HİTİT MEDICAL JOURNAL
HİTİT ÜNİVERSİTESİ TIP FAKÜLTESİ DERGİSİ

e-ISSN: 2687-4717 Cilt|Volume: 7 • Sayı|Issue: 3 - Ekim|October 2025

The Effect of Antidepressant Use on Weight Loss After One Anastomosis Gastric Bypass: A Retrospective Cohort Study

Antidepresan Kullanımının Tek Anastomoz Gastrik Bypass Sonrası Kilo Kaybına Etkisi: Retrospektif Kohort Çalışması

Recep Aktimur[1] | Arda Kazım Demirkan[2]

[1]Samsun Liv Hospital, Department of General Surgery, Samsun, Türkiye
[2]Samsun Liv Hospital, Department of Psychiatry, Samsun, Türkiye

Sorumlu Yazar | Correspondence Author
Arda Kazım Demirkan
ardakazimdemirkan@gmail.com
Address for Correspondence: Samsun Liv Hospital, Hançerli, Fatih Sultan Mehmet Cd No:155, 55020, İlkadım, Samsun, Türkiye.

Makale Bilgisi | Article Information
Makale Türü | Article Type: Araştırma Makalesi | Research Article
Doi: https://doi.org/10.52827/hititmedj.1717189
Geliş Tarihi | Received: 11.06.2025
Kabul Tarihi | Accepted: 16.09.2025
Yayım Tarihi | Published: 13.10.2025

Atıf | Cite As
Aktimur R, Demirkan AK. The Effect of Antidepressant Use on Weight Loss After One Anastomosis Gastric Bypass: A Retrospective Cohort Study. Hitit Medical Journal 2025;7(3):432-441. https://doi.org/10.52827/hititmedj.1717189

Hakem Değerlendirmesi: Alan editörü tarafından atanan en az iki farklı kurumda çalışan bağımsız hakemler tarafından değerlendirilmiştir.
Etik Beyanı: Çalışma için 07/07/2021 tarihinde Samsun Eğitim ve Araştırma Hastanesi Girişimsel Olmayan Araştırmalar Etik Kurulu'ndan onay alınmıştır. Karar no: 2021/13/1.
İntihal Kontrolleri: Evet (iThenticate)
Çıkar Çatışması: Yazarlar çalışma ile ilgili çıkar çatışması beyan etmemiştir.
Şikayetler: hmj@hitit.edu.tr
Katkı Beyanı: Fikir/Hipotez: RA, AKD; Tasarım: RA; Data Collection/Data Processing: RA, AKD; Veri Analizi: AKD; Makalenin Hazırlanması: RA, AKD.
Hasta Onamı: Tüm hastalardan yazılı bilgilendirilmiş onam ve yayın için izin alınmıştır.
Finansal Destek: Bu çalışma ile ilgili herhangi bir finansal kaynaktan yararlanılmamıştır.

Peer Review: Evaluated by independent reviewers working in the at least two different institutions appointed by the field editor.
Ethical Statement: Approval for the study was obtained from the Samsun Training and Research Hospital Non-Interventional Research Ethics Committee on 07/07/2021. Decision no: 2021/13/1.
Plagiarism Check: Yes (iThenticate)
Conflict of Interest: The authors declared that, there are no conflicts of interest.
Complaints: hmj@hitit.edu.tr
Authorship Contribution: Idea/Hypothesis: RA, AKD; Design: RA; Data Collection/Data Processing: RA, AKD; Data Analysis: AKD; Manuscript Preparation: RA, AKD.
Informed Consent: Written informed consent and consent for publication was obtained from the patients.
Financial Disclosure: There are no financial funds for this article.

The Effect of Antidepressant Use on Weight Loss After One Anastomosis Gastric Bypass: A Retrospective Cohort Study

ABSTRACT

Objective: Antidepressant use is frequently associated with weight gain, yet little is known about its impact on postoperative weight loss following bariatric surgery. This study aimed to examine how antidepressant use—before and/or after surgery—affects weight loss outcomes in patients undergoing one-anastomosis gastric bypass (OAGB).

Material and Method: This retrospective cohort study included 181 patients who underwent OAGB between January 2020 and December 2021. Based on antidepressant use, patients were categorized into four groups: no use (n=87), preoperative use only (n=25), continued use before and after surgery (n=36), and new initiation after surgery (n=33). Weight loss outcomes were assessed using percentage of excess BMI loss (%EBMIL) and total weight loss (%TWL) at 12 months postoperatively. Statistical comparisons were conducted using independent samples t-tests.

Results: There were no significant differences in %TWL between any of the groups (range: 34.54%–37.05%). However, %EBMIL was significantly lower in the continued-use group (82.21%) compared to the no-use group (*p=0.027*) and the preoperative-use-only group (*p=0.0196*). No statistically significant differences were found between other groups. Demographic variables were generally comparable, though hypertension, hyperlipidemia, and gender distribution differed significantly across groups.

Conclusion: Continued antidepressant use after OAGB may negatively affect %EBMIL, despite similar %TWL outcomes. These findings suggest that antidepressant exposure, particularly when continued into the postoperative period, may attenuate the optimal metabolic benefits of bariatric surgery. Future prospective studies with pharmacokinetic monitoring and larger samples are warranted to clarify medication-specific effects.

