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+15878858911
editorial-office@sciformat.ca

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THE ROLE, EFFECTIVENESS, AND SAFETY OF PHARMACOTHERAPY IN EATING DISORDERS (ANOREXIA NERVOSA, BULIMIA NERVOSA, BINGE EATING DISORDER, AND SLEEP-RELATED EATING DISORDER): A REVIEW OF CURRENT EVIDENCE AND META-ANALYSES

Marcin Patryk Barbachowski *(Corresponding Author, Email: marcinpatryk.barbachowski@gmail.com)*
Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland
ORCID ID: 0009-0008-4315-7477

Natalia Bylak
Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland
ORCID ID: 0009-0009-7405-9041

Bruno Makowski
Medical Center HCP, John Paul II Hospital, Poznań, Poland
ORCID ID: 0009-0007-5806-0822

Oliwia Marciniak
Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland
ORCID ID: 0009-0008-5282-2539

Sebastian Konecki
Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland
ORCID ID: 0009-0006-0152-7914

Grzegorz Jałoszyński
Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland
ORCID ID: 0009-0004-3763-4311

Norbert Gromadzki
Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland
ORCID ID: 0009-0007-9954-6132

Maria Kurt
Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland
ORCID ID: 0009-0006-6820-4538

Anna Gwizdek
Independent Researcher, Warsaw, Poland
ORCID ID: 0009-0004-8037-6020

Maciej Makarewicz
Independent Researcher, Warsaw, Poland
ORCID ID: 0000-0002-9099-8710

Dawid Szczepański
Independent Researcher, Warsaw, Poland
ORCID ID: 0009-0000-8430-0905

ABSTRACT

Eating disorders (EDs), including anorexia nervosa, bulimia nervosa, binge eating disorder and sleep-related eating disorder are complex psychiatric conditions with multifactorial determinants. Psychotherapy and structured nutritional rehabilitation remain the cornerstone of treatment, while pharmacotherapy serves an adjunctive role to address core symptoms, comorbid psychiatric conditions, and behavioral dysregulation.

In adults, selective serotonin reuptake inhibitors (SSRIs), particularly fluoxetine, are effective for reducing binge-purge behaviors in BN, with doses up to 60 mg/day. Lisdexamfetamine is FDA-approved for moderate-to-severe BED, reducing binge frequency via dopaminergic and noradrenergic pathways. Topiramate can reduce binge eating and promote modest weight loss but is limited by cognitive and gastrointestinal side effects. In AN, pharmacotherapy is largely adjunctive, atypical antipsychotics such as olanzapine may modestly improve weight and pre-meal anxiety, while SSRIs mainly address mood symptoms post-weight restoration. Sleep Related Eating Disorders management involves SSRIs, topiramate, and clonazepam, alongside treatment of underlying sleep disorders.

In children and adolescents, pharmacotherapy evidence is limited. SSRIs show minimal efficacy for core AN symptoms and are mainly used for comorbid anxiety or depression. Fluoxetine may reduce binge-purge behaviors in adolescent BN when combined with psychotherapy, and olanzapine can offer modest benefit, though metabolic and sedation risks require monitoring.

Overall, pharmacotherapy enhances symptom management and engagement when integrated with psychotherapy and nutritional rehabilitation but is not a standalone treatment. Careful selection, dosing, and monitoring are essential to balance efficacy with potential adverse effects. Ongoing research is needed to clarify pharmacological strategies in AN, pediatric populations, and treatment-resistant EDs.

KEYWORDS

Eating Disorders, Pharmacotherapy, Anorexia Nervosa, Bulimia Nervosa, Binge Eating Disorder, Sleep-related Eating Disorder, Psychopharmacology, Adjunctive Treatment

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1. Introduction

Eating disorders represent a group of severe psychiatric conditions characterized by significant disturbances in eating behavior and associated distressing thoughts or emotions. These disorders are complex mental health issues that often involve a preoccupation with body weight, shape, and food, leading to dangerous eating habits. According to Muratore and Attia (2022), eating disorders result in substantial medical and psychiatric complications, conferring immense psychological, societal, and economic costs. While behavioral therapies such as nutritional rehabilitation and normalization of eating patterns remain the first line of defense, the persistence of treatment non-response and high relapse rates has led researchers to investigate the role of psychopharmacological interventions as primary or adjunctive treatments (Jackson et al., 2010, Muratore & Attia, 2022). The classification of eating disorders has evolved significantly with the publication of the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* (DSM-5) and the *International Classification of Diseases, 10th Revision* (ICD-10).

