



Background

Obesity & Ventral Hernia Repair

Obesity is a well-established risk factor for complications after ventral hernia repair. Despite its prevalence, how BMI interacts with operative approach remains poorly characterized.

Minimally Invasive Surgery

Laparoscopic and robotic approaches may mitigate risks, but comparative data stratified by BMI and surgical approach is lacking.

Study Aim

To examine the association between obesity, surgical approach, and SSO after elective ventral hernia repair using the 2022–2023 ACS-NSQIP database.

Methods

Data Source

Adults undergoing elective ventral hernia repair in the 2022–2023 ACS-NSQIP database, identified by primary CPT codes.

Primary Outcome

Surgical site occurrence (SSO): composite outcome including superficial SSI, deep SSI, organ/space SSI, or wound disruption.

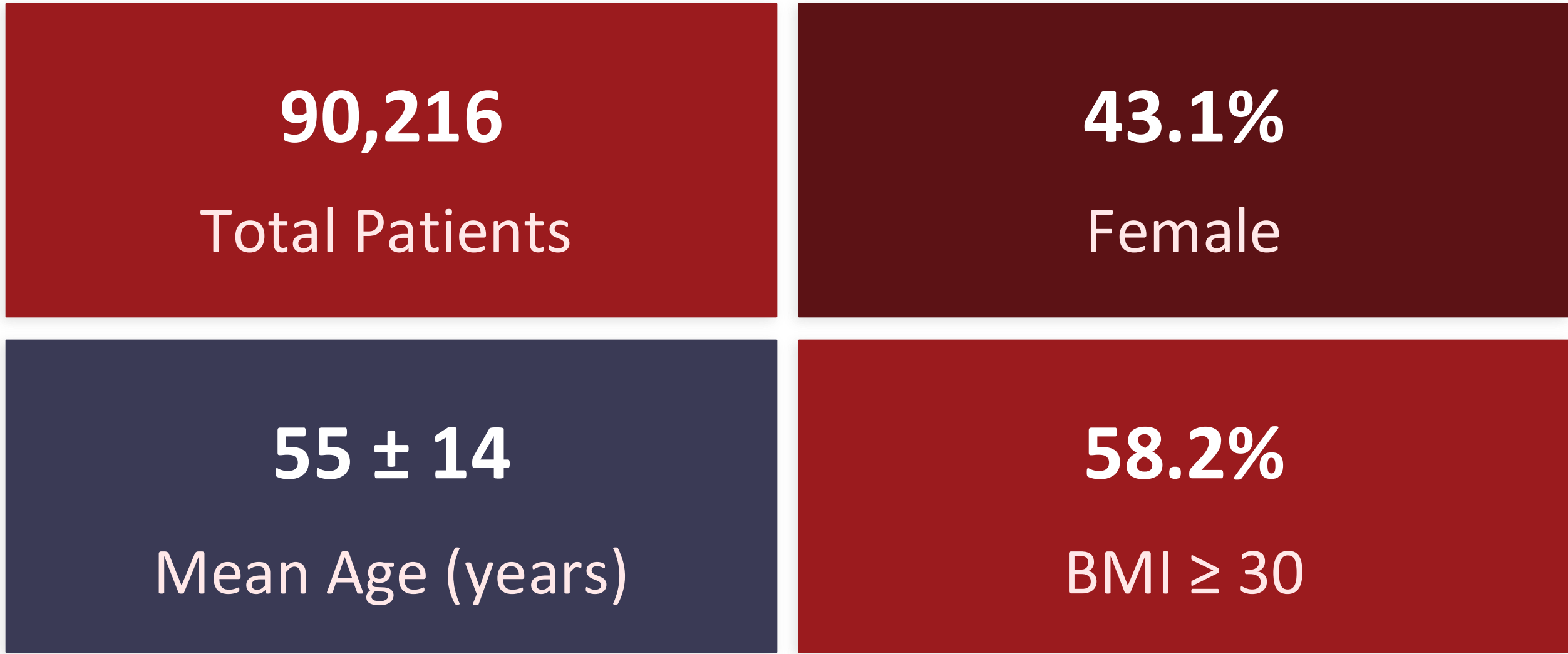
Secondary Outcomes

Operative time, length of stay (LOS), and unplanned 30-day readmission.