Keywords: Antidepressants, Bariatric surgery, OAGB, Weight loss, EBMIL, TWL.

ÖZET

Amaç: Antidepresan kullanımı genellikle kilo alımıyla ilişkilendirilmekte olup, bariatrik cerrahi sonrası kilo kaybı üzerindeki etkisi hakkında ise sınırlı bilgi mevcuttur. Bu çalışmada, ameliyat öncesi ve/veya sonrası antidepresan kullanımının, tek anastomozlu gastrik bypass (OAGB) geçiren hastalardaki kilo kaybı sonuçlarına etkisi incelenmiştir.

Gereç ve Yöntem: Bu retrospektif kohort çalışmasına, Ocak 2020 ile Aralık 2021 tarihleri arasında OAGB ameliyatı geçiren 181 hasta dahil edilmiştir. Hastalar antidepresan kullanımına göre dört gruba ayrılmıştır: hiç kullanmayanlar (n=87), sadece ameliyat öncesi kullananlar (n=25), ameliyat öncesi ve sonrasında kullanmaya devam edenler (n=36), ve sadece ameliyat sonrası başlayanlar (n=33). Kilo kaybı sonuçları, ameliyattan 12 ay sonra ölçülen vücut kitle indeksi fazlalığı kaybı yüzdesi (%EBMIL) ve toplam kilo kaybı yüzdesi (%TWL) ile değerlendirilmiştir. İstatistiksel karşılaştırmalar bağımsız örneklem t-testi ile yapılmıştır.

Bulgular: Gruplar arasında %TWL açısından anlamlı bir fark saptanmamıştır (aralık: %34,54–%37.05). Ancak, %EBMIL değeri, antidepresan kullanımını sürdüren grupta (%82,21), hiç kullanmayan gruba (*p=0.027*) ve sadece preoperatif kullanan gruba (*p=0.0196*) kıyasla anlamlı derecede daha düşüktü. Diğer gruplar arasında istatistiksel olarak anlamlı fark bulunmamıştır. Demografik değişkenler genel olarak benzerdi; ancak hipertansiyon, hiperlipidemi ve cinsiyet dağılımı gruplar arasında anlamlı farklılık göstermekteydi.

Sonuç: OAGB sonrası antidepresan kullanımının devam etmesi, %EBMIL üzerinde olumsuz bir etki yaratabilir; bu durum %TWL sonuçlarının benzer olmasına rağmen geçerlidir. Bu bulgular, antidepresan maruziyetinin—özellikle postoperatif dönemde sürdüğünde—bariatrik cerrahinin optimal metabolik faydalarını azaltabileceğini düşündürmektedir. İlaçlara özgü etkilerin netleştirilebilmesi için farmakokinetik izlemi içeren ve daha geniş örneklemlerle yapılacak prospektif çalışmalara ihtiyaç vardır

Anahtar Sözcükler: Antidepresanlar, Bariatrik cerrahi, Kilo kaybı, OAGB, EBMIL, TWL.

Introduction

Obesity has become a global epidemic, with adult obesity rates more than doubling since 1990, according to the latest World Health Organization (WHO) report. In 2022, approximately 890 million individuals—equivalent to 1 in 8 people worldwide—were estimated to have obesity (1).

Bariatric surgery is considered one of the most effective treatments for obesity and its related comorbidities, including type 2 diabetes, hypertension, sleep apnea, and fatty liver disease. The American Society for Metabolic and Bariatric Surgery estimates that approximately 280,000 bariatric procedures were performed in developing countries based on available data. Among these procedures, one anastomosis gastric bypass (OAGB) has emerged as a novel surgical option for treating obesity, accounting for approximately 0.8% of all bariatric surgeries, with its prevalence steadily increasing (2). On average, patients undergoing OAGB experience a reduction of more than 60–90% in excess body weight during the postoperative period (3,4). Although significant weight loss is typically achieved, the extent of weight reduction within the first year after surgery varies considerably between individuals. This variation is influenced by factors such as physical condition, metabolic rate, and dietary habits. Additionally, psychological factors have been identified as important contributors to postoperative weight loss outcomes (5).

Research has highlighted a high prevalence of depression and other psychiatric disorders among individuals with obesity, as well as those who undergo bariatric surgery (6,7). The long-term use of psychotropic medications has shown variable effects on body weight. For instance, commonly prescribed antidepressants such as selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs) have been associated with weight gain, whereas bupropion—a norepinephrine and dopamine reuptake inhibitor (NDRI)—is linked to weight loss (8).

As various classes of antidepressants interact with different metabolic pathways through a range of mechanisms, bariatric surgery may further alter the absorption and efficacy of these medications, potentially influencing both mental health outcomes and weight loss trajectories. However, data on the impact of psychiatric medication on bariatric surgery outcomes remain limited. A recent article on 315 patients with a 22.2% ratio of antidepressant use revealed that patients on antidepressants showed less weight loss at 12 months post-surgery. Another study compared the outcomes of OAGB patients receiving active treatment for depression with those who did not need treatment. The results showed that antidepressant treatment did not have an impact on weight loss or overall health outcomes (9).

