



# Investigating the Obesity Paradox in Hospitalized Patients With Chronic Obstructive Lung Disease Exacerbation in the United States



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## 4 Results

- A total of 1,474,985 COPD exacerbation admissions were identified.
- As shown in the figure 1, in-hospital mortality was 6.1% in underweight, 5.8% in normal weight, 3.4% in overweight, and 1.9%, 1.7%, and 2.1% in class 1, class 2 and class 3 obesity groups, respectively.
- After adjusting for potential confounders, both overweight and obesity were independently associated with higher rates of NIV and lower rates of IMV and mortality (Figure 2).

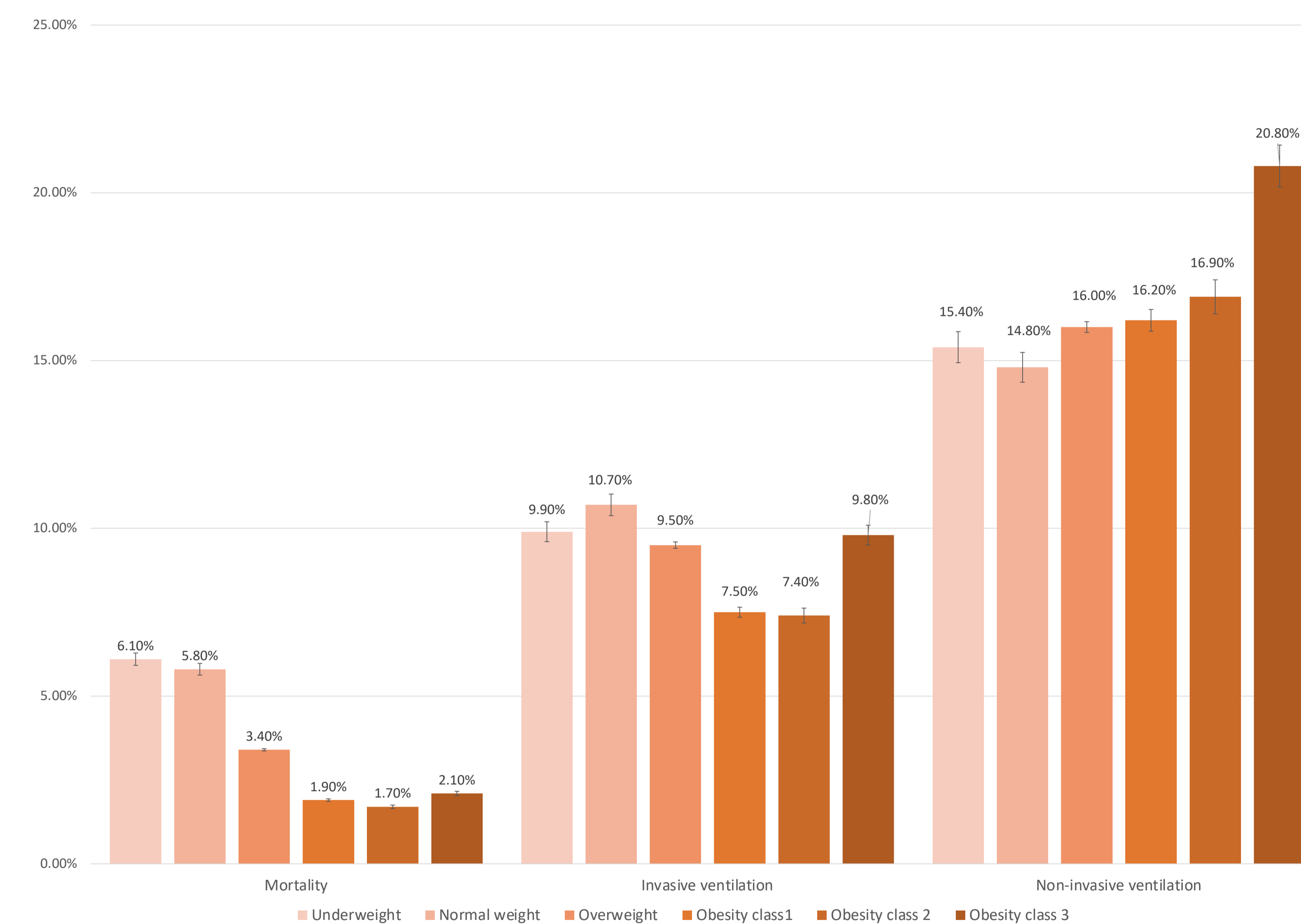


Figure 1: Unadjusted In-hospital outcomes in COPD exacerbation hospitalizations across multiple BMI ranges

