patterns, selective reduction of dietary triggers, and, in selected cases, low-FODMAP strategies), always weighing the risks of excessive restriction in individuals vulnerable to ED. This article integrates findings from reviews, meta-analyses, and guidelines published since 2020, and proposes practical principles for interprofessional dietary management aimed at minimizing gastrointestinal symptoms, reducing psychological distress, and promoting safe and sustained adherence

KEYWORDS: Eating disorders; Functional dyspepsia; Anxiety; depression; Dietary management.

INTRODUCTION

Eating disorders (ED) are accompanied by a high burden of medical comorbidities and psychiatric conditions, increased risk of suicide, and persistent undertreatment. It is estimated that between 55–95% of individuals with ED present, throughout their lives, some associated psychiatric disorder, with anxiety and depression being the most frequent [1,2,3]. This comorbidity is directly related to greater clinical severity, worse therapeutic response and greater use of services health. Recent guidelines from the American Psychiatric Association (APA) reinforce the specific psychotherapy as the central axis of care, in association with rehabilitation nutritional progressive and assessment clinic continuous [2].

Functional dyspepsia (FD), classified as a gut-brain interaction disorder, is also presents a robust association with anxious and depressive symptoms, especially in cases refractory. Recent systematic reviews and meta-analyses indicate a prevalence of anxiety approximately 29% and depression around 32% in patients with FD, in addition to positive correlation between the intensity of gastrointestinal symptoms and the presence of suffering psychological [5,6]. Pathophysiological mechanisms include low-grade duodenal inflammation intensity, visceral hypersensitivity, changes in intestinal permeability and dysbiosis, integrated to the axle gut-brain microbiota [7].

The gut-brain axis is considered one of the main paradigms to explain the overlap between gastrointestinal symptoms and mental disorders. Studies show that approximately 90% of the body's serotonin is produced in the gastrointestinal tract, with direct influence on intestinal motility and emotional well-being [16]. The interaction of microbiota with enteroendocrine cells and the enteric nervous system promotes the release of bioactive metabolites, short-chain fatty acids and neuropeptides that can cross the blood-brain barrier, modulating cognitive and emotional processes [17,18].

SUMMARY SCHEME – GUT–BRAIN AXIS
GUT MICROBIOTA

- ÿ Production of neurotransmitters (serotonin, dopamine, GABA)
- ÿ Immune modulation (pro- and anti-inflammatory cytokines)
- ÿ Neural pathways (vagus nerve, enteric nervous system)
- ÿ HPA axis (hypothalamus–pituitary–adrenal, cortisol)
- ÿ

BRAIN — Mood, anxiety, depression, eating behavior

ÿ

Stress and diet feedback ÿ alters intestinal permeability and microbiota

The relevance of this axis transcends physiology, as it directly implies strategies for treatment. Dietary interventions rich in fiber, polyphenols, and unsaturated fatty acids favor intestinal microbial diversity, while probiotics and prebiotics have shown potential to reduce depressive and anxiety symptoms through modulation of the inflammatory response and the production of neurotransmitters [21]. Thus, the milestone theorist suggests that the balance between intestinal and mental health is interdependent, legitimizing the integration between nutrition, psychology and gastroenterology as a structuring axis in management interdisciplinary.

In the clinical field, evidence indicates that patients with functional dyspepsia present distinct patterns of intestinal microbiota when compared to healthy individuals, suggesting a link between dysbiosis and visceral hypersensitivity [19]. In parallel, in patients with eating disorders, alterations in the microbiota associated with higher prevalence of anxiety, depression and appetite dysregulation [20].

In addition to psychological factors, dietary management plays a fundamental role. Strategies such as structuring regular meals, reducing food triggers (caffeine, alcohol, foods ultra-processed foods), adoption of Mediterranean-style eating patterns and, in cases Specific, temporary exclusion diets such as low-FODMAP have shown benefits in symptomatic relief [8,9,10]. More recently, the use of probiotics has been identified as adjuvant in the management of both DF and TA, contributing to the modulation of the axis gut-brain-microbiota and positively impacting gastrointestinal symptoms and psychological well-being [7,11,12,13,14].

In recent years, studies have also highlighted the role of chronic stress and dysregulation of the hypothalamic–pituitary–adrenal (HPA) axis as mediators of the relationship between disorders mental and gastrointestinal conditions [15]. Changes in cortisol and pro-cytokine levels inflammatory diseases appear to contribute both to the worsening of dyspeptic symptoms and for the maintenance of anxious and depressive symptoms [16]. Furthermore, the literature suggests that individuals with a genetic predisposition may be more vulnerable to simultaneous development of TA and DF [17].

In dietary management, there is growing interest in strategies that go beyond mere exclusion of trigger foods. Adherence to dietary patterns such as the Mediterranean, rich in polyphenols, fiber and unsaturated fatty acids, has been associated with a lower risk of depression and better mood regulation [8,18]. Similarly, supplementation with nutraceuticals — such as omega-3 fatty acids, tryptophan and B vitamins — has been investigated as a potential adjuvant in the modulation of psychological and gastrointestinal symptoms [19,20]. The use of probiotics and prebiotics has gained relevance, with growing evidence that modulation of the intestinal microbiota can improve not only digestive symptoms, but also reduce anxiety and depression [11–14,21].