The objective of this study was to analyze and compare excess body mass index loss (EBMIL) and total weight loss (TWL) percentages between patients using psychiatric medications and those who are not, to provide valuable information for clinicians in selecting suitable psychiatric treatments and managing care for the at-risk population undergoing bariatric surgery. As a secondary objective, this study aimed to explore the potential influence of psychiatric medication use on postoperative weight loss outcomes within the clinical context, thereby contributing to more informed decision-making in the management of bariatric surgery patients with coexisting psychiatric conditions.

Material and Method

Study Population

Patients who underwent single-anastomosis OAGB surgery at the same institution between January 2020 and December 2021 were included in the study. Individuals who underwent other types of bariatric procedures, revision surgeries, had unknown antidepressant treatment status, or lacked 12-month follow-up data were excluded. Patients who experienced complications or prolonged hospital stays outside the standard postoperative follow-up periods were also excluded. Inclusion criteria were age ≥18 years, ability to understand the benefits and risks of surgery, stable mental and psychological status, and a failure to achieve sufficient weight loss through conservative methods (diet, exercise, or medication). All patients independently opted for surgery based on personal preferences and willingness to proceed.

The study received ethical approval from the local ethical committee of Samsun Training and Research

Hospital (approval date/no: 07.07.2021/2021-13-12), and written informed consent was obtained. All procedures performed in studies involving human participants adhered to the 1964 Helsinki Declaration and its later amendments. Information regarding antidepressant use was obtained from electronic medical records and confirmed through direct patient interviews. Patients with inconsistent or missing data on antidepressant status were excluded. To ensure cohort homogeneity, only patients using antidepressants classified as SSRIs and SNRIs were included. Those prescribed other psychiatric medications (e.g., tricyclic antidepressants, monoamine oxidase inhibitors, mirtazapine, lithium) were excluded.

All surgical procedures were performed by a single surgeon using a standardized laparoscopic technique described in the literature (10). In brief, the operation involved five laparoscopic trocars in the supine position. A gastric pouch was created along the lesser curvature using a 36-Fr tube and 60-mm linear staplers, starting from the distal crow's foot to the His angle. Gastrojejunostomy was performed using a 60-mm linear stapler at a 60-mm anastomotic length on the posterior wall of the pouch, aligned side-to-side with the jejunum. All staple lines, including the gastric pouch and remnant, were reinforced using an invaginating sero-serosal barbed suture (V-Loc 3-0). Postoperatively, all patients received standardized dietary counseling and were followed regularly by the operating surgeon. Demographic and clinical data—such as age, sex, anthropometric measures, medical comorbidities, and use of antipsychotics on the day of surgery and during follow-up—were systematically recorded.

Outcome Measures

Height and weight were recorded at baseline and at 12 months postoperatively. Weight loss was evaluated using the following formulas: %EBMIL = (Preoperative BMI – Follow-up BMI) / (Preoperative BMI – 25) × 100, %TWL = (Preoperative weight – Follow-up weight) / (Preoperative weight) × 100. The most recent follow-up data was used for comparison with preoperative values.

Statistical Analysis

Continuous variables were summarized as mean ± standard deviation (SD) and categorical variables as counts and percentages. Normality of distributions was assessed using the Shapiro–Wilk test, and homogeneity of variances with Levene's test. Because distributional assumptions were met, parametric procedures were used throughout. Between-group comparisons were planned a priori to contrast each antidepressant-use group with the reference group (no antidepressant use). Accordingly, independent-samples t-tests were performed for continuous outcomes (postoperative weight, BMI, %EBMIL, and %TWL), using Welch's correction when variance homogeneity was violated. Categorical variables were compared using the χ^2 test or Fisher's exact test when expected cell counts were <5. Two-sided *p-values <0.05* were considered statistically significant, and confidence intervals (CIs) were set at 95%. Given that the analysis plan relied on planned comparisons versus a single reference group and did not involve an omnibus multi-group test, we did not conduct one-way ANOVA or post-hoc procedures, and we did not compute ANOVA-based effect sizes (e.g., η^2) or standardized mean differences (e.g., Cohen's d) for inference. Instead, we report mean differences with 95% CIs to convey the magnitude and precision of group contrasts. To account for potential confounding, a multivariable linear regression model was fitted with %EBMIL as the dependent variable, including antidepressant-use group (categorical; reference = no antidepressant use), age, sex, baseline BMI, diabetes mellitus, hypertension, hyperlipidemia, obstructive sleep apnea syndrome, alcohol intake, and smoking as covariates. Model results are presented as unstandardized coefficients (β) with standard errors (SE), standardized coefficients (β), t statistics, and p values. Regression assumptions (linearity, normality, and homoscedasticity of residuals) were evaluated using residual diagnostics and the Shapiro–Wilk test on residuals. No antidepressant group was the reference category for the groups. Multicollinearity was assessed using variance inflation factors (VIF < 5 considered acceptable). For visualization, %EBMIL and %TWL were displayed with boxplots (median, interquartile range, and whiskers) and complementary mean plots with 95% CIs (Figures II–V) to aid clinical

