Obesity and diabetes are associated with higher mortality in patients with COVID-19

Authors: Ahmad Hlayhel, MD, Sayali Kulkarni, MD, John Perrone, DO, Toghrul Talishinskiy, MD

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St. Joseph's Health
ST. JOSEPH'S UNIVERSITY MEDICAL CENTER

[x] I have no potential conflict of interest to report

Introduction

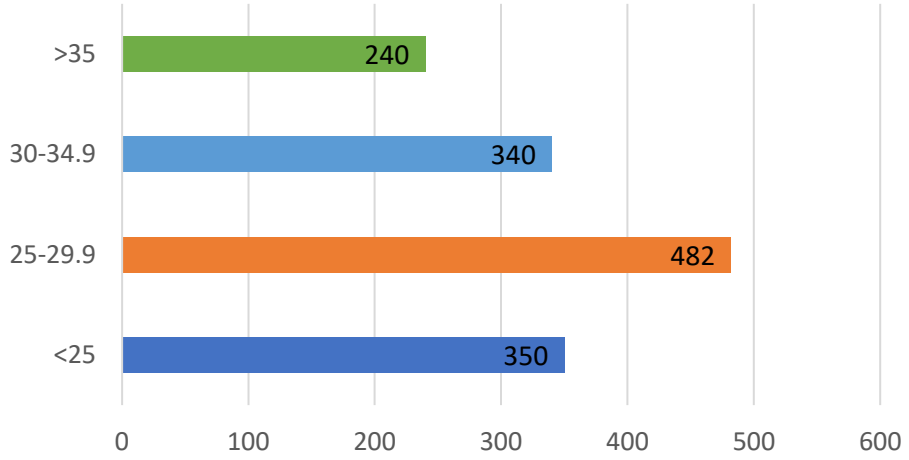
- 3.12 billion people (39% of the global population) have obesity
- It is estimated that 4 billion people will be obese by 2035 (51% of the world population)
- The growing epidemic is predicted to affect children ages 5-19, in whom obesity rates are predicted to double
- No country has reported a decline in obesity prevalence across their entire population
- The growing obesity epidemic along with the recent COVID-19 pandemic has led to adverse effects on patient health

Methods

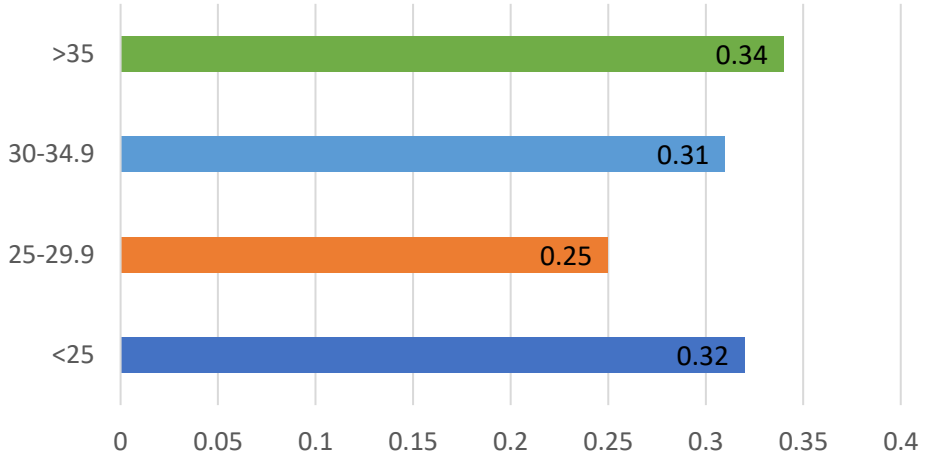
- Retrospective review of COVID-19 patients between March 2019 to June 2020
- A total of 1,412 patient charts were reviewed
- Primary endpoints evaluated were mortality, intensive care unit admission, and intubation with relation to BMI class
- Secondary endpoints evaluated were mortality, intensive care unit admission, and intubation outcomes with relation to diabetes, gender, BMI, and prior bariatric surgery

