Analyzing the efficacy of laparoscopic sleeve gastrectomy and laparoscopic Roux-en-Y gastric bypass using BODY-Q

Rushay Amarath-Madav, Tyler Beauchamp, Aditya Devarakonda, Brianna Stadsvold, M.D., Aaron Bolduc, M.D., Lisa Renee Hilton, M.D.
Augusta University Center for Obesity and Metabolism, Augusta, GA

Introduction

Thorough comparisons have been drawn between laparoscopic sleeve gastrectomy (LSG) and laparoscopic Roux-en-Y gastric bypass (LRYGB) over the last two decades. These treatment modalities, while revolutionary for those in need of massive weight loss, are physical procedures that necessitate adequate surgical planning with careful consideration to the risk of peri- and post-operative adverse outcomes. One of the most influential outcome measures of interest are those reported directly from patients receiving care. These data points provide valuable perspectives that guide surgical planning and prompt further optimization of management strategies. Patient-reported outcome measures (PROM) have been utilized to obtain said data. The development and rigorous legitimization of the BODY-Q PROM enables researchers to perform bariatrics-specific research that is both more exhaustive with results that can be more readily compared across clinical settings and health systems. [1-2] As such, the novel PROM provides an opportunity to expound on recent findings and further describe the differences between these two surgical strategies.

The purpose of this survey-based study was to leverage the utility of the BODY-Q PROM to evaluate LSG and LRYGB on four independent scales. We hypothesized that there would be no significant difference in scoring on all scales between LSG and LRYGB candidates.

Methods

Data Collection and Analysis

All participants were offered a cover letter and consent form. Consenting participants were contacted via e-mail with web links and information on how to complete the BODY-Q survey. The survey was offered using the secure QualtricsXM online platform and survey design ensured patient de-identification. Surveying was performed from April to September of 2021. Averaged scores from individual questions and independent scale raw sums were compared using Mann-Whitney U tests. Data analysis was performed using R-Studio. A p-value of below 0.05 was considered statistically significant.

BODY-Q PROM

Licensure for the BODY-Q PROM was first obtained for the purposes of this study. [3] Each scale within the BODY-Q is standardized and can be used independently, allowing the team to design a specific survey optimal for this study. Independent scales utilized were *Body image, Physical function, Physical symptoms,* and *Satisfaction with body*. Response options within the BODY-Q ranged and scored from 1-4: 1) definitely disagree, 2) somewhat disagree, 3) somewhat agree, 4) definitely agree. Scores of each scale were summed and used for analysis.

Results

Evaluation showed no significant difference between the component sums of each independent scale when comparing the LSG and LRYGB population (Table 1). Regarding the *Body image* scale, LRYGB patients reported better outcomes when compared with LSG in four of seven questions. Significant differences in patient-scoring were observed in five out of ten of the *Satisfaction with body* scale questions indicating better reported outcomes in the LRYGB cohort. All other answers showed no significant difference between procedure type. Patient BMI by procedure differed significantly with RYGB (34.05 ± 11.53) having lower means than LSG (37.71 ± 8.28).

Table 1. Independent scale raw sum analysis with Whitney-Man U test

Independent Scales	LSG		RYGB		p-value
	Mean	SD	Mean	SD	
Body Image	18.04	± 6.16	20.86	± 5.28	0.0621
Physical function	25.99	± 5.19	25.66	± 5.97	0.9138
Physical symptoms	32.29	± 5.64	32.21	± 5.49	0.8956
Satisfaction with body	25.37	± 8.21	28.48	± 5.74	0.0598

Table 2. Individual scale question comparisons with Whitney-Mann U Test

Independent scale	LSG		RYGB		p-value
Body image*	**Mean**	**SD**	Mean	SD	
Question 1	2.914	± 0.999	3.241	± 0.872	0.115
Question 2	**2.971**	**± 0.971**	**3.448**	**± 0.632**	**0.020**
Question 3	**2.671**	**± 1.032**	**3.207**	**± 0.902**	**0.015**
Question 4	**2.714**	**± 1.065**	**3.345**	**± 0.814**	**0.006**
Question 5	2.500	± 1.018	2.897	± 1.037	0.065
Question 6	2.329	± 1.032	2.345	± 1.009	0.886
Question 7	**1.943**	**± 0.849**	**2.379**	**± 0.979**	**0.033**
Satisfaction with body*	Mean	SD	Mean	SD	
Question 1	**2.971**	**± 0.834**	**3.379**	**± 0.834**	**0.009**
Question 2	**2.857**	**± 0.785**	**3.379**	**± 0.622**	**0.002**
Question 3	**2.471**	**± 0.896**	**3.034**	**± 0.865**	**0.005**
Question 4	2.514	± 0.897	2.759	± 0.872	0.205
Question 5	2.614	± 1.040	2.793	± 0.861	0.546
Question 6	**2.514**	**± 0.989**	**2.966**	**± 0.823**	**0.032**
Question 7	**2.471**	**± 0.974**	**2.931**	**± 0.842**	**0.027**
Question 8	2.614	± 0.906	2.690	± 0.660	0.832
Question 9	2.217	± 0.921	2.483	± 0.871	0.212
Question 10	2.157	± 1.016	2.131	± 0.976	0.791

*Licensure for the BODY-Q scales must be obtained to see individual questions

Conclusion

Findings suggest that there are no significant differences when comparing patient reported outcomes related to body image, physical function, physical symptoms, and satisfaction with body among the LSG and LRYGB cohorts. This supports the proposed hypothesis. However, individual questions within the *Body image* and *Satisfaction with body* scales exhibited more positive outcomes among the LRYGB group, which may be explained by corresponding findings of lower mean BMI when compared to LSG patients. Additionally other confounders may play crucial roles in patient-reported outcomes. Thus, it may prove fruitful to design a prospective study with careful attention to factors such as, but not limited to, patient demographic, socioeconomic status, estimated weight loss, and time since surgery.

References

1. Klassen, A. F., Cano, S. J., Alderman, A., Soldin, M., Thoma, A., Robson, S., ... & Pusic, A. L. (2016). The BODY-Q: a patient-reported outcome instrument for weight loss and body contouring treatments. *Plastic and reconstructive surgery Global open*, *4*(4).
2. Klassen, A. F., Cano, S. J., Kaur, M., Breitkopf, T., & Pusic, A. L. (2017). Further psychometric validation of the BODY-Q: ability to detect change following bariatric surgery weight gain and loss. *Health and quality of life outcomes*, *15*(1), 1-7.
3. https://qportfolio.org/body-q/