Table I. Demographic Data of the Study Population

	No antidepressant group (n=87)	Preoperative use of antidepressants (n=25)	Continued use of antidepressants (n=36)	Postoperative use of antidepressants (n=33)
Age (years)	42.24±9.683	42.80±7.887	41.33±12.29	41.00±11.33
Baseline weight (kg)	115.8±20.77	108.6±20.51	125.4±23.39	125.4±31.93
Baseline BMI (kg/m2)	42.30±6.951	39.30±2.431	43.71±4.868	43.66±6.053
M/F	31/56	10/15	16/20	12/21
Diabetes mellitus n (%)	40 (45.9)	10 (40)	20 (55.5)	15 (45.4)
Hypertension n (%)	32 (36.8)	15 (60)	10 (27.7)	6 (18.2)
Hyperlipidemia n (%)	49 (56.3)	15 (60)	24 (66.6)	6 (18.2)
Obstructive sleep apnea syndrome n (%)	31 (35.6)	10 (40)	12 (33.3)	12 (36.4)
Alcohol intake n (%)	26 (29.9)	10 (40)	16 (44.4)	15 (45.4)
Smoking n (%)	44 (50.6)	15 (60)	18 (50)	15 (45.4)

BMI: Body Mass Index; M/F: Male/Female.

interpretability. Statistical analyses were conducted using SPSS for Windows (version 23.0; IBM Corp., Armonk, NY, USA), and plots were generated in Python.

Results

All variables showed normal distribution according to relevant statistical analyses. The demographic and clinical characteristics of the study population are summarized in Table I. A total of 181 patients who underwent OAGB surgery were included in the analysis. Patients were divided into four groups based on their antidepressant use: no antidepressant use (n=87; patients who did not use any antidepressants during both the preoperative and postoperative periods), preoperative use only (n=25; patients who used SSRIs or SNRIs for at least 6 months during the 1-year period prior to surgery but discontinued thereafter), continued use before and after surgery (n=36; patients who used SSRIs or SNRIs for at least 6 months both during the 1-year preoperative period and for at least 6 months during the 1-year postoperative follow-up), and initiated antidepressant treatment postoperatively (n=33; patients who did not use antidepressants preoperatively but initiated SSRI or SNRI treatment for at least 6 months within the 1-year postoperative follow-up period). This classification is summarized in Table II.

The distribution of patients in each group according to antidepressant type was as follows: preoperative use group (20 SSRI, 5 SNRI), continued use group (27 SSRI, 9 SNRI), postoperative use group (27 SSRI, 6 SNRI).

Table II. Patient Groups Based on Timing and Duration of Antidepressant Use

Group	n	Definition
No antidepressant use	87	Patients who did not use any antidepressants during both the preoperative and postoperative periods.
Preoperative use only	25	Patients who used SSRIs or SNRIs for at least 6 months during the 1-year period prior to surgery but discontinued thereafter.
Continued use before and after surgery	36	Patients who used SSRIs or SNRIs for at least 6 months both during the 1-year preoperative period and for at least 6 months during the 1-year postoperative follow-up.
Initiated antidepressant treatment postoperatively	33	Patients who did not use antidepressants preoperatively but initiated SSRI or SNRI treatment for at least 6 months within the 1-year postoperative follow-up period.

There were no statistically significant differences among the groups regarding age, baseline weight, body mass index (BMI), diabetes mellitus, obstructive sleep apnea syndrome (OSAS), alcohol use, or smoking status. However, the prevalence of hypertension and hyperlipidemia differed significantly across groups, ranging from 18.2% to 60% and 18.2% to 66.6%, respectively ($p<0.01$ for both). Additionally, gender distribution also showed a statistically significant difference among groups ($p<0.05$).

Postoperative outcomes based on antidepressant use status are presented in Table III. Postoperative weight and BMI were generally lower in the no-antidepressant group compared to the continued-use

Table III. Comparison of Study Variables between the Groups

Variables	No antidepressant group (n=87)	Preoperative use of antidepressants (n=25)	*p value**	Continued use of antidepressants (n=36)	*p value**	Postoperative use of antidepressants (n=33)	*p value**
Postoperative weight (kg)	74.26±11.71 (51.50 - 107.0)	68.64±12.21 (57.40 - 88.00)	*0.3007*	81.55±14.82 (61.00-118.0)	***0.0238***	78.95±23.01 (57.60-138.0)	*0.2746*
Postoperative BMI (kg/m2)	26.99±3.554 (19.90 - 40.20)	24.92±2.072 (22.70 - 27.50)	*0.2028*	28.46±2.953 (24.70-35.20)	*0.1030*	27.17±4.30 (21.90-37.40)	*0.873*
%EBMIL	91.91±17.16 (52.70-154.3)	100.4±14.68 (82.10-118.3)	*0.2799*	82.21±14.18 (44.10 - 102.4)	***0.0270****	91.40± 18.75 (58.00 - 118.1)	*0.926*
%TWL	35.36±6.701 (19.60-53.70)	36.31±6.759 (29.60 - 45.56)	*0.7578*	34.54±6.867 (16.56 - 43.54)	*0.6373*	37.05±6.720 (27.03 - 48.11)	*0.433*

BMI: Body Mass Index; %EBMIL: Percent Excess Body Mass Index Loss; %TWL: Percent Total Weight Loss; **p* values were based on the comparison with the no antidepressant group; ** Comparison with the preoperative use of antidepressants group: *p=0.0196.*

group. However, the difference reached statistical significance only for BMI in the continued-use group (*p=0.0238*).