Results

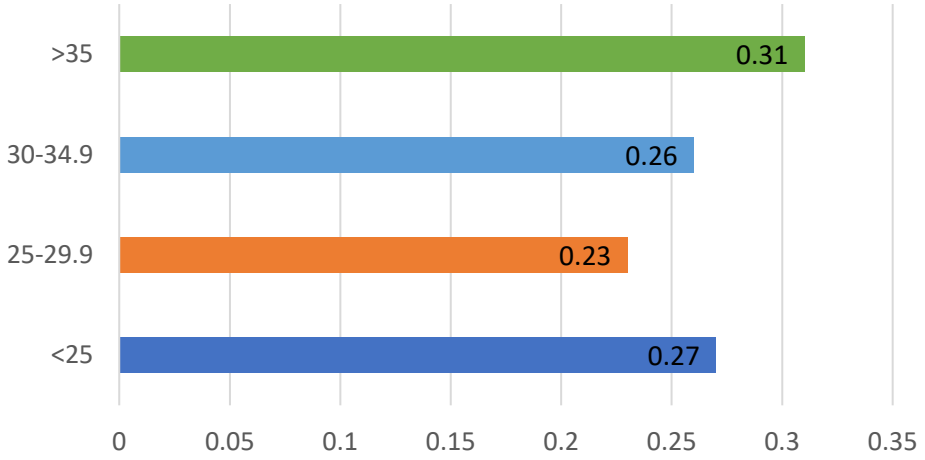
BMI (n)



