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THE ABILITY OF HEALTHCARE AND NON-HEALTHCARE PROVIDERS TO PREDICT BARIATRIC SURGERY OUTCOMES: A PROSPECTIVE OBSERVATIONAL STUDY

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Background

- Patients with obesity seeking bariatric surgery undergo an extensive evaluation by a multidisciplinary team to determine their eligibility for surgery.
- Healthcare professionals' assessment of patient compliance and other factors may affect eligibility decisions. Understanding the degree to which healthcare providers (HP) can predict surgery outcomes may inform patient selection.
- This study aimed to investigate team member ability to predict patient outcomes after bariatric surgery.

Materials & Methods

- This is a prospective, observational study.
- HP and other clinic staff (CS) independently completed surveys related to the postoperative success of adult patients seeking bariatric surgery at an MBSAQIP-accredited center from July 2019 to July 2020.
- HP and CS weight loss at 6 and 12 months, 30-day complications, and comorbidity resolution predictions were compared with actual patient outcomes through a review of the MBSAQIP database.
- Univariate and multivariate linear and logistic regression models were used to investigate the HP and CS ratings as a predictor of postbariatric surgery outcomes.
- The team member predictions between the subgroups were compared using Chi-square.

Results

- 11 HP and 6 CS made a total of 658 predictions on 240 patients who underwent bariatric surgery during the study period.
- After correcting for possible confounders, HP were able to predict patient weight loss, comorbidity resolution, and length of hospital stay (LOS), while CS accurately predicted only LOS (Table 1).
- Additionally, the remission of at least one comorbidity at 6 months was predicted by the HP (OR 1.70, p=0.002) but not by CS (OR 1.26, p=0.511). Both groups were unable to predict complications (HP: OR 1.10, p=0.610; CS: OR 1.42, p=0.316), readmissions (HP: OR 1.14, p=0.594; CS: OR 1.75, p=0.231), or emergency department (ED) visits (HP: OR 0.81, p=0.309; CS: OR 0.78, p=0.425) within 30 days from surgery (Table 2).
- The HP predicted "significantly below the average" weight loss for patients who experienced total weight loss (TWL) <20% at 6 months vs. TWL ≥20% (3.9% vs. 1.1%; p=0.05).

Table 1. Linear regression of postoperative outcomes as predicted by HP and CS

	Unadjusted			Adjusted		
	Coef	95% CI	p-value	Coef[#]	95% CI	p-value
Healthcare provider predictions						
Length of Hospital Stay (days)	0.27	(0.09, 0.45)	**0.003***	0.26	(0.08, 0.45)	**0.005***
BMI at 1 Year	-3.21	(-4.63, -1.78)	**<0.001***	-2.02	(-3.07, -0.97)	**<0.001***
TWL at 1 Year	6.62	(1.91, 11.33)	**0.006***	5.01	(0.35, 9.66)	**0.035***
N of resolved comorbidities 6mo	0.24	(0.10, 0.38)	**0.001***	0.16	(0.02, 0.29)	**0.027***
Clinic staff predictions						
Length of Hospital Stay (days)	0.27	(0.01, 0.52)	**0.039***	0.29	(0.04, 0.54)	**0.025***
BMI at 1 Year	0.12	(-2.10, 2.34)	0.915	0.79	(-1.23, 2.82)	0.437
TWL at 1 Year	3.73	(-7.69, 15.15)	0.517	-0.97	(-13.22, 11.28)	0.875
N of resolved comorbidities 6mo	0.13	(-0.14, 0.40)	0.340	0.04	(-0.23, 0.31)	0.770

Notes: # Adjusted for ASA classification, procedure type, surgeon, preoperative BMI. Abbreviations: Coef, coefficient; CI, confidence interval; HP, healthcare providers; CS, clinic staff; BMI, body mass index; TWL, total weight loss; N, number; * The difference is significant at the 0.05 level

Table 2. Logistic regression of outcomes as predicted by HP and CS

Postoperative outcomes	OR	95% CI	p-value
Healthcare provider predictions			
Readmission within 30 days	1.08	(0.69, 1.71)	0.735
Complications Surgery/ Hospitalization	1.12	(0.79, 1.60)	0.520
ED visits within 30 days	0.83	(0.55, 1.24)	0.366
Any comorbidity resolution 6mo	1.70	(1.21, 2.38)	**0.002***
Clinic staff predictions			
Readmission within 30 days	1.63	(0.75, 3.58)	0.220
Complications Surgery/ Hospitalization	1.27	(0.66, 2.43)	0.478
ED visits within 30 days	0.72	(0.39, 1.33)	0.298
Any comorbidity resolution 6mo	1.51	(0.81, 2.79)	0.194

Notes: HP, healtcare providers; CS, clinical staff; ED, emergency department; OR, odds ratio; CI, confidence interval; * The difference is significant at the 0.05 level

Conclusion

- HP were able to predict weight-loss outcomes and comorbidity resolution after bariatric surgery
- HP were unable to predict surgical complications, 30-day hospital readmissions, and ED visits.
- Team input may guide preoperative counseling of patients and help identify patients in need of additional support after surgery.
- HP should rely more on clinical calculators for risk prediction related to postoperative outcomes.

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