Table IV. Multiple Variable Regression Analysis Based on %EBMIL

	Unstandardized coefficients		Standardized coefficients	t	p
	Beta	SE	Beta		
Age	0.02	0.03	0.05	0.66	*0.851*
Baseline BMI	-0.45	0.18	-0.26	-3.63	***0.014***
Gender	-1.10	0.85	-0.09	-1.48	*0.145*
Diabetes mellitus	-0.85	0.90	-0.07	-0.94	*0.459*
Hypertension	-0.40	0.82	-0.04	-0.49	*0.710*
Hyperlipidemia	-0.58	0.88	-0.05	-0.62	*0.695*
Obstructive sleep apnea syndrome	-0.96	0.78	-0.08	-1.22	*0.218*
Alcohol intake	-0.41	0.83	-0.06	-0.78	*0.184*
Smoking	-0.30	0.76	-0.03	-0.39	*0.253*
Preoperative use of antidepressants	-1.25	1.10	-0.10	-1.16	*0.357*
Continued use of antidepressants	-2.10	1.00	-0.17	-2.88	***0.041***
Postoperative use of antidepressants	-0.95	1.05	-0.08	-0.90	*0.514*

BMI: Body Mass Index; SE: Standard Error; %EBMIL: Percentage of Excess Body Mass Index Loss.

Furthermore, patients in the continued-use group demonstrated significantly lower %EBMIL (82.21%) compared to those who did not use antidepressants (*p=0.0270*). Similarly, a comparison between the preoperative-only and continued-use groups revealed significantly lower %EBMIL in the latter (*p=0.0196*) (Figure I). (Figure II shows the distribution of percentage excess body mass index loss [%EBMIL] across the four antidepressant use groups, where the central line represents the median, the box indicates the interquartile range, and the whiskers extend to the minimum and maximum values, excluding outliers).

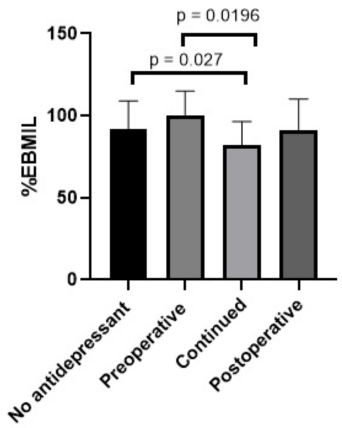

Figure I. Comparison of Study Variables Between the Groups

Other intergroup comparisons for postoperative weight, BMI, and %EBMIL did not yield statistically significant differences. %TWL ranged from 34.54% to 37.05% across all groups, with no statistically significant differences observed. (Figure III presents the distribution of percentage total weight loss [%TWL] across the groups, using the same boxplot format as Figure II).

A multiple linear regression analysis was conducted to examine the association between demographic and clinical variables, taking %EBMIL as the dependent variable. This indicates that higher baseline BMI was associated with a greater effect on the outcome variable (Table IV). Age (*p=0.851*), gender (*p=0.145*), diabetes mellitus (*p=0.459*), hypertension (*p=0.710*), hyperlipidemia (*p=0.695*), OSAS (*p=0.218*), alcohol intake (*p=0.184*), or smoking (*p=0.253*), were not statistically significant predictors in the model. Figure IV displays the mean %EBMIL for each group with 95% confidence intervals represented by error bars, while Figure V similarly shows the mean %TWL for each group with corresponding confidence intervals. Regarding antidepressant use, continued use of antidepressants was significantly associated with the outcome. This group demonstrated a positive relationship, suggesting that sustained antidepressant therapy may influence the dependent variable even after adjusting for other clinical and demographic factors.

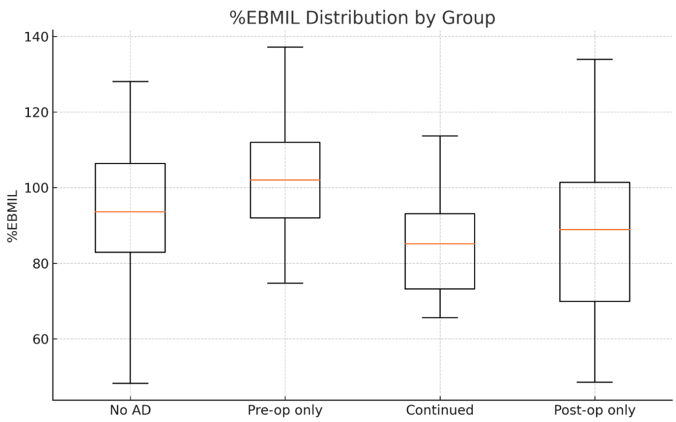

Figure II. Boxplot shows the distribution of percentage excess body mass index loss (%EBMIL) across the four antidepressant use groups. The central line represents the median, the box indicates the interquartile range, and the whiskers extend to the minimum and maximum values, excluding outliers