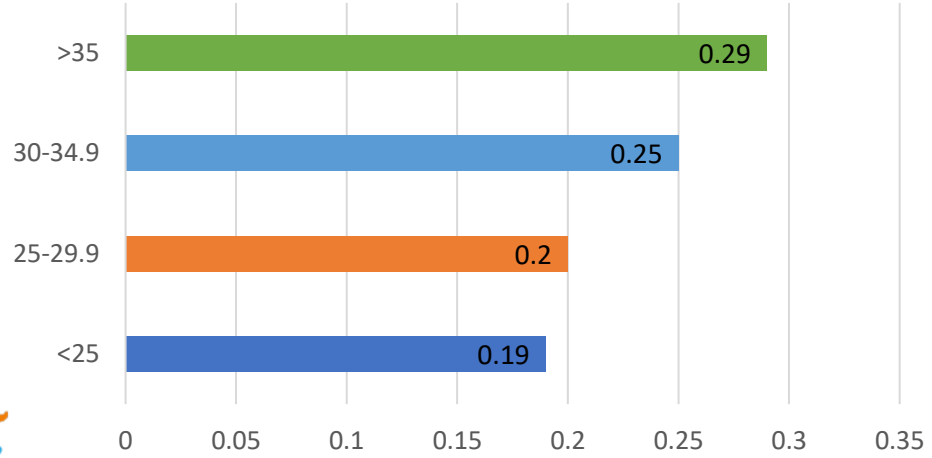
Mortality



ICU Admission Rate



Intubation



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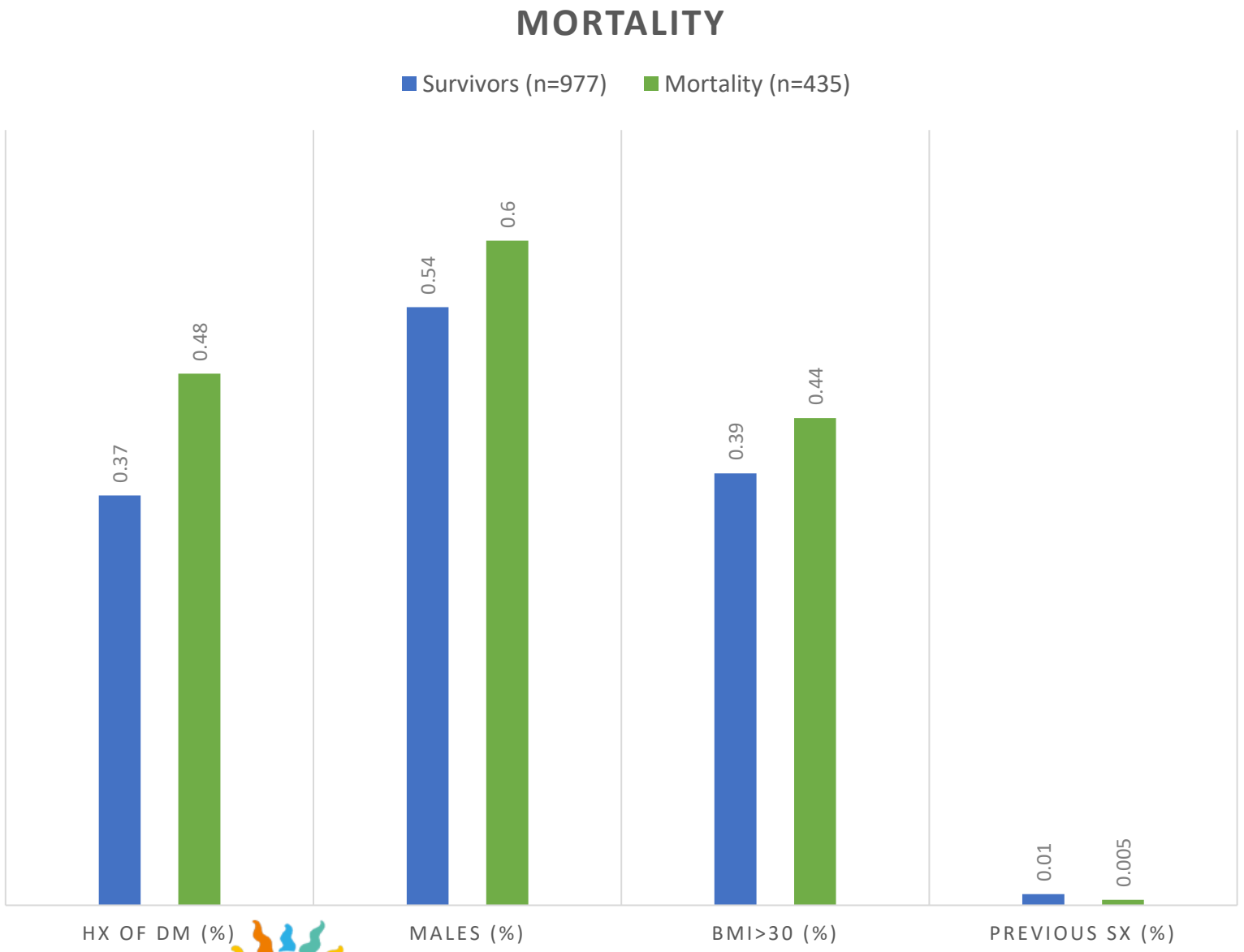
Results

Mortality

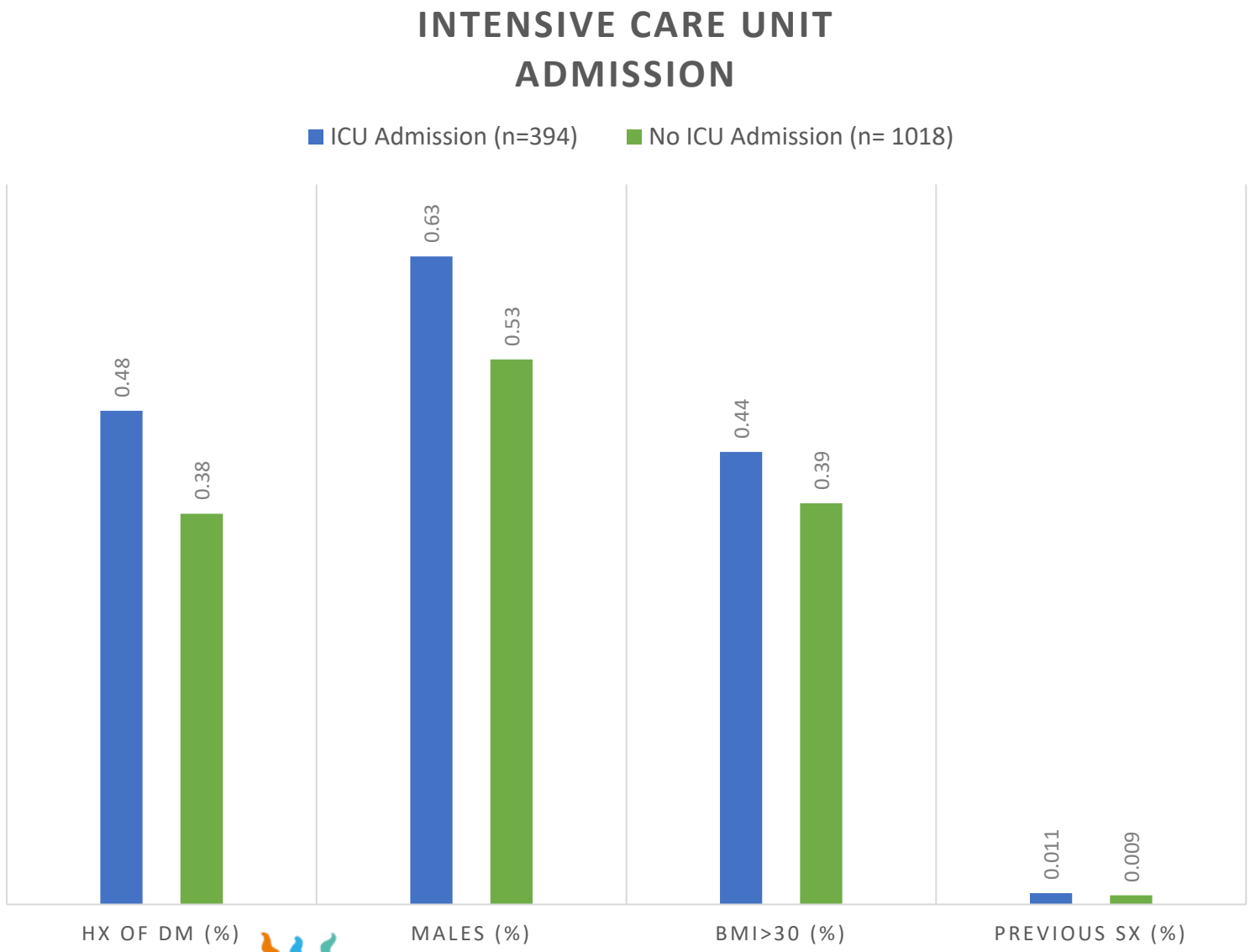
Variable	Survivors (n=977 / 0.69)	Mortality (n=435 / 0.31)	P-Value
% BMI >30	0.39	0.44	0.0154
% History of DM	0.37	0.48	<0.001
% Male Gender	0.54	0.60	0.007
% Previous Bariatric Surgery	0.01	.005	0.76