Anorexia Nervosa is characterized in both DSM-5 and ICD-10 by a deliberate maintenance of significantly low body weight and a distorted body image. In DSM-5, the diagnostic criteria include restriction of energy intake relative to requirements, leading to significantly low body weight, which is often operationalized as a BMI less than 18.5 kg/m² in adults, or a body weight substantially below expected norms for age, sex, and developmental trajectory. Patients exhibit an intense fear of gaining weight or becoming fat, or persistent behaviors that interfere with weight gain despite being underweight. There is also a disturbance

in the way one's body weight or shape is experienced, undue influence of body weight/shape on self-evaluation, or persistent lack of recognition of the seriousness of low body weight. The DSM-5 removed the previous amenorrhea requirement to increase inclusivity for males, prepubescent females, and postmenopausal women. AN is further divided into restricting type, with weight loss primarily through dieting, fasting, or excessive exercise, and binge-eating/purging type, with recurrent binge eating or purging behaviors. In ICD-10 (F50.0), the disorder is defined similarly, emphasizing significantly low weight (often ≥15% below expected weight or BMI ≤17.5 kg/m²), body image disturbance, and self-induced weight loss behaviors. Physical signs may include lanugo, hypotension, bradycardia, and electrolyte disturbances, while amenorrhea in females is noted as common but not mandatory.

Bulimia Nervosa involves recurrent binge eating episodes, characterized by consuming an objectively large amount of food in a discrete period with a sense of loss of control, followed by inappropriate compensatory behaviors to prevent weight gain, including vomiting, laxative or diuretic misuse, fasting, or excessive exercise. DSM-5 requires these behaviors to occur at least once per week for three months, and that self-evaluation is unduly influenced by body shape or weight. Physical signs may include dental erosion, parotid gland enlargement, and electrolyte abnormalities. ICD-10 (F50.2) similarly defines BN with recurrent overeating and compensatory behaviors, alongside persistent preoccupation with weight and body shape. ICD-10 also recognizes atypical forms when full criteria are not met.

Binge Eating Disorder was formally recognized in DSM-5 as recurrent episodes of binge eating without regular compensatory behaviors. Binge episodes must occur at least once per week for three months and are associated with at least three of the following: eating more rapidly than normal, eating until uncomfortably full, eating large amounts when not physically hungry, eating alone due to embarrassment, and feeling disgusted, depressed, or guilty afterward. BED is frequently associated with overweight and obesity and metabolic complications. ICD-10 does not provide a distinct BED diagnosis, such cases were historically coded as "Other Eating Disorders" (F50.8) or atypical BN, though ICD-11 aligns more closely with DSM-5 recognition.

Pharmacotherapy for eating disorders is a specialized field of psychiatric medicine in which pharmacological interventions are often used as an adjunct to basic psychotherapeutic approaches. Although the development of these treatments has historically followed broader advances in psychiatric pharmacotherapy, including the adoption of antidepressants, antipsychotics, and antiepileptic medications, clinical evidence for their effectiveness varies significantly depending on the diagnosis (Himmerich et al., 2023). This research article examines the current state of pharmacology in the treatment of anorexia nervosa, bulimia nervosa, and binge eating disorder, focusing on specific classes of medications used to alleviate core symptoms and accelerate recovery. It also encompasses an analysis of the most commonly documented adverse reactions.

2. Methodology

This article is a narrative literature review examining the role of pharmacotherapy in the treatment of eating disorders across adult and pediatric populations. The review synthesizes current evidence regarding the efficacy, safety, and clinical application of psychotropic medications in anorexia nervosa, bulimia nervosa, binge eating disorder, and sleep related eating disorder (SRED), with the objective of providing a structured and clinically relevant overview of pharmacological strategies as adjunctive treatments within multidisciplinary care.

A structured literature search was conducted using electronic databases including PubMed, PsycINFO, MEDLINE, and the Cochrane Library. Searches included studies published in English in the years from 1999 to 2025 to capture both foundational and contemporary evidence. Search terms were combined using Boolean operators and included "eating disorders", "anorexia nervosa", "bulimia nervosa", "binge eating disorder", "sleep-related eating disorder", "pharmacotherapy", "psychopharmacology", "selective serotonin reuptake inhibitors", "atypical antipsychotics", "topiramate", "lisdexamfetamine", and "children and adolescents". Reference lists of relevant systematic reviews and meta-analyses were manually screened to identify additional eligible studies.

Inclusion criteria comprised randomized controlled trials (RCTs), meta-analyses, systematic reviews, prospective and retrospective cohort studies, clinical guidelines, and consensus statements that evaluated pharmacological treatment of AN, BN, BED, or SRED in adult and pediatric populations. Exclusion criteria included case reports with fewer than five participants (unless addressing rare conditions such as SRED), non-

peer-reviewed publications, studies focusing exclusively on psychotherapy without pharmacological intervention, and animal studies.

Relevant data were extracted independently and included study design, sample size and population characteristics, type of eating disorder, medication type and dosage, primary and secondary outcomes such as binge frequency, BMI change, and symptom reduction, reported adverse effects, and duration of treatment and follow-up. Due to heterogeneity in study designs, outcome measures, and patient populations, a quantitative meta-analysis was not conducted. Instead, findings were synthesized narratively, grouped by diagnostic category (AN, BN, BED, SRED) and age group (adults versus children and adolescents). Particular emphasis was placed on medications with regulatory approval, such as fluoxetine for BN and lisdexamfetamine for BED, agents supported by meta-analytic evidence such as olanzapine in AN, and drugs commonly used off-label, including topiramate and SSRIs in pediatric populations.

