

Comparison of Comorbidities and Outcomes by Sex in Adults and Adolescents undergoing Sleeve Gastrectomy



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Background

- While Metabolic and Bariatric Surgery (MBS) is recognized as a safe treatment for severe obesity, the number of adult patients significantly exceeds that of adolescents.
- Although sex-based differences in adults are well-documented, they are less defined in adolescents.
- This study compared comorbidities and outcomes between adult and adolescent patients, focusing on sex-based differences.

Methods

- A retrospective cohort study was conducted comparing demographics, comorbidities, and weight loss outcomes between adult and adolescent patients who underwent sleeve gastrectomy at a single institution from 2013-2024.
- Sub-analyses by sex were performed.
- Wilcoxon Rank- Sum, Pearson’s χ^2 and Fisher’s exact tests were used.

Results

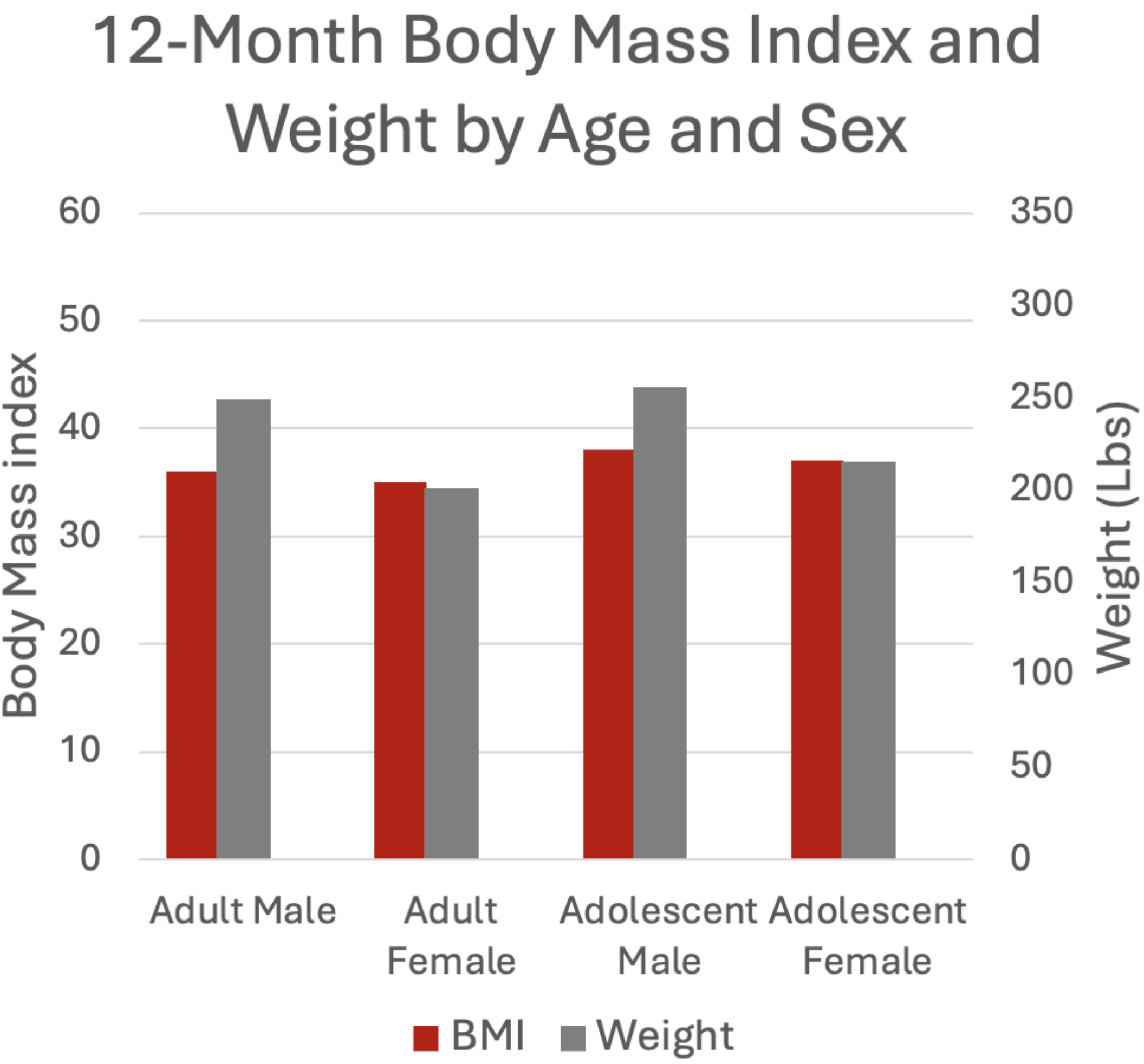
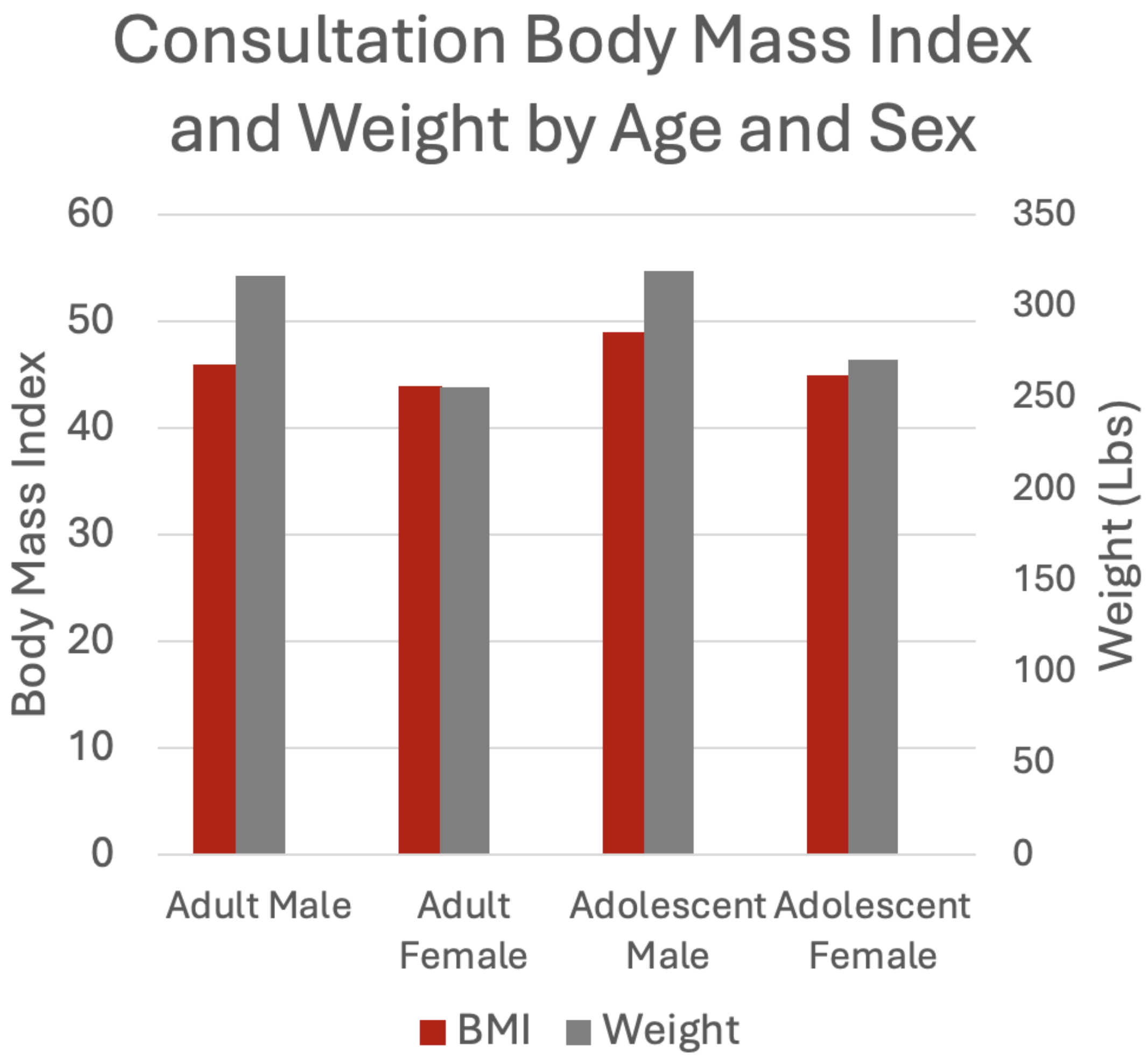
•A total of 482 adults and 264 adolescents were included. Adult patients had a higher proportion of females (82%) compared to adolescents (60%), $p < 0.001$.