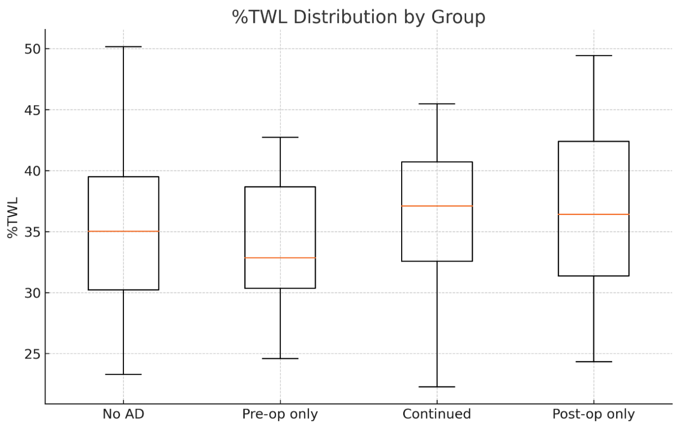

Figure III. Boxplot showing the distribution of percentage total weight loss (%TWL) across the four antidepressant use groups. The central line represents the median, the box indicates the interquartile range, and the whiskers extend to the minimum and maximum values, excluding outliers

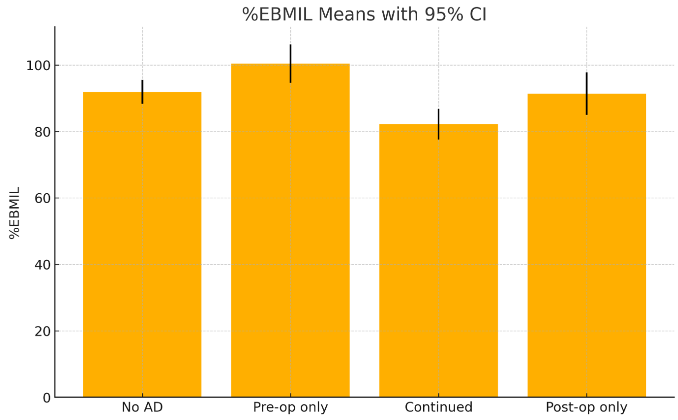

Figure IV. Bar chart displays the mean %EBMIL for each antidepressant use group with 95% confidence intervals represented by error bars

In contrast, preoperative use of antidepressants only (standardized β=0.46, *p=0.357*), postoperative initiation of antidepressants (standardized β=0.35, *p=0.514*), and no antidepressant use (standardized β=0.31, *p=0.174*) were not significantly associated with the outcome. Model fit indices were as follows: R^2=0.18; Adjusted R^2=0.12; F(11, 169) = 3.12, *p=0.001*. All VIF values < 2.0 showing no significant multicollinearity.

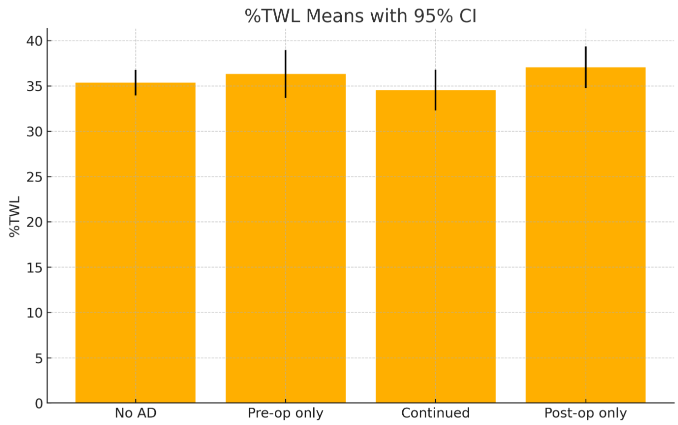

Figure V. Bar chart displays the mean %TWL for each antidepressant use group with 95% confidence intervals represented by error bars

Discussion

Weight gain is a well-known side effect of antidepressants, prompting investigation into their potential impact on postoperative weight loss. While all patients in this study achieved substantial weight loss after OAGB surgery, our findings revealed differential effects based on antidepressant usage. Approximately 19% of patients were on psychiatric medications prior to surgery, and of these, 80% continued using them at least one year postoperatively. We observed no significant differences in %TWL between groups regardless of antidepressant use before or after surgery, indicating that bariatric surgery can achieve comparable total weight loss outcomes regardless of psychiatric medication status. However, patients who continued using antidepressants postoperatively exhibited significantly lower %EBMIL compared to those who were either not taking antidepressants or discontinued them after the preoperative period.

The weight-related effects of psychiatric medications are well-documented, though the underlying mechanisms remain incompletely understood. Only a limited number of studies have examined this issue specifically in the context of bariatric surgery (11–13).

In a prospective cohort study, Hawkins et al. found no significant differences in %TWL among patients taking varying numbers of psychiatric medications one-year post-surgery, aligning with our findings (11). However, they reported that SNRIs were associated with a higher %TWL than SSRIs (36.4% vs. 27.8%), suggesting that different antidepressant classes may exert distinct effects on postoperative outcomes.