Priority was given to randomized controlled trials and meta-analyses when available, and the methodological rigor of included studies was considered in interpretation of findings. Key factors evaluated included sample size adequacy, risk of bias, duration of follow-up, attrition rates, and consistency of outcome measures. Studies with small sample sizes, retrospective design, or limited control conditions were interpreted with caution.

As this study is a review of previously published literature, no direct patient involvement occurred, and institutional ethical approval was not required. This methodological approach allows for a comprehensive and clinically oriented synthesis of current pharmacological strategies in eating disorders while acknowledging limitations in available evidence, particularly in anorexia nervosa and pediatric populations.

3. Results

Adults

Pharmacological interventions are commonly used in the treatment of adult eating disorders, but their role is largely adjunctive to psychotherapy and nutritional rehabilitation. Evidence demonstrates that medications are most effective when combined with psychosocial interventions, and their efficacy varies depending on the type of eating disorder and patient characteristics (Jackson, Cates, & Lorenz, 2010, Rodan et al., 2023).

Anorexia Nervosa represents the most pharmacologically resistant eating disorder. No psychotropic medication has received regulatory approval for core AN symptoms, and weight restoration remains primarily dependent on nutritional rehabilitation and structured therapy. Atypical antipsychotics, particularly olanzapine, have been investigated extensively in adult patients. Olanzapine antagonizes dopamine D2 and serotonin 5-HT2C receptors, potentially reducing anxiety and obsessive thoughts about food and weight while modestly promoting weight gain (Rodan et al., 2023, Jackson, Cates, & Lorenz, 2010).

Clinical trials indicate that olanzapine can improve BMI slightly in some adults with AN and may reduce treatment-related anxiety, but results are inconsistent across studies. Evidence for other antipsychotics, including quetiapine and aripiprazole, is limited, with few controlled trials and primarily case reports or small series (Rodan et al., 2023). SSRIs, such as fluoxetine, are generally ineffective for weight gain in acutely underweight patients, likely due to malnutrition-related serotonin depletion. SSRIs may be beneficial for mood and anxiety symptoms after partial weight restoration (Jackson, Cates, & Lorenz, 2010, Rodan et al., 2023, Muratore & Attia, 2022).

In contrast to AN, Bulimia Nervosa responds relatively well to pharmacotherapy. The SSRI fluoxetine is the only medication with FDA approval for BN in adults. Clinical evidence demonstrates that fluoxetine reduces binge eating and purging episodes and improves comorbid depressive symptoms (Rodan et al., 2023, Jackson, Cates, & Lorenz, 2010). Typical adult dosing is 60mg/day, higher than doses used for depression, reflecting the need for effective reduction of binge-purge behaviors. While SSRIs are effective for reducing symptomatic behaviors, weight change is usually minimal, and pharmacotherapy should be complemented with cognitive-behavioral therapy (Muratore & Attia, 2022).

Other agents, including tricyclic antidepressants, have been explored but carry higher side-effect burdens, including cardiotoxicity, limiting their clinical use. In treatment-resistant cases, small studies suggest that atypical antipsychotics (olanzapine) may reduce impulsivity or co-occurring mood symptoms, but evidence is preliminary, as the results did not differ from placebo. (Jackson, Cates, & Lorenz, 2010).

Pharmacotherapy in Binge Eating Disorder is supported by a stronger evidence base than AN. Lisdexamfetamine dimesylate (LDX), a prodrug of dextroamphetamine, is FDA-approved for adults with moderate-to-severe BED. LDX reduces binge frequency and improves psychosocial functioning, with

therapeutic effects likely mediated through enhanced dopaminergic and noradrenergic signaling in reward-related brain circuits (Rodan et al., 2023, Muratore & Attia, 2022).

SSRIs may provide modest reductions in binge frequency and improve associated depressive symptoms, but they are less effective for weight management when used alone. In clinical practice, SSRIs may be preferred for patients with comorbid anxiety or depression or when stimulant therapy is contraindicated (Rodan et al., 2023). Other agents, including topiramate, have shown reductions in binge frequency and weight in small trials but are limited by adverse effects such as cognitive dulling and paresthesia (Rodan et al., 2023).

Sleep Related Eating Disorder is a parasomnia characterized by recurrent episodes of involuntary nocturnal eating, often with partial or complete amnesia for the event. It is commonly associated with other sleep disorders such as restless legs syndrome (RLS), obstructive sleep apnea, and sleepwalking (Chiaro et al., 2015). SRED presents unique pharmacotherapeutic challenges, as behavioral and safety interventions are often as critical as medication.

First-line pharmacotherapy includes SSRIs at doses of 20-30 mg/day (for paroxetine), which can reduce nocturnal eating episodes, particularly in idiopathic SRED (Chiaro et al.,2015). Topiramate (100-300 mg/day) and clonazepam (0.5-2 mg/day) are alternative treatments. SRED associated with other sleep disorders benefits from treating the underlying condition: dopamine agonists (e.g., pramipexole) are effective for RLS-related SRED, and low-dose benzodiazepines may improve sleepwalking-related SRED (Chiaro et al., 2015). Psychotropic drugs such as zolpidem, triazolam, and olanzapine have been implicated in the induction of SRED in some patients, and cessation may lead to symptom remission (Chiaro et al., 2015).