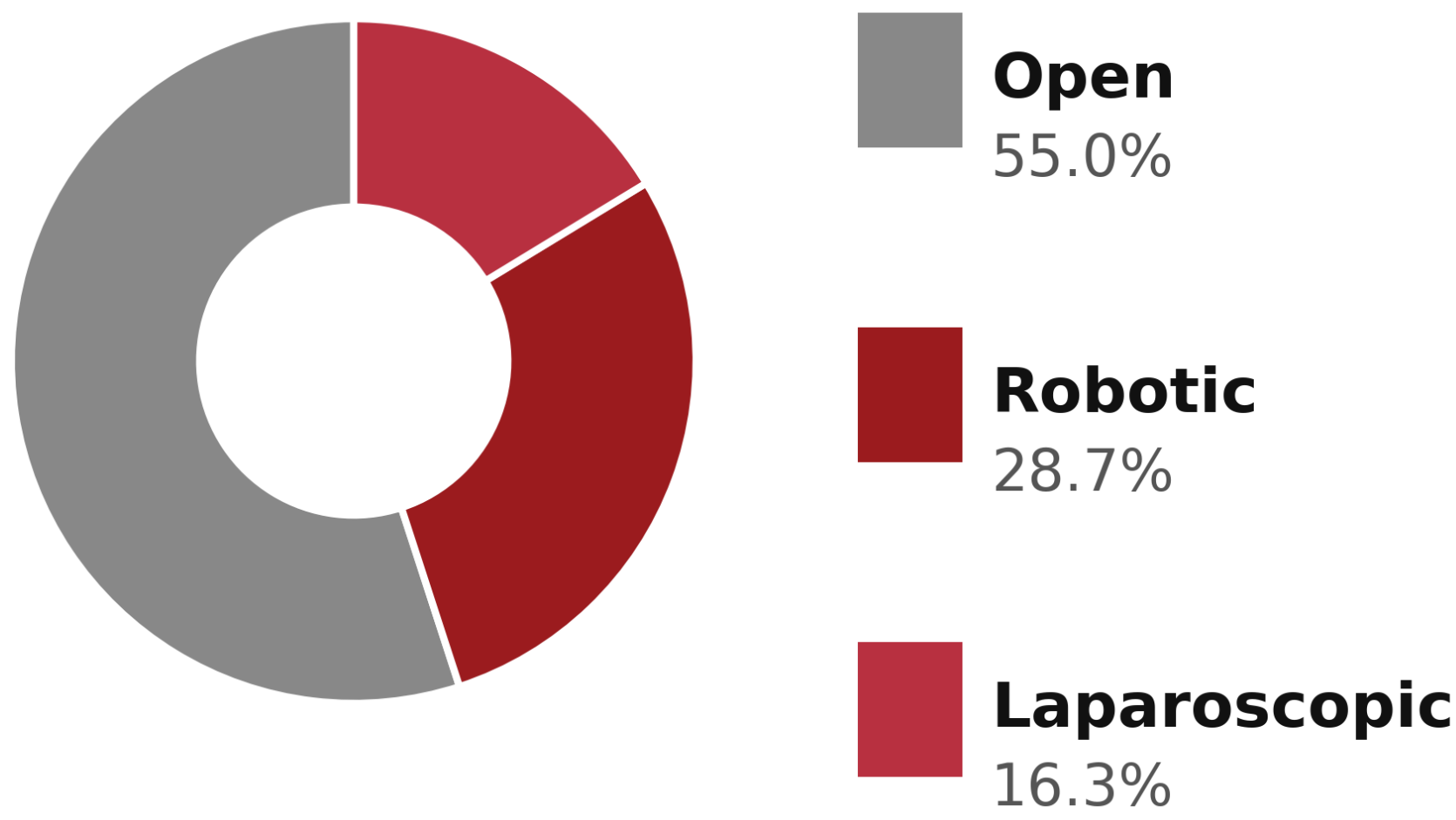
Statistical Analysis

Multivariable logistic regression modeling to estimate adjusted odds of SSO by BMI category and operative approach (open, laparoscopic, robotic.)

