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## THE DEVELOPMENT OF EATING DISORDERS AFTER BARIATRIC SURGERY: A SYSTEMATIC REVIEW

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**Abstract: Introduction:** Bariatric surgery is recognized as an effective intervention in the treatment of severe obesity, resulting in significant weight reduction. However, a subset of individuals who undergo the procedure may develop various eating disorders. **Objective:** To identify the development of eating disorders in post-bariatric surgery patients. **Methodology:** The MedLine database was used to search for articles on “Bariatric Surgery” and “Binge Eating Disorders,” focusing on systematic reviews published in the last five years in English and Portuguese. After an initial screening of 30 records, 7 studies were included. **Results:** When analyzing the symptoms of Binge Eating Disorder (BED) in the post-bariatric context, it was shown that the symptoms of this condition significantly decrease for up to around 24 months. The rehabilitation of social cognition, such as emotional recognition and regulation training, can improve patients’ eating control and yield better postoperative outcomes. **Conclusion:** Although bariatric surgery is effective in reducing weight, it may increase the risk of eating disorders, especially in patients without adequate postoperative follow-up. Studies indicate that, although binge eating tends to decrease in the first two years, there is a risk of recurrence, especially after five years. Ongoing psychological and nutritional support, including group therapy interventions, is crucial in preventing relapses.

**Keywords:** Bariatric surgery, bulimia, obesity, binge eating disorder.

## INTRODUCTION

According to the World Health Organization (WHO), severe obesity, or grade III obesity, is characterized by a Body Mass Index (BMI) equal to or greater than 40 kg/m<sup>2</sup>. Currently, it is considered one of the greatest public health challenges in Brazil and worldwide. According to the Brazilian Society of Bariatric and Metabolic Surgery (SBCBM), it is estimated that more than 800,000 people in the country are dealing with grade III obesity (SISVAN, 2023).

The development of morbid obesity results from a combination of factors that lead to an elevated BMI. According to the WHO, lifestyle choices associated with poor diet and sedentary behavior, as well as genetic predisposition, are risk factors for the development of this pathology. Additionally, socioeconomic factors and education levels drastically influence patient health habits. In this way, the comorbidities associated with severe obesity include type 2 diabetes and hypertension (SISVAN, 2023).

The treatment of severe obesity includes lifestyle changes, psychotherapy, and pharmacological therapy. However, according to a study conducted in Pernambuco, 65% of morbidly obese patients were unable to adhere to treatment due to various factors, such as physical limitations and the inability to follow the proposed diet. Therefore, when adherence to treatment is not possible, bariatric surgery is indicated for these patients, emerging as an alternative intervention for managing severe obesity, being considered the most effective treatment for this condition (Amorim, et al., 2016).

However, while bariatric surgery is gaining popularity as a tool to address type III obesity, there are increasing psychological and behavioral repercussions that can arise, particularly in the postoperative period. Due to the profound change in body image and eating

habits, there are reports of the development of compulsive psychopathologies after the procedure, such as binge eating and bulimia nervosa (Amorim, et al., 2016).

Although patients who undergo bariatric surgery are not able to consume a relatively large amount of food, previous binge eating behavior can manifest in a different form, defined as “eating control issues.” Additionally, psychological interventions for post-bariatric surgery patients can contribute to a reduction in psychological disorders related to the surgery. However, the studies reviewed highlight the heterogeneity of the examined studies and indicate that further research is needed for more effective results (David, et al., 2020) (American Psychiatric Association, 2013).

Nevertheless, another review states that current data suggest that food addiction drastically decreases after the first postoperative period. Moreover, it highlights the correlation between pre-bariatric binge eating and the use of addictive substances after the procedure as a continuation of the addiction (Amorim, et al., 2016).

Given this scenario, this review aims to identify the development of eating disorders in post-bariatric surgery patients.

## OBJECTIVE

To identify the development of eating disorders in post-bariatric surgery patients.

## METHODOLOGY

A systematic review was conducted by searching publications in the MedLine database using the MeSH (Medical Subject Headings) descriptors: “Bariatric Surgery” and “Eating Disorders,” applying the Boolean operator AND to combine the terms. The search was conducted on September 25, 2024, initially resulting in 30 publications.