Across adult eating disorders, pharmacotherapy should be regarded as an adjunctive intervention and tailored to the individual patient's symptom profile. Clinical management should include careful monitoring for adverse effects, particularly metabolic complications associated with atypical antipsychotics and cardiovascular risks linked to stimulant use as well as thorough assessment of comorbid psychiatric conditions such as depression, anxiety, and obsessive compulsive symptoms, which may affect medication selection and treatment response. Pharmacological treatment is most effective when combined with evidence-based psychotherapies (e.g., cognitive-behavioral therapy, interpersonal therapy) and structured nutritional rehabilitation (Rodan et al., 2023, Jackson, Cates, & Lorenz, 2010, Muratore & Attia, 2022). Regular follow-up and appropriate dose adjustments are essential to optimize symptom control while minimizing adverse effects.

While the strongest evidence supports fluoxetine for BN and lisdexamfetamine for BED, AN and SRED lack consistently effective pharmacological treatments, highlighting the need for ongoing research and cautious off-label use (Rodan et al., 2023, Chiaro et al., 2015). Emerging therapies, including neuromodulation techniques and novel psychotropic combinations, remain investigational but may provide options for refractory cases in the future (Rodan et al., 2023).

Children and adolescents

Eating disorders in children and adolescents, including anorexia nervosa and bulimia nervosa, present significant clinical challenges due to their complexity, developmental considerations, and limited evidence guiding pharmacological treatment in this population. Multidisciplinary approaches, with psychotherapy and nutritional rehabilitation as primary interventions, remain the cornerstone of care, while pharmacotherapy is generally considered adjunctive, primarily to address co-morbid psychiatric symptoms or to support behavioral and nutritional interventions. Evidence specific to youth populations is limited, and most recommendations are extrapolated from adult studies or small pediatric trials (Couturier & Lock, 2007, Garner et al., 2016).

Anorexia nervosa in children and adolescents is characterized by restrictive eating, an intense fear of weight gain, and disturbances in body image. Pharmacotherapy for AN in this population has limited empirical support. Couturier and Lock (2007) note that selective serotonin reuptake inhibitors generally do not demonstrate efficacy for core anorexic symptoms in underweight adolescents and may only be considered after partial weight restoration, primarily when co-morbid anxiety or depression is present. Atypical antipsychotics, particularly olanzapine, have been explored as adjunctive treatments for adolescent AN. Norris et al. (2011) conducted a retrospective study of adolescents receiving olanzapine in addition to standard care, suggesting that the medication may help reduce anxiety and obsessive preoccupations related to weight and shape, while potentially supporting gradual weight gain. However, the study was limited by its design and sample size, and adverse effects such as sedation and metabolic changes require careful monitoring. Garner et al. (2016) emphasize that pharmacotherapy should not replace nutritional rehabilitation and psychotherapy, and medications should be used cautiously and selectively.

Bulimia nervosa in adolescents appears somewhat more responsive to pharmacotherapy than AN, although evidence remains limited. SSRIs, particularly fluoxetine, are the most investigated agents for BN.

Couturier and Lock (2007) summarize limited pediatric evidence suggesting that fluoxetine can reduce binge-purge behaviors when combined with structured therapy. Nevertheless, primary treatment should remain psychotherapy-focused, with pharmacological interventions considered adjunctive to address co-morbid depression, anxiety, or obsessive-compulsive traits that exacerbate eating pathology (Garner et al., 2016).

Children and adolescents differ from adults in pharmacokinetics, neurodevelopment, and vulnerability to adverse effects, requiring cautious prescribing and close monitoring. The limited pediatric data underline the need for individualized treatment plans. Both Couturier and Lock (2007) and Garner et al. (2016) emphasize that psychotropic medications should be used only as an adjunct to first-line therapies and only when clinically justified. While pharmacotherapy may have a supportive role, evidence strongly favors psychotherapeutic and nutritional interventions as the foundation of treatment.

In conclusion, pharmacological management of eating disorders in children and adolescents should be approached with caution. SSRIs are generally ineffective for core anorexic symptoms, whereas atypical antipsychotics such as olanzapine may offer modest benefit for select patients, particularly when co-morbid psychiatric symptoms are present. Fluoxetine may reduce binge-purge frequency in adolescent BN when used adjunctively with psychotherapy, but psychotherapeutic and nutritional interventions remain the primary treatment modality. Clinical decision-making must be individualized, and medications should complement, rather than replace, evidence-based therapies. Further rigorous studies in pediatric populations are necessary to establish clearer evidence-based guidelines for pharmacological interventions in this vulnerable group (Couturier & Lock, 2007, Garner et al., 2016, Norris et al., 2011).

Anorexia nervosa

Pharmacological treatment of Anorexia Nervosa presents a significant clinical challenge. Currently, no medication is FDA-approved specifically for AN, and pharmacotherapy is considered an adjunct rather than a primary treatment (Rodan et al., 2023, Thorey et al., 2023). The main goals of pharmacological interventions are to support weight restoration, manage comorbid psychiatric symptoms (such as anxiety and depression), and address aspects of cognitive rigidity or obsessive thoughts associated with the disorder (Yakhchi Beykloo, 2021, Çöpür & Çöpür, 2020).