Another large cohort study involving 751 patients undergoing Roux-en-Y gastric bypass (RYGB) reported reductions in both %EBMIL and %TWL among antidepressant users, particularly those taking SNRIs and tricyclic antidepressants (TCAs), independent of metabolic comorbidities (12). Similarly, Arterburn et al. found that preoperative bupropion use was associated with greater initial weight loss compared to SSRIs, though this advantage diminished over a five-year follow-up (13). These findings suggest that bupropion may be a preferable option for patients with obesity preparing for bariatric surgery.

Irrespective of surgical technique, bariatric procedures alter gastrointestinal anatomy and physiology, affecting drug pharmacokinetics and bioavailability. These changes include altered gastric emptying time, reduced absorptive surface area, modified bile acid metabolism, and shortened intestinal transit time. Additionally, bariatric surgery is suggested to affect the gut microbiota, which plays a pivotal role in serotonin and tryptophan metabolism (14,15). Notably, up to 90% of the body's serotonin is synthesized in the gut (16), where it functions not only as a neurotransmitter but also as a regulator of gastrointestinal and systemic processes through 14 distinct receptor subtypes (17). The extent to which SSRI treatment interacts with these serotonin-mediated pathways after bariatric surgery remains unclear due to the profound changes to the gut–brain axis introduced by surgery.

A pharmacokinetic study reported an approximate 25% postoperative decrease in SSRI/SNRI plasma concentrations within the first month following surgery, suggesting the need for early dose adjustments (18). This is clinically important for maintaining antidepressant efficacy in the immediate postoperative period.

The mechanisms by which antidepressants influence weight—whether through gain in general populations or reduced weight loss post-surgery—are likely multifactorial and depend on each drug's specific pharmacological profile. These effects may involve serotonin and alpha-1 adrenergic receptor pathways related to appetite regulation, or reductions in energy expenditure due to sedative and antihistaminic effects (19). The hypothalamic–pituitary–adrenal (HPA) axis, which regulates fat distribution and metabolism, may also be disrupted by abdominal obesity. Interestingly, citalopram has been shown to restore HPA axis dysregulation caused by abdominal adiposity (20,21).

While some studies have reported the heterogeneous effects of antidepressants on postoperative weight outcomes, SNRIs and TCAs appear more likely to attenuate %EBMIL than SSRIs or trazodone (12). In our sample, patients were taking SSRIs, SNRIs, but none used TCAs.

The regression analysis demonstrated that continued use of antidepressants was significantly associated with lower %EBMIL ($p=0.041$). Although the effect sizes of other groups did not reach statistical significance, the consistent signal across both regression and pairwise comparisons strengthen the interpretation that sustained antidepressant exposure may attenuate weight loss. However, given the relatively small sample size, these findings should be interpreted with caution.

Since %EBMIL is a sensitive measure of baseline BMI, the same weight loss may result in lower %EBMIL in groups with higher baseline BMI. Supportingly, in this study, the group with the lowest %EBMIL was the group with the highest baseline BMI. Studies reported that %EBMIL acceleration in the first three months is strongly correlated with long-term results. Also, a small bougie size and leaving a shorter distance to the pylorus were found to be related to a higher %EBMIL (22,23).

Additionally, studies have linked antidepressant use to reduced rates of diabetes remission following bariatric procedures (12,24). However, these findings are constrained by small sample sizes and limited metabolic profiling. Larger-scale studies including diverse surgical techniques, detailed medication classifications, and extended follow-up are required to evaluate the long-term impact of psychiatric medications on both weight loss and metabolic outcomes.

Our study has several limitations. First, it was retrospective in design, relying on medical records that may lack complete accuracy. However, we attempted to mitigate this by directly verifying medication histories with patients. Second, serum drug levels were not measured, so changes in absorption, bioavailability, and pharmacokinetics could not be assessed. Third, patients were not stratified according to antidepressant subclass or metabolic indicators. Fourth, potential drug–drug interactions involving medications for comorbid conditions were not evaluated. Nonetheless, all psychiatric medications were prescribed and managed by a psychiatrist in accordance with standard treatment protocols. Lastly, clinical measures such as depression severity, psychological well-being, and quality of life were not evaluated in the context of this study.

Conclusion

According to a detailed literature search, this is among the few studies to evaluate the effects of antidepressants on weight loss outcomes specifically in patients undergoing OAGB. In conclusion, this study highlights a potential impact of continued antidepressant use on weight loss outcomes following OAGB surgery, showing significantly lower postoperative weight and %EBMIL in users compared to non-users and preoperative users. While overall weight trends favored non-users, no difference was seen in %TWL. These findings underscore the need for further research to better understand how antidepressants may influence bariatric success.

References

1. World Health Organization (WHO). Obesity and overweight. Available at: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight. Accessed: 24/03/2024.

2. Clapp B, Ponce J, Corbett J, et al. American Society for Metabolic and Bariatric Surgery 2022 estimate of metabolic and bariatric procedures performed in the United States. Surgery for obesity and related diseases: official journal of the American Society for Bariatric Surgery 2024;20(5):425–431.