Results

ICU Admission

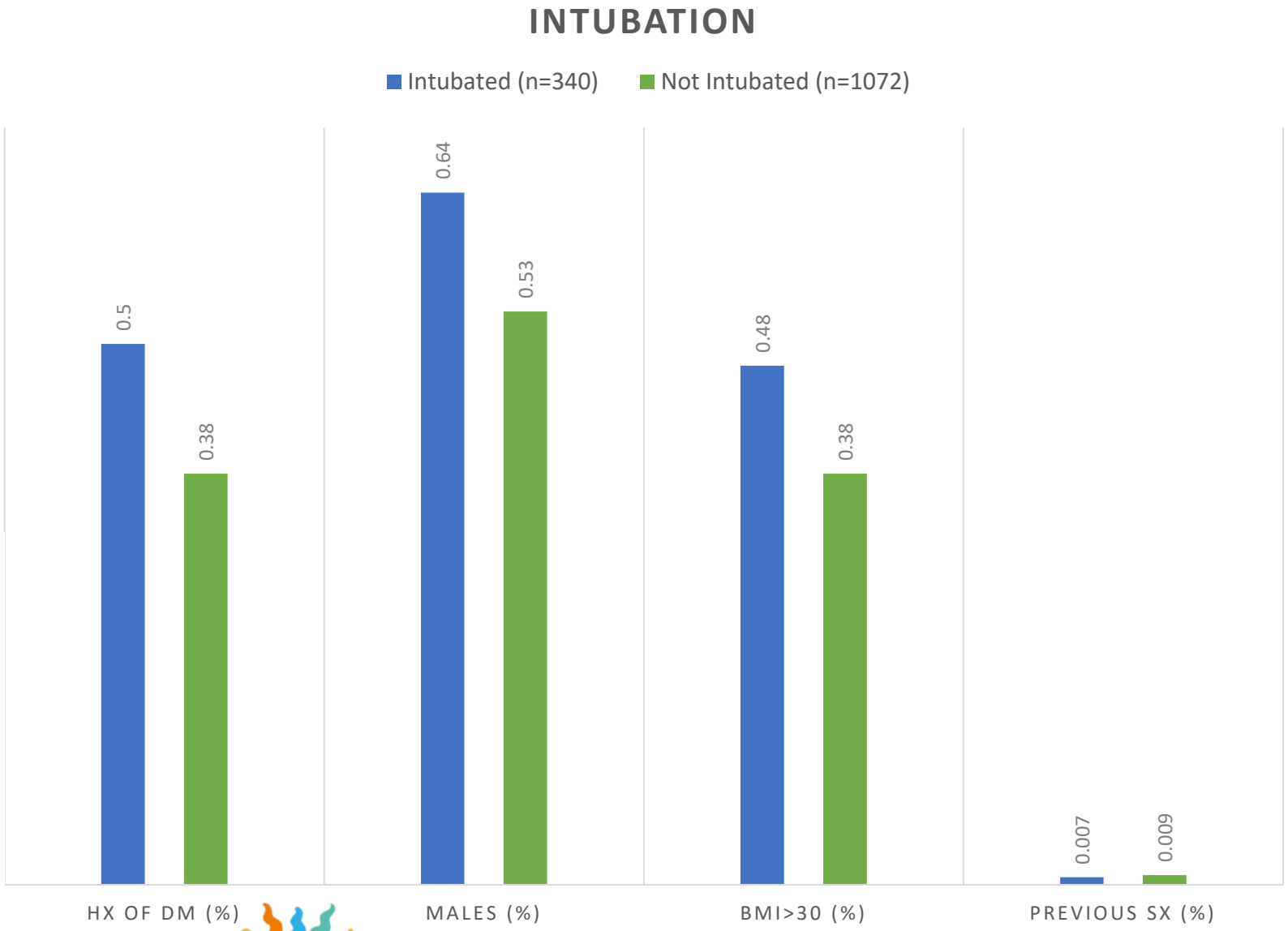
Variable	ICU Admission (n=394 / 0.28)	No ICU Admission (n=1018 / 0.72)	P-Value
% BMI >30	0.44	0.39	0.231
% History of DM	0.48	0.38	<0.001
% Male Gender	0.63	0.53	<0.001
% Previous Bariatric Surgery	0.011	.009	0.284



