



Impact of Body Mass Index on Pediatric Dentistry Sedation Outcomes

Abigail Roederer, DMD • LaQuia Vinson, DDS, MSD, MPH, BS • Brian Sanders, DDS, MS • Aline Castillo, DDS, MSc, PhD • Allison Scully, DDS, MS, FAAPD

Indiana University School of Dentistry, Indianapolis, Indiana – Riley Hospital for Children

Background

- Procedural sedation with an oral medication is a common treatment modality in pediatric dentistry
- When determining if a child is a candidate for a sedation, a child's height and weight and resulting body mass index (BMI), American Society of Anesthesiologist (ASA) classification, as well as tonsil and airway classification can all be limiting factors in determining candidacy.
- BMI is the main measure for determining if an individual is overweight/obese^[1]
 - Performing a procedural sedation on an obese child poses a great risk to the patient^[2]
 - Physiologic differences in volume distribution, metabolism, and clearance of drugs. ^[2]
- There are currently no universally accepted standards of care regarding dosing practices for sedation with oral medication^[3]
 - No absolute contraindications with regards to a patient's BMI. ^[3]

Objectives

- To evaluate if BMI impacts the outcome of a procedural sedation in pediatric dentistry
- To evaluate other factors impacting the outcome of procedural sedation in pediatric dentistry

Methods

- Data was obtained from Dentrix Enterprise Management Software from the Riley Dental Clinic
- Inclusion criteria:**
 - Patient age was 1-18 years old
 - Non-IV conscious oral sedation
 - Jan 1, 2014- Dec 31, 2024
 - Midazolam was the primary medication
 - No medication wasted
 - 1st Sedation
- Data collected included:**
 - Treatment date
 - Birthdate
 - Gender
 - Midazolam administered (mg)
 - N₂O %
 - Sedation outcome
 - Height
 - Weight
 - Behavior prior to treatment
 - Behavior during treatment
 - Provider dentist year
- BMI, age, and dosage (mg/kg) calculated from collected data
- A stepwise ordinal logistic regression procedure was used to assess the data collected

Pre-Sedation Behavior using FRANKL Scores ^[4]	
(+,+)	Good rapport with the dentist and interested in the dental procedure
(+)	Acceptance of treatment
(-,+)	Some reluctance, some acceptance to treatment
(-)	Reluctant to accept treatment
(-,-)	Refusal of treatment

AAPD's Sedation Outcome Assessment ^[5]	
Excellent	Quiet and cooperative
Good	Mild objections and/or whimpering but treatment not interrupted
Fair	Crying with minimal disruption to treatment
Poor	Struggling that interfered with operative procedures
Prohibitive	Active resistance and crying; treatment cannot be rendered

Results

- 903 charts were reviewed with 339 subjects meeting inclusion criteria
 - 170 females, 196 males
 - Median age = 5 years old
 - ASA 1 = 81.1%
 - PGY-2 = 88.5%
- BMI According to CDC standards:**
 - Underweight = 29 (7.9%)
 - Normal = 212 (57.9%)
 - Overweight = 61 (16.7%)
 - Obese = 64 (17.5%)
- BMI category was not significantly related to sedation outcome
 - $P = 0.47$
- Patient age was not significantly related to sedation outcome
 - $P = 0.11$
- Behavior prior to sedation was significantly related to sedation outcome
 - $P = 0.03$