3. Musella M, Susa A, Greco, F et al. The laparoscopic mini-gastric bypass: the Italian experience: outcomes from 974 consecutive cases in a multicenter review. Surgical endoscopy 2014;28(1):156–163.

4. Parmar CD, Bryant C, Luque-de-Leon E, et al. One Anastomosis Gastric Bypass in Morbidly Obese Patients with BMI ≥50 kg/m^2: a Systematic Review Comparing It with Roux-En-Y Gastric Bypass and Sleeve Gastrectomy. Obesity surgery 2019;29(9):3039–3046.

5. Hall KD, Kahan S. Maintenance of Lost Weight and Long-Term Management of Obesity. The Medical Clinics of North America 2018;102(1):183–197.

6. Herstowska M, Przygocka-Pieniążek A, Grabowski K, Kaska Ł. Prevalence of mental disorders in patients with pathological obesity selected for bariatric surgery in the KOS-BAR nationwide multi-centre pilot programme - a preliminary report. Wideochirurgia i inne techniki maloinwazyjne = Videosurgery and other miniinvasive techniques 2023;18(3):502–509.

7. Arhi CS, Dudley R, Moussa O, Ardissino M, Scholtz S, Purkayastha S. The Complex Association Between Bariatric Surgery and Depression: a National Nested-Control Study. Obesity surgery 2021;31(5):1994–2001.

8. Mazereel V, Detraux J, Vancampfort D, van Winkel R, De Hert M. Impact of Psychotropic Medication Effects on Obesity and the Metabolic Syndrome in People with Serious Mental Illness. Frontiers in endocrinology 2020;11:573479.

9. Kozela M, Stepaniak U, Koziara K, Karpińska I, Major P, Matyja M. No association between history of psychiatric treatment and postoperative weight reduction after bariatric surgery. Eating and Weight Disorders 2024;29(1):19.

10. Rutledge R. The mini-gastric bypass: experience with the first 1,274 cases. Obesity surgery 2001 Jun;11(3):276–280.

11. Hawkins M, Leung SE, Lee A, et al. Psychiatric Medication Use and Weight Outcomes One Year After Bariatric Surgery. Psychosomatics 2020;61(1):56–63.
12. Plaeke P, Eede F Van Den, et al. Postoperative Continuation of Antidepressant Therapy is Associated with Reduced Short-Term Weight Loss Following Roux-en-Y Gastric Bypass Surgery. Langenbeck S Archives of Surgery 2019;404(5):621-631
13. Arterburn DE, Maciejewski ML, Berkowitz TSZ, et al. Does Long-Term Post-Bariatric Weight Change Differ Across Antidepressants? Annals of Surgery Open 2022;3(1):e114.
14. Brocks DR, Ben-Eltriki M, Gabr RQ, Padwal RS. The effects of gastric bypass surgery on drug absorption and pharmacokinetics. Expert opinion on drug metabolism & toxicology 2012;8(12):1505–1519.
15. Smith A, Henriksen B, Cohen A. Pharmacokinetic considerations in Roux-en-Y gastric bypass patients. American Journal of Health-System Pharmacy: AJHP, the Official Journal of the American Society of Health-System Pharmacists 2011;68(23):2241–2247.
16. Yano JM, Yu K, Donaldson GP, et al. Indigenous bacteria from the gut microbiota regulate host serotonin biosynthesis. Cell 2015;161(2):264–276.
17. Gershon MD, Tack J. The Serotonin Signaling System: From Basic Understanding to Drug Development for Functional GI Disorders. Gastroenterology 2007;132(1):397–414.
18. Pasi PR, Kröll D, Siegfried A, et al. Plasma Concentrations of SSRI/SNRI After Bariatric Surgery and the Effects on Depressive Symptoms. Frontiers in Psychiatry 2023;14:1132112.
19. Carvalho AF, Sharma MS, Brunoni AR, Vieta E, Fava GA. The Safety, Tolerability and Risks Associated with the Use of Newer Generation Antidepressant Drugs: A Critical Review of the Literature. Psychotherapy and psychosomatics 2016;85(5):270–288.
20. Hainer V, Kabrnová K, Aldhoon B, Kunešová M, Wagenknecht M. Serotonin and Norepinephrine Reuptake Inhibition and Eating Behavior. Annals of the New York Academy of Sciences 2006;1083:252-269
21. Ljung T, Ahlberg AC, Holm, G et al. Treatment of abdominally obese men with a serotonin reuptake inhibitor: a pilot study. Journal of Internal Medicine 2001;250(3):219–224.
22. Philouze G, Voitellier E, Lacaze L, et al. Excess Body Mass Index Loss at 3 Months: A Predictive Factor of Long-Term Result after Sleeve Gastrectomy. Journal of obesity. 2017;2017:2107157.
23. Abd Ellatif ME, Abdallah E, Askar W, et al. Long term predictors of success after laparoscopic sleeve gastrectomy. International journal of surgery (London, England). 2014;12(5):504–508.
24. Thereaux J, Lesuffleur T, Czernichow S et al. Association Between Bariatric Surgery and Rates of Continuation, Discontinuation, or Initiation of Antidiabetes Treatment 6 Years Later. JAMA Surgery. 2018;153(6):526–533.