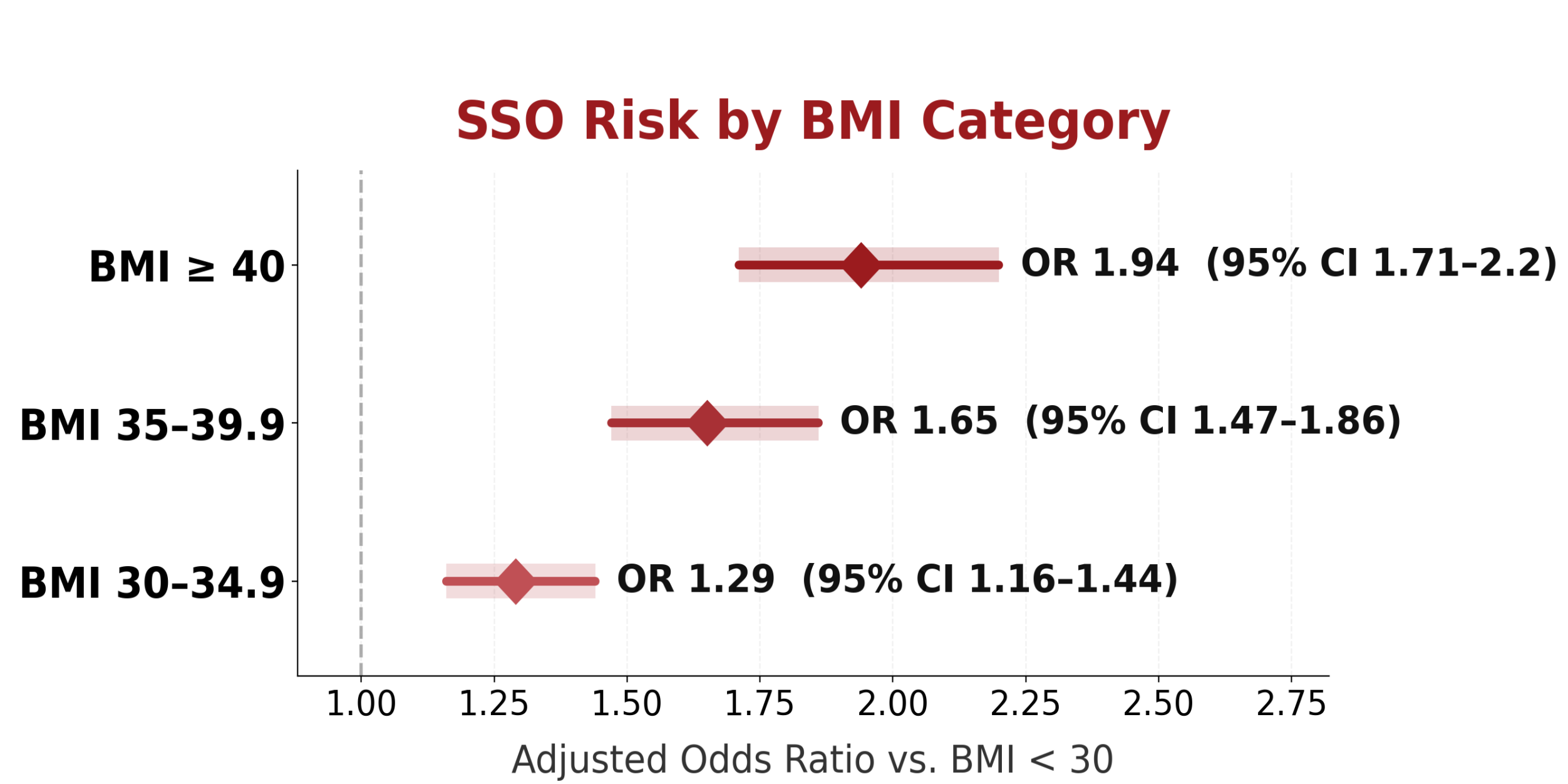
Results: Study Cohort



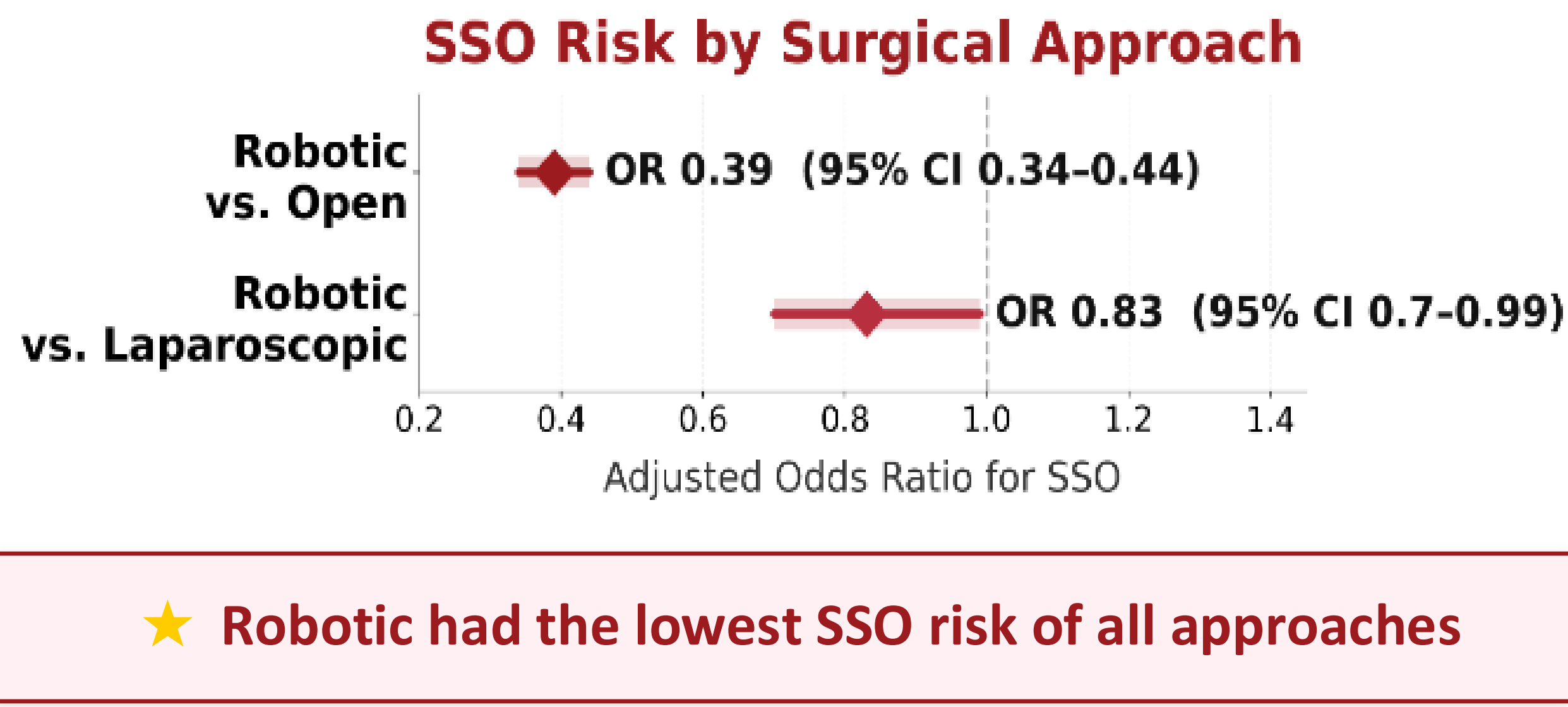
Operative Approach
Distribution



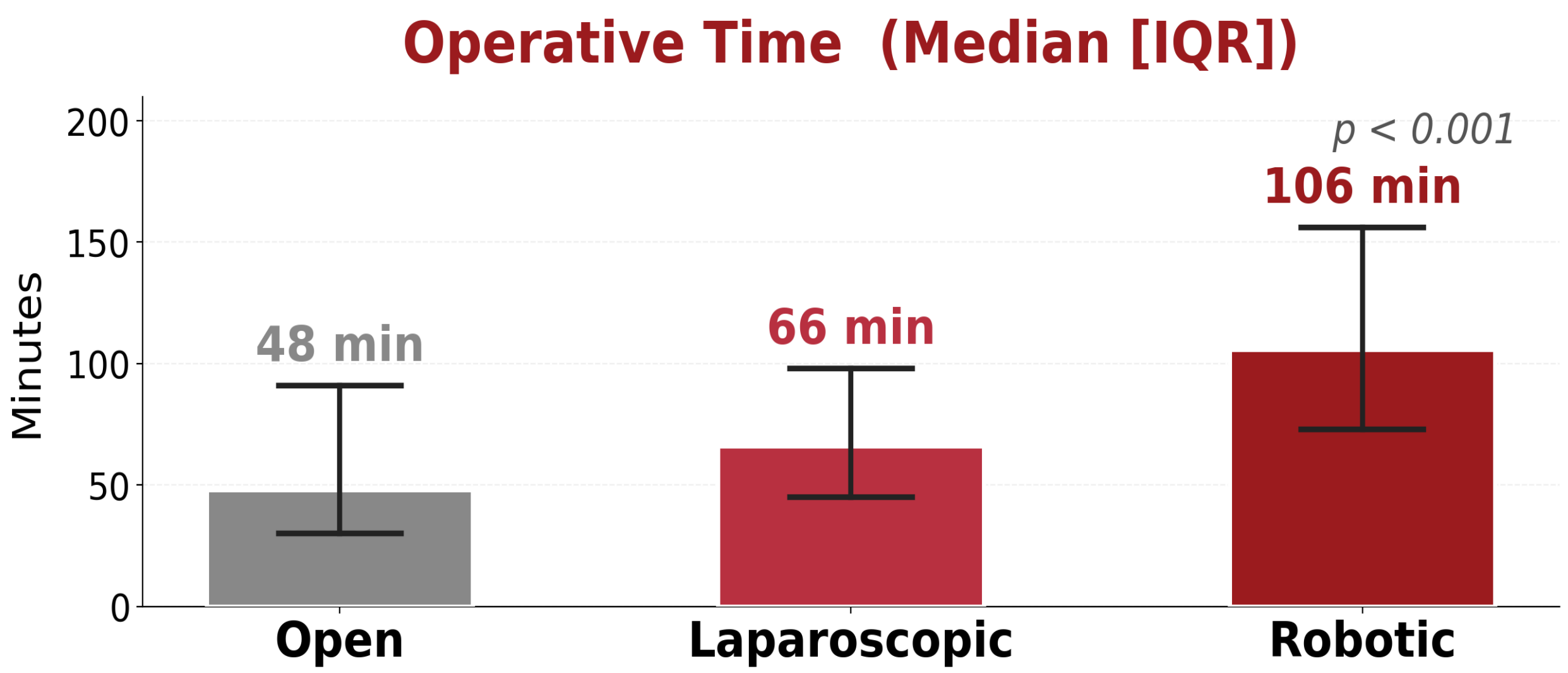
Results: BMI & SSO Risk



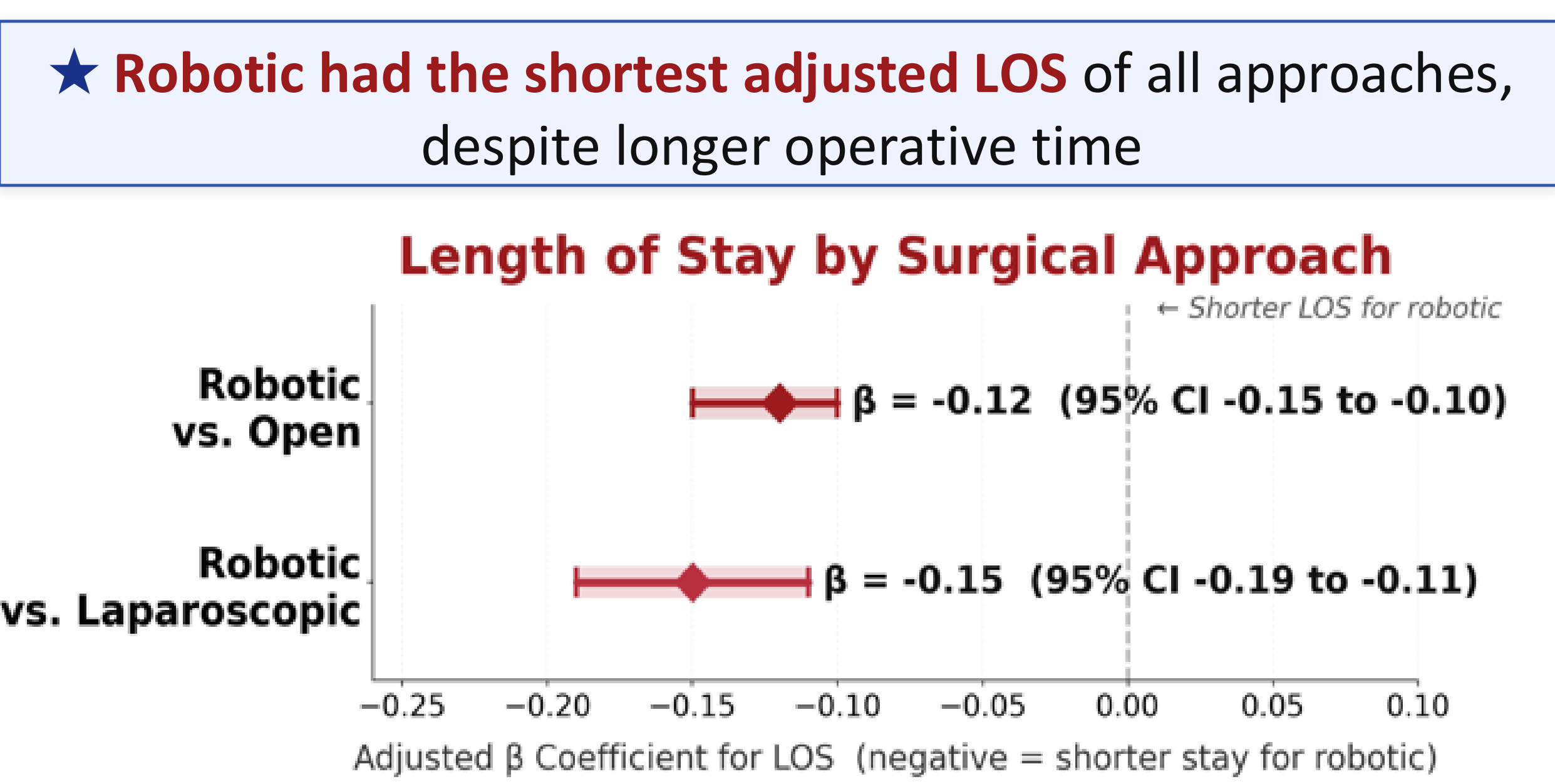
Results: Approach & SSO Risk



Results: Operative Time



Results: Length of Stay (LOS)



Conclusions

- Obesity Independently Increases SSO Risk**