Second-generation antipsychotics (SGAs), particularly olanzapine, have been the most frequently studied class of medications for AN. Olanzapine acts primarily as an antagonist at dopamine D2 and serotonin 5-HT2C receptors and may reduce pre-meal anxiety and agitation in some patients (Rodan et al., 2023, Çöpür & Çöpür, 2020). Meta-analytic evidence suggests that olanzapine is associated with a modest but statistically significant increase in body mass index compared with placebo in adults with AN, with an average increase of approximately 0.67 kg/m^2 over the course of treatment (Han et al., 2022). However, effects on core psychopathology and psychological symptoms are less consistent across studies (Rodan et al., 2023, Han et al., 2022).

Despite some modest benefit in weight outcomes, evidence for other SGAs such as quetiapine, risperidone, and aripiprazole remains limited and inconsistent. Some uncontrolled and retrospective studies report favorable outcomes on weight or symptom severity, but many lack rigorous randomized controlled designs, making conclusions difficult (Rodan et al., 2023). Observational data in adolescent populations also suggest that antipsychotic use does not necessarily improve weight gain trajectories during inpatient treatment, indicating that effects may vary by age and clinical characteristics (Frank et al., 2023).

Selective Serotonin Reuptake Inhibitors, including fluoxetine, are commonly prescribed to address comorbid depression and anxiety in patients with AN. However, evidence from clinical trials and systematic reviews suggests that SSRIs do not reliably improve weight gain or core symptoms of AN, particularly during acute phases of malnutrition, and there is presently no strong support for pharmacotherapies in this disorder outside of co-morbid symptom management (Rodan et al., 2023). Their clinical utility appears most limited in the undernourished state, with regulatory approval and demonstrated efficacy principally for other eating disorders such as bulimia nervosa rather than AN (Rodan et al., 2023).

Atypical antipsychotics, particularly olanzapine, have been studied primarily in AN and occasionally in treatment-resistant BN and BED (Rodan et al., 2023, Çöpür & Çöpür, 2020). Olanzapine may promote modest weight gain and reduce pre-meal anxiety or obsessive thoughts in patients with AN (Han et al., 2022, Rodan et al., 2023).

Adverse effects of olanzapine include sedation, metabolic changes such as weight gain, dyslipidemia, and hyperglycemia, orthostatic hypotension, and potential extrapyramidal symptoms (Rodan et al., 2023, Çöpür & Çöpür, 2020). In pediatric populations, olanzapine requires vigilant monitoring for sedation and long-term metabolic consequences (Norris et al., 2011).

Bulimia Nervosa

The primary goal of treatment for bulimia nervosa is the cessation of binge-purge cycles and the restoration of regular, healthy eating patterns. Treatment is typically multidisciplinary, combining nutritional counseling, psychotherapy, and pharmacotherapy. While psychotherapy, particularly cognitive behavioral therapy, remains the first-line intervention, pharmacotherapy plays an important adjunctive role in reducing binge frequency and purging behaviors.

Pharmacological treatment in BN is primarily aimed at reducing binge eating episodes, decreasing compensatory behaviors and stabilizing mood and impulsivity. Selective Serotonin Reuptake Inhibitors are the most extensively studied class of medications in this population. According to the systematic review and meta-analysis conducted by Yu et al. (2023), SSRIs demonstrate superiority over placebo in reducing the frequency of binge eating and vomiting episodes. Among SSRIs, fluoxetine has the strongest empirical support and remains the only medication approved by the U.S. Food and Drug Administration for the treatment of BN. Clinical trials have shown that a dose of 60 mg/day is more effective than lower doses in reducing purge behaviors. Importantly, therapeutic benefits have been observed even in patients without comorbid major depressive disorder, suggesting that the mechanism extends beyond mood stabilization.

Other SSRIs, including sertraline and fluvoxamine, have also been examined, however, evidence for their efficacy is less consistent compared to fluoxetine. The meta-analysis by Yu et al. (2023) confirms that, while SSRIs as a class are beneficial, effect sizes vary across individual agents.

In addition to SSRIs, antiepileptic medications such as topiramate have shown efficacy in BN treatment. Topiramate modulates gamma-aminobutyric acid (GABA) activity and inhibits glutamatergic neurotransmission, which may reduce impulsivity and compulsive binge behaviors. Yu et al. (2023) included randomized controlled trials demonstrating that topiramate compared with placebo significantly reduces binge eating frequency and results in loosing a substantial amount of weight. However, its clinical utility must be balanced against adverse effects (e.g., anxiety, dry mouth, nausea, and diarrhoea).

Tricyclic antidepressants (TCAs) and monoamine oxidase inhibitors (MAOIs) have also been investigated in BN. Earlier clinical trials demonstrated that these medications may reduce binge episodes and have mood-stabilising results. The meta-analysis by Yu et al. (2023) included studies examining TCAs and MAOIs and confirmed their superiority over placebo in some outcomes. However, their clinical utility remains limited due to a substantial burden of adverse effects. For instance, in the case of MAOIs, these include dizziness and sleep disturbances, such as insomnia, whereas TCAs are associated with an increased risk of cardiovascular toxity.