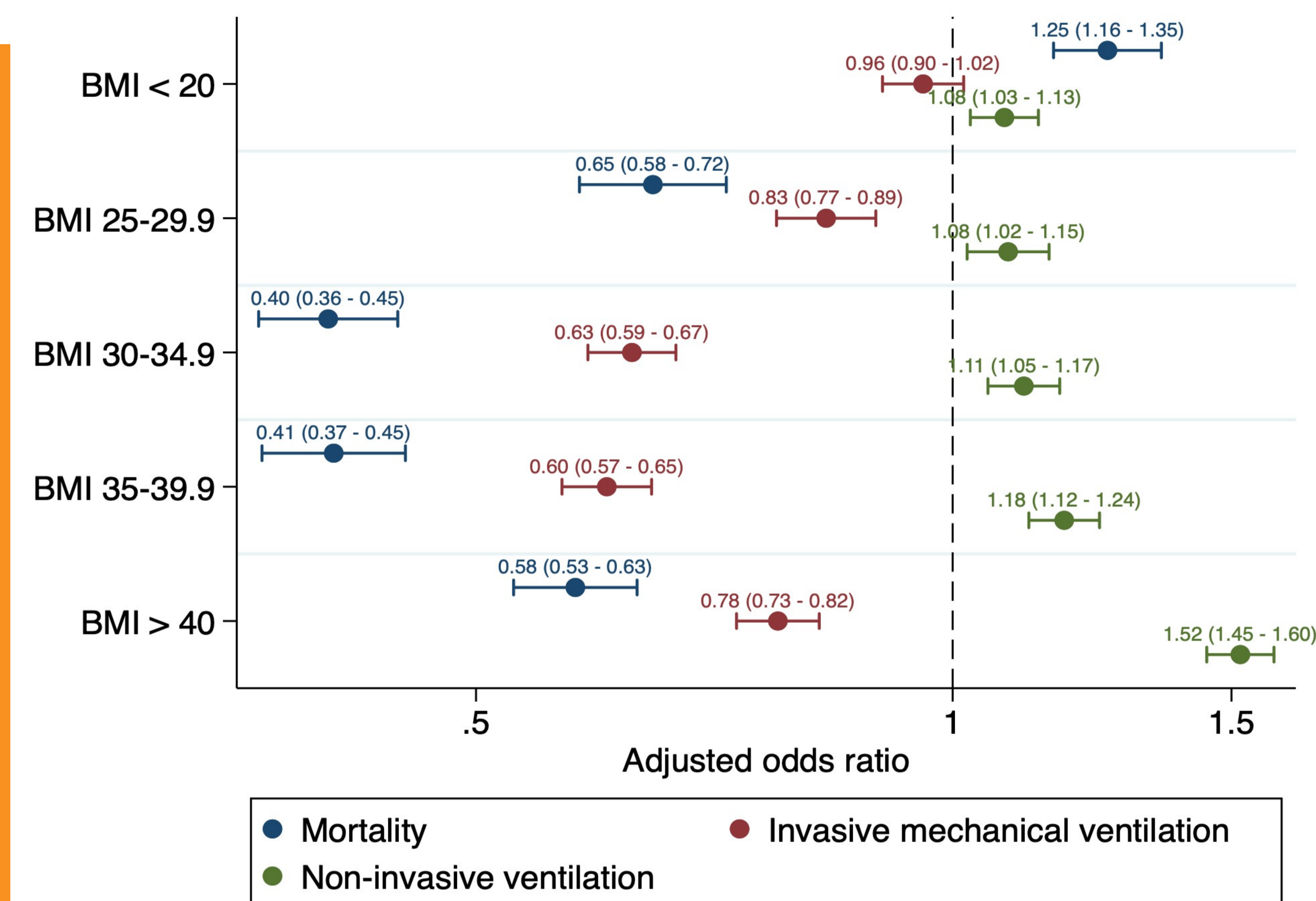


Figure 2: Adjusted odds ratios for mortality, invasive mechanical ventilation, and non-invasive ventilation across the different ranges of BMI in reference to normal weight (BMI 20-24.9)

## 1 Introduction

- Obesity is a public health concern that is common among individuals with chronic obstructive pulmonary disease
- Some evidence suggests that obese patients with COPD have lower mortality than underweight COPD patients
- This “obesity paradox” has been studied in long-term outcomes of COPD, but studies evaluating the effect of obesity on in-hospital outcomes of COPD exacerbation are few.

## 2 Aim

Evaluate the effect of obesity on the in-hospital outcomes of COPD exacerbation

## 3 Methods

This is a cross-sectional study using data from the national inpatient sample (NIS) between 2016 and 2019:

- Patients were stratified by BMI as underweight, normal weight, overweight, class 1 obesity, class 2 obesity, and class 3 obesity.
- The primary outcome was in-hospital mortality. Secondary outcomes were invasive mechanical ventilation (IMV), non-invasive ventilation (NIV).
- Multivariate analysis was used to adjust for confounders.

## 5 Conclusions

- This study demonstrates lower rates of mortality and IMV in overweight and obese patients admitted with COPD exacerbation.
- These findings support the existence of the obesity paradox in hospitalized patients with COPD exacerbation.
- Possible explanation for these findings is the increased rates of non-invasive ventilation in obese patients in our study, which has been shown to decrease rates for invasive ventilation.
- Also, some studies have shown that low fat free mass is associated with poor prognosis in COPD patients.
- However, several factors may confound the relation between obesity, COPD, and mortality, thus further prospective studies are needed to shed light on this complex phenomenon and its implications on healthcare.

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