The selection process of the articles was carried out by three researchers, who conducted a second screening by applying the following inclusion criteria: availability of free full-text articles, article type (Meta-Analysis, Review, Systematic Review), publication date (last 5 years), and language (English). Ultimately, 30 articles met the inclusion criteria

The abstracts of all selected articles were read, and meta-analyses, reviews, and systematic reviews whose main topic did not meet the objective of this review were excluded. At the end of the process, 7 publications were considered eligible and included in this review.

## RESULTS

The studies selected in this review are presented in Figure 2 and 3 and arranged in chronological order by the month and year of publication. In cases where identical publication dates occurred, the alphabetical order of the first author's last name was followed.

## DISCUSSION

When analyzing the symptoms of Binge Eating Disorder (BED) in the post-bariatric context, it was found that the symptoms of this condition significantly decrease up to around 24 months (Amorim, et al., 2016). However, these symptoms may return and resemble the symptoms reported in the pre-surgery period, with some individuals only experiencing a recurrence of symptoms after 60 months following bariatric surgery. These patients may experience a resurgence of binge eating episodes and, in some cases, develop other disorders such as bulimia nervosa, night eating, and emotional eating (Amorim, et al., 2016) (Ivejaz, et al., 2015) (David, et al., 2020)

Notably, it is essential to emphasize that for an individual to be diagnosed with BED, recurrent episodes of binge eating must be identified, occurring at least once a week for three months. However, some individuals did not meet these criteria due to the anatomical modifications resulting from bariatric surgery. Furthermore, the return of symptoms may be related both to the social pressure the individual experienced before the surgery and to unsatisfactory weight loss or undesired weight gain in the postoperative period (Ivejaz, et al., 2015) (David, et al., 2020) (Opozda, et al., 2016).

It is noteworthy that individuals with obesity who have undergone bariatric surgery tend to exhibit symptoms and behaviors related to both binge eating and anorexia nervosa. These behaviors can compromise the success of the surgery as well as the effectiveness of the postoperative period. Dysfunctional behaviors can be explained by social cognitive deficits resulting from the social environment of these individuals. These deficits increase the risk of eating disorders and hinder healthy emotional regulation after the recovery period from surgery (Newman, et al., 2021).

The intervention group had significantly greater reductions in emotional eating compared to controls six months after the intervention. Significant differences between the intervention and control groups were not found for other aspects of eating pathology (i.e., cognitive restraint, uncontrolled eating, and binge eating) or weight. No significant differences were found between the intervention and control groups regarding eating pathology or weight one year after the postoperative intervention. The intervention group showed greater reductions in overall eating pathology and subjective binge eating six weeks after the postoperative intervention (American Psychiatric Association, 2013).

**Identification studies via databases and registers**

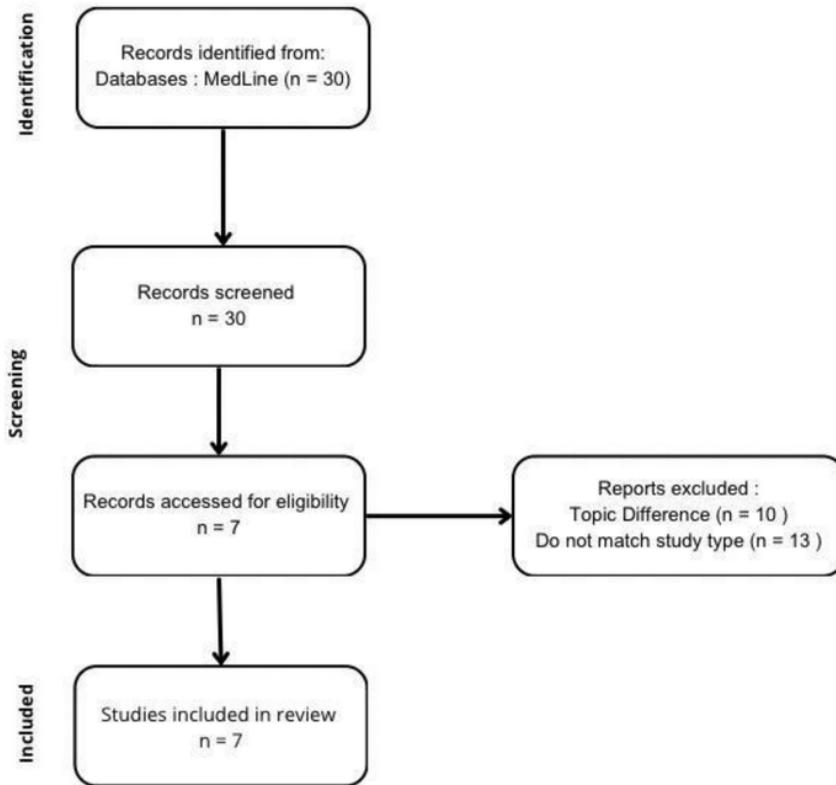


Figure 1: Study selection flowchart.

