

**Obesity Is Associated With Increased Allied Health Costs Following Geriatric Orthopaedic Trauma**

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**Purpose:** We sought to determine the association of body mass index (BMI) with hospital costs following geriatric orthopaedic trauma.

**Methods:** 4099 consecutive orthopedic trauma patients (age  $\geq 65$ ) who sustained low and high-energy fractures from September 1, 2015 to May 1, 2021 were reviewed. Data collected included patient demographics, hospital metrics, and direct variable cost data. Patients were grouped into BMI cohorts: underweight ( $<18.5$ ), healthy weight (18.5 through 24.9), overweight (25 through 29.9), and obese (30 and above). Univariable analysis was used to compare cohorts using standard statistical tests and multivariable analysis was used to evaluate the association of BMI to hospital costs while controlling for confounders.

**Results:** The mean age of all patients was 75.2 years. Of all patients, 37.7% had upper extremity fractures, 59.8% had lower extremity fractures, and 2.5% had both upper and lower extremity fractures. The underweight BMI cohort had the greatest percentage of female patients (84.9%,  $P < 0.001$ ), the greatest Charlson Comorbidity Index ( $P = 0.004$ ), and was the oldest cohort (mean: 78.7 years,  $P < 0.001$ ). Overweight and obese patients had a greater proportion of high-energy fractures than healthy and underweight patients ( $P = 0.012$ ). The underweight cohort had the greatest proportion of lower extremity fractures while the obese cohort had the greatest proportion of upper extremity fractures ( $P < 0.001$ ). There were no differences in hospital complications, readmission, or 1- year mortality between cohorts. When controlling for age, CCI, mechanism of injury, fracture type, and sex, continuous index BMI was associated with allied health service costs including respiratory, physical, and occupational therapy ( $P = 0.041$ ) such that obese patients accrued higher costs. The mean allied health costs were  $\$1.13\times$  for underweight,  $\$X$  for healthy,  $\$0.98\times$  for overweight, and  $\$1.35\times$  for obese patients. There were no differences in emergency department, ICU, or room and board costs.

**Conclusion:** Obese geriatric orthopaedic trauma patients incur higher allied health costs during their hospitalization indicating increased use of physical/occupational and respiratory therapy services. This increased utilization of resources should be factored into the value analysis for their episode of care.