Variable	Adults N = 482 ¹	Adolescents N = 264 ¹	p-value ²
Gender			<0.001
Female	396 / 482 (82%)	158 / 264 (60%)	
Male	86 / 482 (18%)	106 / 264 (40%)	
Age at Surgery	43 (34, 53)	17 (16, 18)	<0.001
Comorbidities			
Pre-Diabetes mellitus	144 / 482 (30%)	78 / 264 (30%)	0.925
Type 2 Diabetes Mellitus	219 / 482 (45%)	50 / 264 (19%)	<0.001
Hypertension	286 / 482 (59%)	73 / 264 (28%)	<0.001
Hepatic steatosis	139 / 482 (29%)	101 / 264 (38%)	0.008
Obstructive Sleep Apnea	328 / 482 (68%)	219 / 264 (83%)	<0.001
Depression	216 / 482 (45%)	72 / 264 (27%)	<0.001
Anxiety	242 / 482 (50%)	65 / 264 (25%)	<0.001
Eating Disorder	23 / 482 (4.8%)	11 / 264 (4.2%)	0.705

¹ n / N (%); Median (Q1, Q3)
² Pearson’s Chi-squared test; Wilcoxon rank sum test; Fisher’s exact test

- In adults, women had lower rates of most physical comorbidities, including T2DM (43% vs 56% $p = 0.033$), hypertension (56% vs 76%, $p < 0.001$), and obstructive sleep apnea (64% vs 88%, $p < 0.001$), but higher rates of psychologic comorbidities including depression (48% vs 30%, $p=0.003$) and anxiety (53% vs 37%, $p=0.008$). Rates of pre-T2DM, hepatic steatosis and eating disorder were similar between groups.
- In adolescents, the rates of comorbidities were similar
- Operative time was longer for adult males compared with adult females (116 vs 105 minutes, $p=0.004$). No sex-based difference was observed in adolescents (108 minutes for male patients vs 107 minutes for female patients, $p=0.313$)

- Adults presented with lower weight and BMI (BMI 43 vs 47, $p < 0.001$) but had similar BMI reductions at one year (21% vs 20%, $p=0.648$).



Conclusions

- Adult patients showed higher rates of comorbidities but lower weight and BMI at consultation than adolescents, with similar BMI reduction at one year.
- A longer operative time was observed in male adults compared to females, which was not observed in adolescents.
- Overall, sex-based differences were less pronounced in adolescents.
- Future directions should assess if treatment at a younger age can prevent development of obesity-related comorbidities.