Whittal, Agras, and Gould (1999), in their meta-analysis comparing psychosocial and pharmacological treatments for BN, found that cognitive behavioral therapy produced larger and more durable effects than medication alone. Although pharmacotherapy was associated with symptom reduction, combined treatment approaches tended to yield more robust clinical outcomes. Their findings support the view that medication should be considered an adjunct rather than a standalone treatment.

In summary, pharmacotherapy plays a significant supportive role in the management of bulimia nervosa. SSRIs, particularly fluoxetine, have the strongest evidence base, while topiramate represents an effective alternative for some patients. Pharmaotherapy may exert a positive effect on patient engagement in the treatment process and, therefore, should be considered as an adjunctive intervention in the management of bulimia (Yu et al., 2023).

Binge Eating

The pharmacotherapy of Binge Eating Disorder primarily targets neurotransmitter systems, particularly dopamine, norepinephrine, and glutamate, to reduce loss-of-control eating and excessive food intake. BED is a common eating disorder, and while psychological interventions are considered first-line treatments, pharmacological therapy can provide clinically meaningful reductions in binge frequency and related weight concerns. The comparative efficacy of cognitive-behavioral therapy and medication-based treatment requires further investigation. (Ghaderi et al., 2018).

The only FDA-approved medication for moderate-to-severe BED is lisdexamfetamine. It acts as a central nervous system stimulant by increasing the release and inhibiting the reuptake of dopamine and norepinephrine. Clinical trials indicate that lisdexamfetamine is effective at doses ranging from 30 mg to 70 mg per day for reducing binge episodes, with higher doses generally associated with greater efficacy (McElroy et al., 2015).

Selective Serotonin Reuptake Inhibitors, including fluoxetine, sertraline, and fluvoxamine, are frequently used off-label to manage BED. They can reduce binge frequency, particularly in the short term,

although they generally do not produce significant weight loss (Reas & Grilo, 2012). Fluoxetine is typically prescribed at doses up to 60 mg/day in this context, consistent with clinical recommendations for other eating disorders.

Topiramate, an antiepileptic medication, has demonstrated efficacy in reducing binge eating and promoting weight. Its use can be limited by side effects such as cognitive dulling and paresthesia (Ghaderi et al., 2018, Costa et al., 2025).

Cognitive Behavioral Therapy has shown moderate efficacy in reducing binge episodes in individuals with Binge Eating Disorder, though evidence on the long-term effects of combining pharmacotherapy with CBT remains limited. While pharmacotherapy can be an adjunct to treatment, there is insufficient data to conclude that the combination consistently improves long-term outcomes or sustains abstinence from binge episodes more effectively than CBT alone (Ghaderi et al., 2018).

Adverse Effects of Pharmacotherapy in Eating Disorders

Overall, pharmacotherapy in EDs provides symptomatic relief, supports behavioral interventions, and addresses comorbid psychiatric conditions. However, each class of medication carries potential adverse effects that must be carefully weighed against clinical benefits. SSRIs are generally well tolerated but can induce gastrointestinal disturbances, insomnia, and activation effects. TCAs and MAOIs are limited by cardiotoxicity and systemic side effects. Antiepileptics such as topiramate may cause cognitive and gastrointestinal side effects and should be avoided in AN. Atypical antipsychotics carry metabolic and sedation risks, while stimulants pose cardiovascular and insomnia concerns. In pediatric populations, additional caution is required due to developmental pharmacokinetic considerations and metabolic vulnerability. The most effective management of EDs involves integrating pharmacotherapy into a multidisciplinary approach that prioritizes nutritional rehabilitation and evidence-based psychotherapy, with medications serving as carefully monitored adjuncts rather than standalone treatments (Rodan et al., 2023, Jackson, Cates, & Lorenz, 2010, Muratore & Attia, 2022).

Discussion

The findings of this review highlight the nuanced role of pharmacotherapy in the treatment of eating disorders, emphasizing its adjunctive rather than primary function across diagnostic categories and age groups. Evidence consistently shows that pharmacological interventions are most effective when integrated into a multidisciplinary framework that includes structured nutritional rehabilitation and evidence-based psychotherapy, such as cognitive behavioral therapy or family-based therapy in adolescents. Medications provide symptomatic relief, target comorbid psychiatric conditions, and may support behavioral engagement, but they rarely address core eating pathology independently.

In adults with anorexia nervosa, pharmacotherapy remains limited, reflecting both the biological complexity of the disorder and the influence of severe malnutrition on drug efficacy. SSRIs, while frequently prescribed, demonstrate minimal benefit for weight restoration or core AN psychopathology, though they may alleviate depressive or anxious symptoms following partial weight recovery. Second generation antipsychotics, particularly olanzapine, show modest efficacy in promoting weight gain and reducing pre-meal anxiety, consistent with their dopaminergic and serotonergic mechanisms. However, these effects are variable, and metabolic side effects, including weight gain, dyslipidemia, and sedation, require careful monitoring, particularly in pediatric populations where long-term consequences may be amplified. Evidence for other SGAs, including quetiapine and aripiprazole, is limited and predominantly derived from small or uncontrolled studies, underscoring the need for larger, rigorously designed trials to establish safety and efficacy profiles in AN.