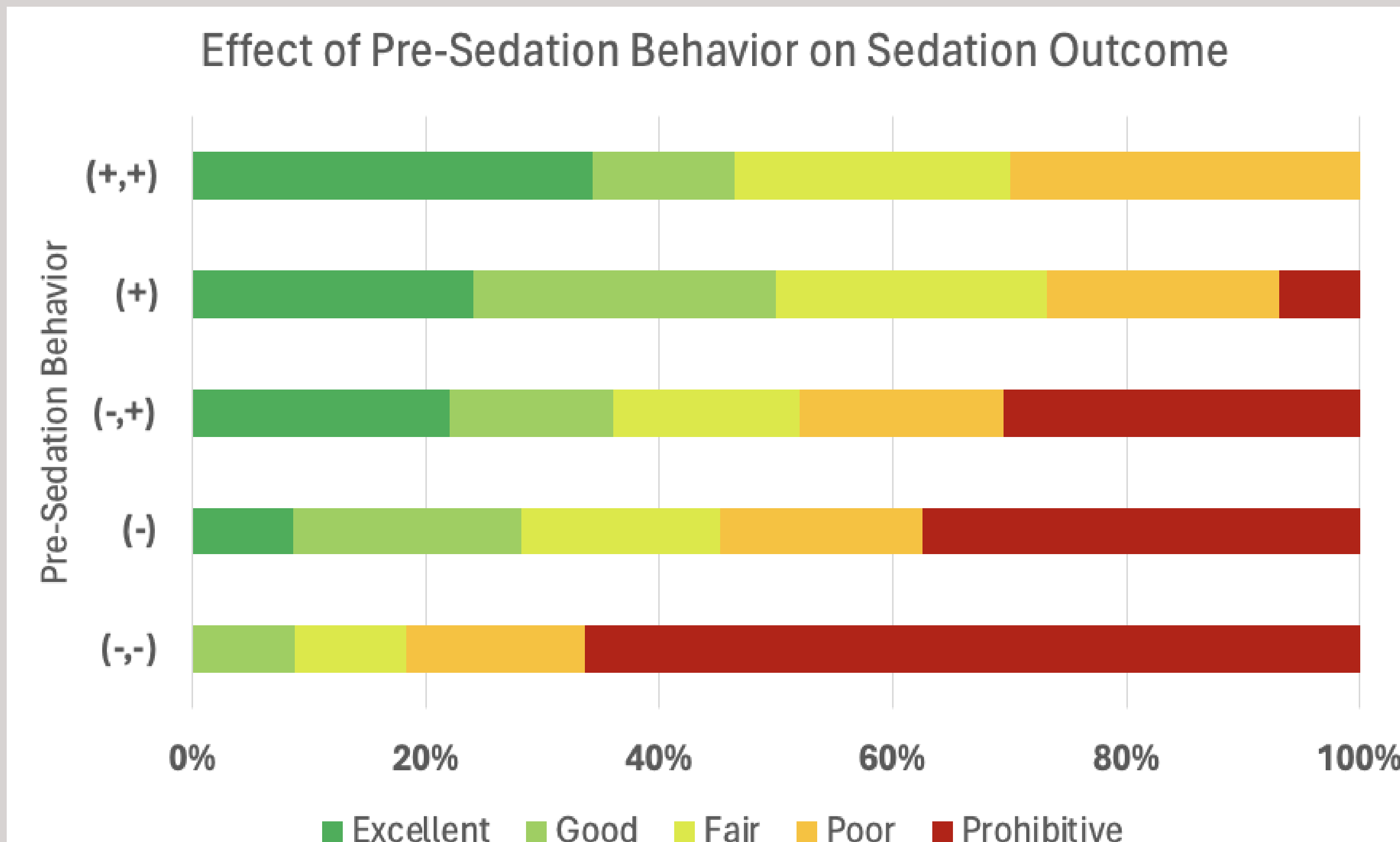


Figure 1

Discussion / Conclusion

- BMI was not significantly related to sedation outcome ($P = 0.4741$).**
 - Literature shows scaled dosing weight/actual dosing weight not related to sedation outcomes ^[3]
- Behavior prior to sedation was significantly related to sedation outcome ($P = 0.03$)**
 - Toddler Temperament Scale may be related to child's behavior during sedation^[6]
- Other factors tested were not significantly related to sedation outcome ($P > 0.05$)**
 - Agrees with current literature
 - Age, sex, ASA status, treatment provided not related to success. ^[7,8]