Results

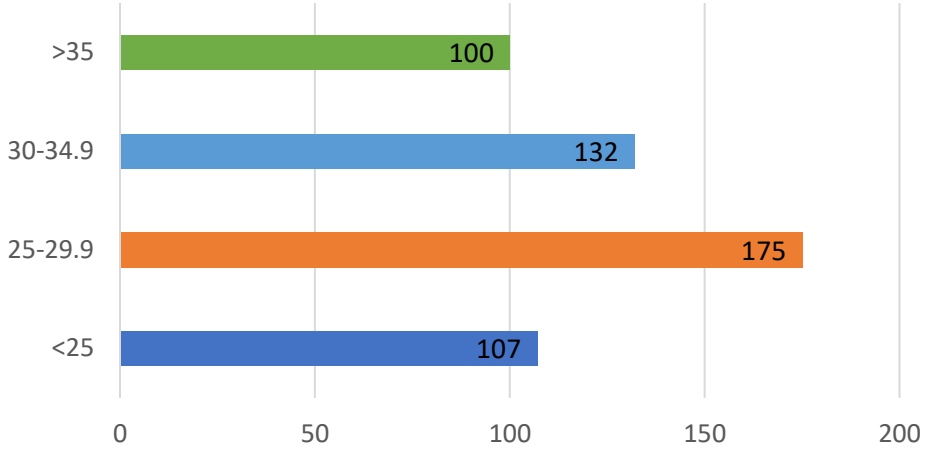
Intubation

Variable	Intubated (n=340 / 0.24)	Not Intubated (n=1072 / 0.76)	P-Value
% BMI >30	0.48	0.38	0.00768
% History of DM	0.5	0.38	0.001
% Male Gender	0.64	0.53	<0.001
% Previous Bariatric Surgery	0.007	.009	0.962