Bulimia nervosa demonstrates a more robust pharmacological response, with SSRIs, especially fluoxetine at 60 mg/day, consistently reducing binge-purge episodes and improving associated mood symptoms. The effectiveness of SSRIs in BN appears independent of comorbid depression, suggesting that serotonergic modulation directly influences impulsive eating behaviors. Topiramate offers an alternative for adults, reducing binge frequency and supporting modest weight loss, but its utility is constrained by cognitive and gastrointestinal adverse effects. Tricyclic antidepressants and MAOIs may also reduce binge behaviors, but their side-effect profiles limit routine use. Across BN studies, combined approaches that integrate psychotherapy and pharmacotherapy consistently yield superior outcomes compared with either intervention alone, reinforcing the adjunctive role of medication.

Binge eating disorder is one of the most pharmacologically responsive EDs. Lisdexamfetamine, through dopaminergic and noradrenergic pathways, reliably decreases binge frequency and enhances psychosocial functioning, representing a key FDA-approved pharmacological option. SSRIs may confer modest

improvements in binge control and comorbid mood symptoms, but weight reduction is generally minimal when used in isolation. Topiramate similarly reduces binge frequency and weight, though adverse effects must be carefully weighed. While pharmacotherapy improves symptom management in BED, evidence for sustained long-term benefit beyond psychotherapeutic interventions remains limited, emphasizing the need for continued research into maintenance strategies and combination therapies.

Sleep related eating disorder presents unique pharmacological challenges due to its parasomniac features and frequent comorbidity with other sleep disorders. SSRIs, topiramate, and clonazepam demonstrate efficacy in reducing nocturnal eating episodes, but treatment is most effective when underlying sleep pathology (such as restless legs syndrome or sleepwalking) is concurrently managed. Notably, certain psychotropic agents, including zolpidem and olanzapine, can paradoxically induce or exacerbate SRED, highlighting the importance of careful drug selection and monitoring.

Pediatric and adolescent populations exhibit additional complexities in pharmacotherapy due to ongoing neurodevelopment, differing pharmacokinetics, and heightened vulnerability to adverse effects. In anorexia nervosa, SSRIs show limited efficacy for core symptoms and are primarily indicated for co-morbid anxiety or depression after partial weight restoration. Olanzapine may offer modest benefit in reducing obsessive preoccupations and supporting weight gain, but sedation and metabolic risk necessitate vigilant monitoring. In adolescent BN, fluoxetine can reduce binge-purge behaviors when combined with psychotherapy, though overall evidence remains limited, and psychotherapeutic interventions remain the mainstay of care. Across pediatric populations, cautious individualized prescribing is essential, and medications should complement rather than replace nutritional and psychotherapeutic interventions.

Overall, the literature reinforces that pharmacotherapy in EDs should be symptom-targeted, adjunctive, and carefully monitored. Clinical decision-making must balance efficacy with the risk of adverse effects, particularly in vulnerable populations such as children and adolescents or those with severe malnutrition. Despite advances in pharmacological research, substantial gaps remain, particularly in the treatment of AN, SRED, pediatric EDs, and treatment-resistant cases. Emerging approaches, including novel psychotropic combinations, neuromodulation, and precision medicine strategies, offer promising avenues for future investigation, but robust evidence from well-designed trials is still required.

Conclusions

In conclusion, pharmacotherapy enhances multidisciplinary care for EDs by reducing symptom burden, improving treatment engagement, and managing comorbid psychiatric conditions. Its integration should be individualized, evidence-informed, and continuously re-evaluated within the context of ongoing psychotherapy and nutritional rehabilitation. The current state of research highlights both the potential and limitations of medications in ED treatment, underscoring the ongoing need for rigorous studies to optimize pharmacological strategies across diverse patient populations.

REFERENCES

1. Beykloo, M. Y. (2021). *Pharmacotherapy in anorexia nervosa* [Doctoral dissertation, University College London]. UCL Discovery. https://discovery.ucl.ac.uk/id/eprint/10129953
2. Chiaro, G., Caletti, M. T., & Provini, F. (2015). Treatment of sleep-related eating disorder. *Current Treatment Options in Neurology, 17*, 33. https://doi.org/10.1007/s11940-015-0361-6
3. Costa, G. P. A., Assunção, B. R., Belfort-DeAguiar, R., & Nunes, J. C. (2025). Pharmacotherapies for binge eating disorder: Systematic review and network meta-analysis. *Obesity Reviews, 26*(9), e13936. https://doi.org/10.1111/obr.13936
4. Couturier, J., & Lock, J. (2007). A review of medication use for children and adolescents with eating disorders. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 16*(4), 173–176. https://pubmed.ncbi.nlm.nih.gov/18392170/
5. Çöpür, S., & Çöpür, M. (2020). Olanzapine in the treatment of anorexia nervosa: A systematic review. *The Egyptian Journal of Neurology, Psychiatry and Neurosurgery, 56*, 60. https://doi.org/10.1186/s41983-020-00195-y
6. Frank, B., Arnold, S., Jaite, C., & Correll, C. U. (2023). Antipsychotic effects on anthropometric outcomes in anorexia nervosa: A retrospective chart review of hospitalized children and adolescents. *Journal of Eating Disorders, 11*, 151. https://doi.org/10.1186/s40337-023-00862-4
7. Garner, D. M., Anderson, M. L., Keiper, C. D., Whynott, R., & Parker, L. (2016). Psychotropic medications in adult and adolescent eating disorders: Clinical practice versus evidence-based recommendations. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity, 21*, 395–402. https://doi.org/10.1007/s40519-016-0253-0