Higher BMI is independently associated with greater SSO risk after elective ventral hernia repair, with risk escalating at each BMI class above 30 kg/m².
- Robotics: Lowest Wound Complication Risk and LOS**
Robotic repair significantly reduces SSO compared to both open and laparoscopic approaches and achieves the shortest adjusted hospital stay.
- Robotic Approach is Optimal for Patients with Obesity**
In the BMI ≥ 30 subgroup, robotic repair further reduces SSO (OR 0.35, 95% CI 0.30–0.40) with no significant increase in 30-day readmission.
- Tradeoff: Longer Operative Time**
Robotic repair requires 44–59 additional minutes vs. open or laparoscopic

Clinical Implications

Robotic ventral hernia repair may represent the optimal surgical approach for patients with obesity, providing:

- ✓ Lowest SSO and wound complication rate
- ✓ Shortest hospital stay
- ✓ No increase in 30-day readmissions

These findings support the use of the robotic approach, when appropriate, for ventral hernia repairs in patients with obesity.

References

- Pernar, L., Pernar, C., Dieffenbach, B., Brooks, D., Smink, D., & Tavakkoli, A. (2017). What is the BMI threshold for open ventral hernia repair?. Surgical Endoscopy, 31, 1311-1317.
- Owei, L., Swendiman, R., Torres-Landa, S., Dempsey, D., & Dumon, K. (2019). Impact of body mass index on minimally invasive ventral hernia repair: an ACS-NSQIP analysis. Hernia, 1-9.