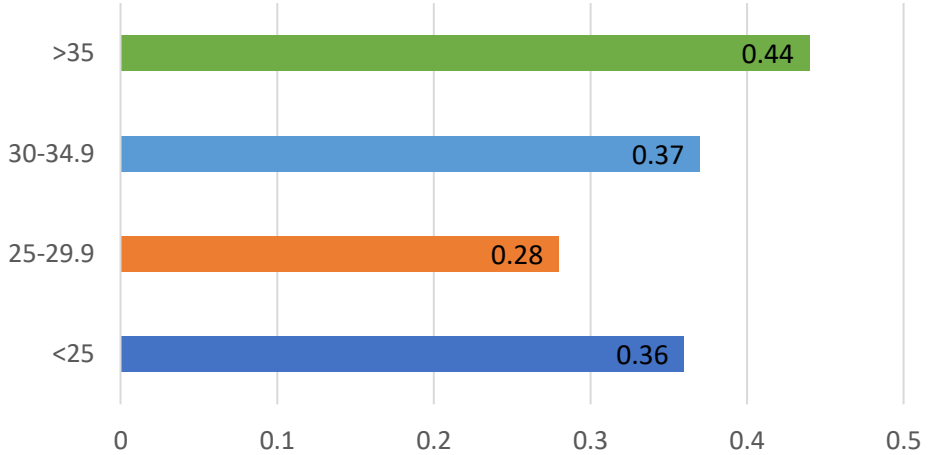


Results

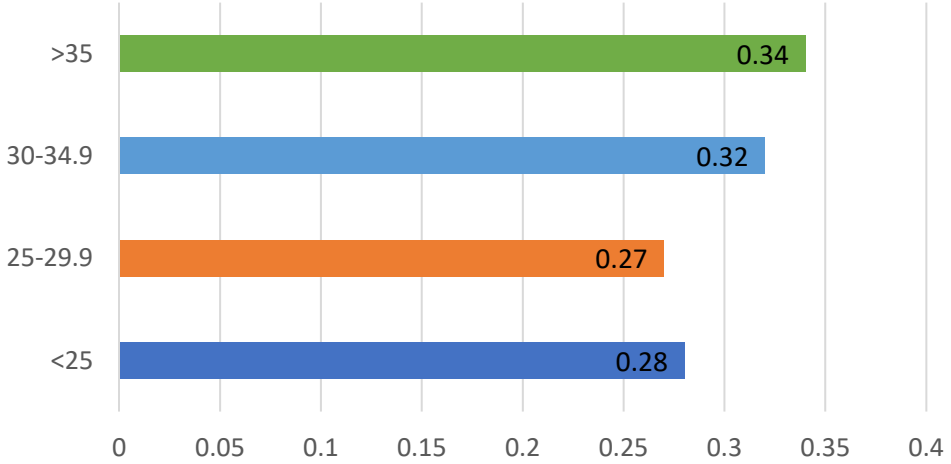
BMI + DM (n)



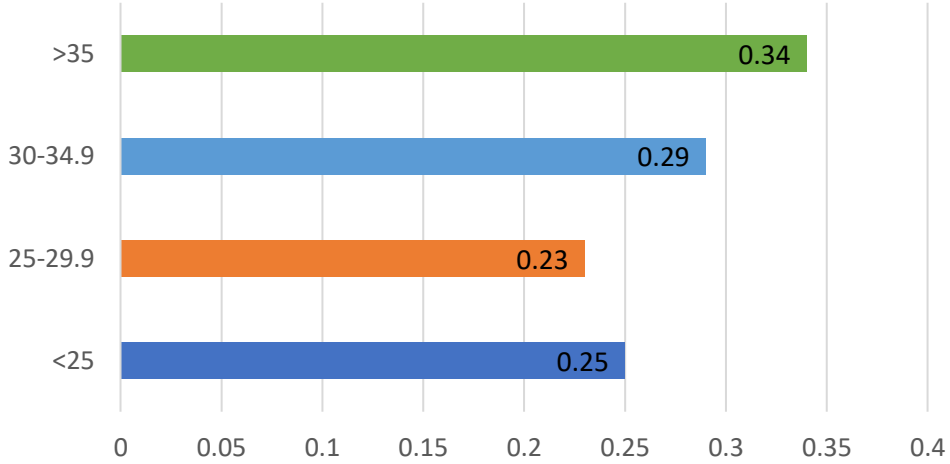
Mortality



ICU admission rate



Intubation



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Conclusion

- BMI, diabetes, and male gender were significantly associated with increased mortality and intubation rates
- Male gender and diabetes were significantly associated with admission to intensive care unit
- No correlation was found between mortality, ICU admission, and intubation in patients with prior metabolic surgery as sample size was limited
- Obesity and diabetes together were significantly associated with mortality, intubation, and admission to intensive care unit
- The IFSO and ASMBS guidelines have expanded patient eligibility for weight-loss surgery to include:
  - Patients with type 2 diabetes and body mass index (BMI) of 30
  - Patients with BMI of 35 or greater regardless of associated comorbidities
- However, there continue to be barriers preventing access in the United States