Source: Prepared by the authors, based on the articles read

Study (Author, Year)	Country	Study desing	Special Tool	DSM of Tools
David, L. A., 2020		Systematic Review		
Ivezaj, V., 2015	USA	Systematic Review	YFAS	DSM IV
Newman, A., 2021		Systematic Review		DSM V
Opozda, M., 2016	Australia	Systematic Review		DSM IV
Spirou, D., 2020	Australia	Systematic Review		DSM IV, DSM V
Tonelli, H., 2021	Brasil	Systematic Review		DSM V
White, B., 2015	USA	Systematic Review	BES	DSM IV

Figure 2: Results by the studies: Country, study design, special tool and DSM of tools

Source: Prepared by the authors, based on the articles read

Study (Author, Year)	Nature of trauma	Sample	Median Age
David, L. A., 2020	Eating pathology	Bariatric patients	
Ivezaj, V., 2015	Eating pathology	Bariatric patients	35.6
Newman, A., 2021			
Opozda, M., 2016	Eating disorder	Bariatric patients	41.8
Spirou, D., 2020	Eating disorder		
Tonelli, H., 2021	Eating disorder	Obese individuals	
WHITE, B., 2015	Eating disorder	Gastric bypass patients	42.4

Figure 3: Results by the studies: Nature of trauma, sample and median age

Source: Prepared by the authors, based on the articles read

Twenty-seven of the 44 studies reviewed (61.3%) evaluated the effect of psychosocial interventions on eating pathology, such as binge eating, snacking, excessive emotional eating, and loss of control eating (LOC). Nine of the 17 studies (52.9%) that reported on the frequency of binge eating or binge eating characteristics found a significant reduction in binge eating cognitions and behaviors after the psychosocial intervention. However, only two of these studies included a control group and could conclude that the psychosocial intervention improved binge eating more than standard postoperative care. Individual studies found that the characteristics and/or behaviors of objective and subjective binge eating did not improve more than a control group immediately, but not at the six-month follow-up; or improved immediately, but not at the 12- or 48-month follow-up; or improved, but not significantly (David, et al., 2020).

Mindfulness-based interventions in combination with behavioral strategies and one study examining an intervention based on Dialectical Behavior Therapy (DBT) did not report changes in binge eating. Cognitive Behavioral Therapy (CBT) initially improved emotional eating after treatment, but this effect diminished at the 12-month follow-up (David, et al., 2020).

The rehabilitation of social cognition, such as emotional recognition and regulation training, can improve patients' eating control and bring better postoperative outcomes. Thus, it would be important to recommend this rehabilitation for patients before surgery and continue with postoperative therapy to maintain the individual's emotional balance (American Psychiatric Association, 2013).

## CONCLUSIONS

Bariatric surgery, despite its significant benefits in weight reduction, can negatively impact the mental health of some patients, resulting in eating disorders such as binge eating and bulimia. Inadequate postoperative follow-up, physiological, emotional, and behavioral changes increase vulnerability to these dysfunctional behaviors, compromising the expected results. Therefore, continuous multidisciplinary support is essential to prevent and treat these disorders.

Studies show that, although binge eating tends to significantly decrease within the first two years after surgery, there is the possibility of symptom recurrence after this period, with some patients returning to conditions similar to those they had before the operation, especially after five years. Additionally, behaviors such as emotional eating and night binge episodes may emerge or worsen over time. These symptoms are often associated with frustrations over insufficient weight loss or unexpected weight gain in the postoperative period.

Patients require appropriate psychological follow-up, including participation in support groups specifically for patients who have undergone bariatric surgery. In addition, continuous nutritional follow-up should be prioritized to promote healthy recovery and prevent the development of eating psychopathologies, as well as to increase the surgery's success rate. The inclusion of psychosocial interventions, such as Cognitive Behavioral Therapy (CBT) and the rehabilitation of emotional and social skills, can help maintain results and reduce the recurrence of dysfunctional behaviors. Future studies should focus on long-term psychological and nutritional interventions to mitigate postoperative complications

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