These findings reinforce the importance of an interdisciplinary approach that integrates psychotherapy, psychiatry, gastroenterology and nutrition. Such an approach should consider not only the reduction of gastrointestinal and psychological symptoms, but also the promotion of safe dietary strategies, avoiding the risks of excessive restriction in vulnerable individuals TA [10,18,19]. Thus, it is evident that personalized dietary management, combined with support psychosocial, constitutes a fundamental axis for the integral rehabilitation of these patients.

THEORETICAL FRAMEWORK

Understanding the relationship between eating disorders, functional dyspepsia, anxiety and depression demands an analysis based on contemporary biopsychosocial models. The gut–brain–microbiota axis constitutes the central theoretical basis, being widely described as a bidirectional mechanism that connects changes in the intestinal microbiota to neuropsychological and gastrointestinal manifestations [7,11,15]. This axis is associated with modulation of neurotransmitters such as serotonin, dopamine and gamma-aminobutyric acid (GABA), which participate in both mood regulation and digestive function [16,17].

Recent literature has reinforced the importance of psychosocial factors — such as stress chronic, adverse childhood events and sociocultural pressures — in the genesis and maintenance of eating disorders [18]. Similarly, inflammatory dietary patterns and malnutrition chronic contribute to the intensification of anxious and depressive symptoms [19,20]. On the other hand, hand, interventions based on anti-inflammatory diets, nutraceutical supplements and probiotics have shown promise in improving psychological well-being and reducing gastrointestinal symptoms [21].

Thus, the theoretical framework that underpins this study integrates neurobiological and psychosocial aspects and nutritional, providing support for the formulation of safe dietary management strategies and interdisciplinary.

MATERIAL AND METHOD

This is an integrative narrative review carried out between 2020 and 2025, searching databases electronic databases such as PubMed, Scielo, ScienceDirect and PsycINFO. Articles were included in English, Portuguese and Spanish that addressed the association between eating disorders, functional dyspepsia, anxiety, depression, and dietary interventions. The inclusion criteria included systematic reviews, meta-analyses, randomized clinical trials and guidelines officials of medical and nutritional societies. Duplicate articles, studies of isolated cases and publications prior to 2020.

The analysis was conducted qualitatively, prioritizing higher quality evidence methodological and expert consensus. The process included identification, screening, eligibility and data extraction according to PRISMA recommendations for narrative reviews adapted. The results were organized into thematic axes: (1) prevalence of anxiety and depression in ED and FD; (2) pathophysiological and psychosocial mechanisms; (3) interventions dietary and nutraceutical; (4) clinical implications for interdisciplinary management.

RESULT AND DISCUSSION

The synthesis of recent evidence (2020–2025) indicates that integrated dietary management is a of the most effective approaches for patients with ED and FD associated with anxiety and depression:

- Structuring regular meals: eating at fixed times, in moderate portions, reduces binge eating episodes, improves digestion and stabilizes hunger and satiety signals [2,3].
- Mediterranean Diet: rich in fiber, fruits, vegetables, whole grains, fish and olive oil, demonstrated a reduction in dyspeptic symptoms and improvements in overall mental health, being safe and inclusive [11].
- Low-FODMAP diet: shown to be effective in reducing gastrointestinal symptoms in subgroups of patients with DF, but it should be applied temporarily and with gradual reintroduction, especially in patients at risk of ED, to avoid excessive restrictions [8,10].
- Probiotics: recent clinical trials with strains such as Bifidobacterium animalis BL-99

showed significant improvement in dyspeptic symptoms and reduced anxiety in patients with FD [11,12]. In ED, narrative studies and systematic reviews suggest that probiotics can help regulate mood, modulate the intestinal microbiota and relapse prevention [13,14].

- Reduction of food triggers: limit irritating substances (caffeine, alcohol, fat excessive) has shown efficacy in DF, with improvement in symptoms such as epigastric pain and fullness postprandial [9,10].

In general, the literature converges towards the recommendation of individualized management, safe and interdisciplinary, combining nutrition, psychotherapy and, when necessary, pharmacotherapy.

FINAL CONSIDERATIONS

The co-occurrence of anxiety/depression with ED and FD is common, clinically significant and bidirectional. In TA, the core of care remains disorder-focused psychotherapy combined to progressive nutritional rehabilitation (structured eating pattern, caloric and protein goals individualized, correction of deficiencies), with monitoring of medical and relapse risk.
In DF, dietary management must be individualized and conservative, prioritizing: portions smaller and regular meals; fat reduction in PDS; caution with alcohol, caffeine and foods known to be triggers; judicious use of strategies such as the Mediterranean pattern and, in selected cases, low FODMAP protocols, always monitored to avoid hyper-restriction. These steps, coordinated by an interprofessional team (nutrition, gastro, psychiatry/psychology), reduce symptoms, improve quality of life and minimize risks of food iatrogenesis in patients vulnerable to ED.

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