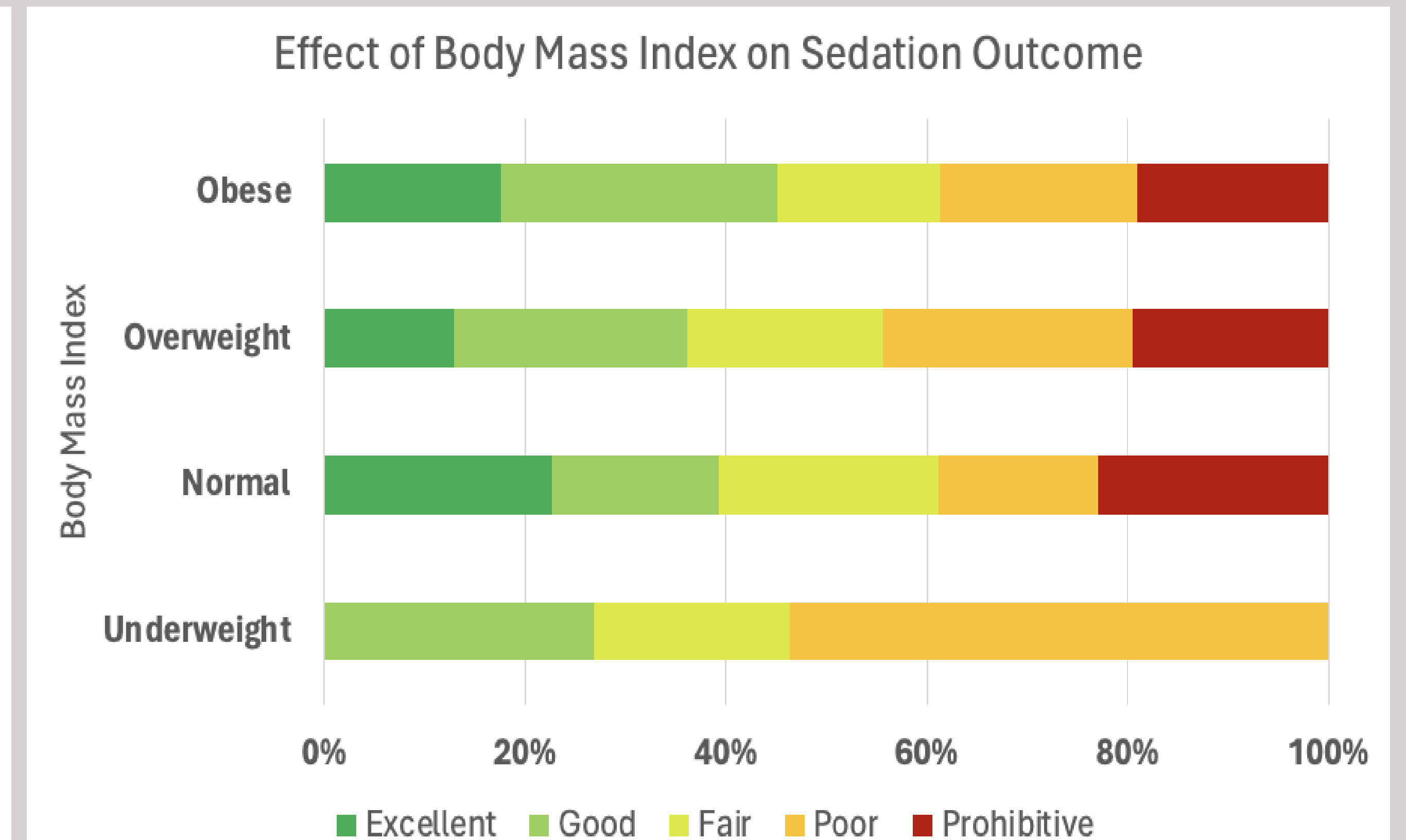


Figure 2

REFERENCES

