

Predictors of Successful Weight Loss Within 1 Year After Bariatric Surgery: A Multi-Center Cohort Study

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KEY MESSAGE: Most patients achieve successful weight loss after bariatric surgery. Among those who do not, higher BMI, having type 2 diabetes, and higher preoperative anxiety are associated with lower likelihood of success, highlighting the need for tailored perioperative care.

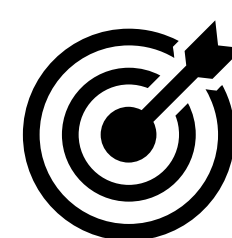
INTRODUCTION

- Bariatric surgery** is a **highly effective treatment** for obesity, leading to sustained weight loss and improvement in obesity-related comorbidities (Gulinac et al., 2023).
- However, predictors of **successful weight loss** remain poorly understood (Cruz et al., 2026).
- Identifying these predictors could inform perioperative care and support strategies.



OBJECTIVE

To (1) estimate the **rate of successful weight loss** during the first year after bariatric surgery and (2) **identify patient and care characteristics associated** with success.



METHODS

- Design:** Multi-center prospective cohort study (Jain et al., 2023)
- Settings:** Two academic hospitals and a private clinic in Montreal, Canada | 09/2021- 04/2022
- Population:** Adult (≥18yo) undergoing primary laparoscopic bariatric surgery.

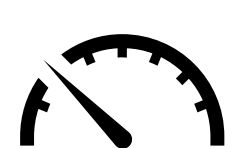


MEASUREMENTS AND OUTCOMES

- Outcome:** Successful weight loss at 1 year, defined as ≥50% excess weight loss (EWL) (Kim et al., 2023).

Variables considered:

- Demographic Characteristics:** Age; sex (female vs male)
- Clinical Characteristics:** Preoperative body mass index (BMI, kg/m²); surgery type (sleeve gastrectomy vs gastric bypass vs other)
- Comorbidities:** Type 2 diabetes; hypertension; dyslipidemia; obstructive sleep apnea; gastroesophageal reflux disease
- Psychological Status:** PROMIS depression T-score, anxiety T-score
- Patient Engagement:** Patient Activation Measure-13 (PAM-13; high activation [levels 3–4] vs low [levels 1–2])

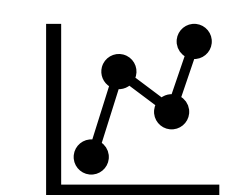


STATISTICAL ANALYSIS

Descriptive analysis: The proportion of patients achieving successful weight loss was summarized using frequency/percentages.

Variable selection and modeling: Grouped adaptive least absolute shrinkage and selection operator (GALASSO) was used for variable selection, followed by multivariable logistic regression for inference. A p-value <0.05 was considered significant.

- Missing data:** Handled using multiple imputation by chained equations (MICE), with estimates pooled across 50 imputed datasets according to Rubin's rules (Rubin et al., 1987)

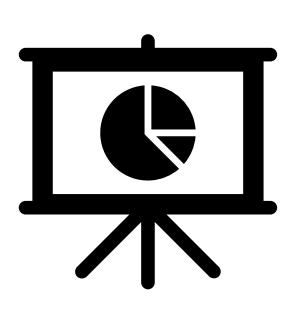


RESULTS

Sample characteristics: 338 patients, age 44 (±10.6), pre-operative BMI 45 (±8.0), 77% female, 73% sleeve gastrectomy, 22% Roux-en-Y gastric bypass.

Rate of successful weight loss: At 1 year after surgery, approximately **85% of patients achieved successful weight loss** (≥50% EWL), while 15% did not. **Predictors** of successful weight loss were as follows:

Predictor	OR	95% CI	p-value
BMI	0.89	0.85 – 0.93	<u>0.000</u>
Type 2 Diabetes	0.40	0.18 – 0.91	<u>0.028</u>
PAM-13 (high vs low)	1.49	0.65 – 3.44	0.349
PROMIS Anxiety	0.94	0.9 – 0.99	<u>0.029</u>



CONCLUSIONS

Higher preoperative BMI, ongoing treatment for **type 2 diabetes**, and **greater preoperative anxiety** were associated with a lower likelihood of achieving successful weight loss.

These findings underscore the importance of integrating clinical and psychological factors into risk stratification and perioperative support strategies to optimize outcomes after bariatric surgery.