# Asian race is not associated with increased 30-day serious complications or mortality: A MBSAQIP analysis of 594 837 patients

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## INTRODUCTION

Indications for bariatric surgery have expanded to include Asian patients with type 2 diabetes (DM2) and body mass index (BMI) ≥27.5, or BMI ≥32.5[1].

Asian patients undergoing bariatric surgery have greater improvement in glycemic control and weight loss than patients of different racial backgrounds[2].

The influence of race on preoperative body composition, comorbidities, post-operative weight loss and surgical outcomes is complex and multifactorial[3-6].

The role of the associated increased metabolic burden as a risk factor for perioperative complications in North American Asian patients is unknown.

## PURPOSE

1. Characterize the Asian patient population undergoing bariatric surgery in North America
2. Assess if Asian racial status is an independent predictor of postoperative outcomes including serious complications and mortality

## METHODS

Patients of self reported Asian or Caucasian racial status who underwent Roux-en-Y gastric bypass (RYGB) or sleeve gastrectomy (SG) from 2015-2019 were idenfitied from the MBSAQIP database.

Outcomes included comparative assessment of patient selection, 30-day perioperative outcomes, and the influence of racial status on serious post operative complications and mortality using multivariable logistic regression.

## RESULTS

Asian patients were more likely to be younger, have a lower BMI and have both non-insulin dependent diabetes (NIDDM) and insulin dependent diabetes (IDDM), prior cardiac surgery, and suffer from renal insufficiency.

| Predictors of Serious Complications | Odds Ratio | 95% CI | p-value |
|---|---|---|---|
| Older Age (per 10 years) | 1.05 | 1.03-1.06 | <0.0001 |
| ASA | | | |
| ASA 1-2 | 1.04 | 1-1.08 | 0.031 |
| ASA>3 | 1.4 | 1.30-1.51 | <0.0001 |
| Higher BMI (per 5kg/m$^2$) | 1 | 1.00-1.00 | 0.309 |
| Female | 1.03 | 1.00-1.06 | 0.162 |
| Race | 1.03 | 0.88-1.22 | 0.739 |
| Bypass | 2.09 | 2.02-2.15 | <0.0001 |
| Operative time | 1 | 1.00-1.00 | <0.0001 |
| Previous MI | 1.48 | 1.36-1.62 | <0.0001 |
| Diabetes | | | |
| NIDDM vs. non-diabetic | 0.96 | 0.92-1.00 | 0.044 |
| IDDM vs. non-diabetic | 1.1 | 1.05-1.16 | <0.0001 |
| OSA | 1.03 | 1.00-1.06 | 0.077 |
| HTN | 1.06 | 1.02-1.09 | 0.001 |
| DLP | 1.04 | 1.00-1.08 | 0.026 |
| Functional Status | | | |
| 1 | 1.48 | 1.30-1.70 | <0.0001 |
| 2 | 1.4 | 1.10-1.70 | <0.0001 |
| COPD | 1.39 | 1.28-1.50 | <0.0001 |
| Renal Insufficiency | 2.03 | 1.79-2.30 | <0.0001 |
| GERD | 1.28 | 1.24-1.31 | <0.0001 |
| Previous VTE | 1.92 | 1.80-2.05 | <0.0001 |

*Table 3: Predictors of serious complications in patients undergoing bariatric surgery*

Multivariate analysis determined Asian racial status was not a significant predictor of increased risk of serious complications. Comorbidities associated with increased risk of serious complications included renal insufficiency, previous, previous MI, poor functional status and ASA score >3.

| Predictors of Mortality | Odds Ratio | 95% CI | p-value |
|---|---|---|---|
| Older Age (per 10 years) | 1.63 | 1.50-1.78 | <0.0001 |
| Higher BMI (per 5kg/m$^2$) | 1.05 | 1.04-1.06 | <0.0001 |
| Female | 0.5 | 0.42-0.60 | <0.0001 |
| Race | 1.07 | 0.34-3.33 | 0.11 |
| Bypass | 1.75 | 1.45-2.12 | <0.0001 |
| Operative time | 1 | 1.00-1.00 | <0.0001 |
| Previous MI | 2.04 | 1.46-2.84 | <0.0001 |
| Diabetes | | | |
| NIDDM vs. non-diabetic | 1.04 | 0.83-1.30 | 0.737 |
| IDDM vs non-diabetic | 1.24 | 0.97-1.59 | 0.083 |
| OSA | 0.84 | 0.70-1.02 | 0.072 |
| HTN | 1.91 | 0.96-1.49 | 0.114 |
| DLP | 1.11 | 0.91-1.36 | 0.311 |
| Functional Status | | | |
| 1 | 2.24 | 1.45-3.45 | <0.0001 |
| 2 | 1.93 | 0.79-4.71 | 0.152 |
| COPD | 2.21 | 1.63-3.00 | <0.0001 |
| Renal Insufficiency | 2.69 | 1.74-4.14 | <0.0001 |
| GERD | 1.15 | 0.97-1.36 | 0.311 |
| Previous VTE | 1.80 | 1.33-2.44 | <0.0001 |
| ASA | | | |
| ASA 1-2 | 1.28 | 0.94-1.74 | 0.119 |
| ASA>3 | 2.08 | 1.39-3.10 | <0.0001 |
| Leak | 13.49 | 9.99-18.22 | <0.0001 |
| Bleed | 6.56 | 4.97-8.72 | <0.0001 |

*Table 4: Predictors of mortality in patients undergoing bariatric surgery*

Asian racial status was not a predictor of mortality after adjusting for comorbidities. The largest contributors to mortality included renal insufficiency, COPD, poor functional status, previous MI and older age. Complications associated with mortality included anastomotic leak and post-operative bleeding. RYGB was associated with increased risk of mortality.

## DISCUSSION

This is the most comprehensive review of North American outcomes of patients of Asian racial status undergoing bariatric surgery to date.

This study is limited by its retrospective nature and the potential to introduce significant selection bias. There are also important limitations in data capture through the MBSAQIP database, racial status is a self-reported variable, and patients may choose to omit this information.

While patients of Asian racial status were shown to have higher rates of diabetes and serious co-morbidities, racial status was not independently associated with serious post operative complications or death. These findings suggest these patients may safely undergo bariatric surgery at lower BMI as is recommended by the updated ASMBS guidelines.

## CONCLUSION

Despite evidence of a higher obesity related metabolic burden, there were no significant differences in 30-day postoperative complications or mortality after adjusting for comorbidities.

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