8. Ghaderi, A., Odeberg, J., Gustafsson, S., Råstam, M., Brolund, A., Pettersson, A., & Parling, T. (2018). Psychological, pharmacological, and combined treatments for binge eating disorder: A systematic review and meta-analysis. *PeerJ, 6*, e5113. https://doi.org/10.7717/peerj.5113
9. Han, R., Bian, Q., & Chen, H. (2022). Effectiveness of olanzapine in the treatment of anorexia nervosa: A systematic review and meta-analysis. *Brain and Behavior, 12*(2), e2498. https://doi.org/10.1002/brb3.2498
10. Himmerich, H., Lewis, Y. D., Conti, C., Mutwalli, H., Karwautz, A., Sjögren, J. M., Uribe Isaza, M. M., Tyszkiewicz-Nwafor, M., Aigner, M., McElroy, S. L., Treasure, J., Kasper, S., Bailer, U., Bulik, C. M., De Zwaan, M., Favaro, A., Fernandez-Aranda, F., Fetissov, S., Hilbert, A., ... Yoshiuchi, K. (2023). World Federation of Societies of Biological Psychiatry (WFSBP) guidelines update 2023 on the pharmacological treatment of eating disorders. *The World Journal of Biological Psychiatry, 24*(8), 643–706. https://doi.org/10.1080/15622975.2023.2179663
11. Jackson, C. W., Cates, M., & Lorenz, R. (2010). Pharmacotherapy of eating disorders. *Nutrition in Clinical Practice, 25*(2), 143–159. https://doi.org/10.1177/0884533610362239
12. McElroy, S. L., Hudson, J. I., Mitchell, J. E., Wilfley, D. E., Ferreira-Cornwell, M. C., Gao, J., Wang, J., Whitaker, T., Jonas, J., & Gasior, M. (2015). Efficacy and safety of lisdexamfetamine for treatment of adults with moderate to severe binge-eating disorder: A randomized clinical trial. *JAMA Psychiatry, 72*(3), 235–246. https://doi.org/10.1001/jamapsychiatry.2014.2162
13. Muratore, A. F., & Attia, E. (2022). Psychopharmacologic management of eating disorders. *Current Psychiatry Reports, 24*, 345–351. https://doi.org/10.1007/s11920-022-01340-5
14. Norris, M. L., Spettigue, W., Buchholz, A., Henderson, K. A., Gomez, R., Maras, D., Gaboury, I., & Ni, A. (2011). Olanzapine use for the adjunctive treatment of adolescents with anorexia nervosa. *Journal of Child and Adolescent Psychopharmacology, 21*(3), 213–220. https://doi.org/10.1089/cap.2010.0131
15. Reas, D. L., & Grilo, C. M. (2012). Review and meta-analysis of pharmacotherapy for binge-eating disorder. *Obesity, 16*(9), 2024–2038. https://doi.org/10.1038/oby.2008.333
16. Rodan, S. C., Bryant, E., Le, A., Maloney, D., Touyz, S., McGregor, I. S., Maguire, S., & National Eating Disorder Research Consortium. (2023). Pharmacotherapy, alternative and adjunctive therapies for eating disorders: Findings from a rapid review. *Journal of Eating Disorders, 11*, 112. https://doi.org/10.1186/s40337-023-00833-9
17. Thorey, S., Blanchet, C., Guessoum, S. B., Moro, M. R., Ludot, M., & Carretier, E. (2023). Efficacy and tolerance of second-generation antipsychotics in anorexia nervosa: A systematic scoping review. *PLOS ONE, 18*(3), e0278189. https://doi.org/10.1371/journal.pone.0278189
18. Whittal, M. L., Agras, W. S., & Gould, R. A. (1999). Bulimia nervosa: A meta-analysis of psychosocial and pharmacological treatments. *Behavior Therapy, 30*(1), 117–135. https://doi.org/10.1016/S0005-7894(99)80049-5
19. Yu, S., Zhang, Y., Shen, C., & Shao, F. (2023). Efficacy of pharmacotherapies for bulimia nervosa: A systematic review and meta-analysis. *BMC Pharmacology and Toxicology, 24*, 72. https://doi.org/10.1186/s40360-023-00713-7