

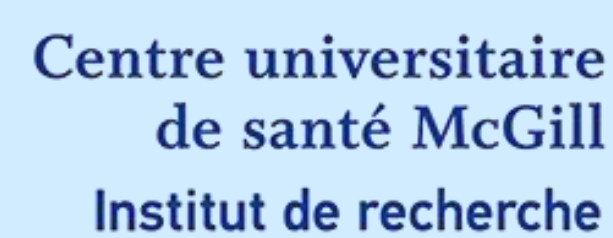


Psychometric Assessment of PROMIS-29 as a Measure of Health Status After Bariatric Surgery

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KEY MESSAGE: PROMIS-29 may be **useful** for assessing broad long-term outcomes, but **context-specific PROMs** may be better suited to **capture nuanced health trajectories** after bariatric surgery.

INTRODUCTION



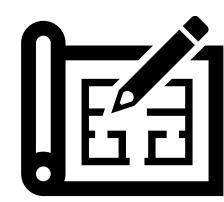
- Contemporary literature emphasizes the importance of evaluating **bariatric surgery outcomes** using **patient-reported outcome measures (PROMs)**. (Greene et al., 2024)
- The **PROMIS-29** is a generic PROM that captures domains of physical and mental health potentially affected by bariatric surgery.
- Although PROMIS measures have been endorsed to assess surgical recovery (Abola et al., 2018) and adopted as a key metric for bariatric surgery Accreditation (MBSAQIP) (Greene et al., 2023), **their psychometric performance has not been systematically tested in bariatric populations.**

OBJECTIVE



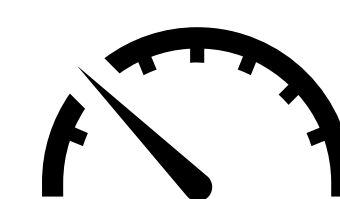
To **assess the psychometric properties of PROMIS-29** as a measure of **short-term** (30d acute recovery) and **longer-term** (1-year) health status after bariatric surgery

METHODS



- Design:** Prospective cohort study at two academic hospitals and a private clinic in Montreal, Canada | 09/2021- 04/2022 (Jain et al., 2023)
- Population:** Adult (≥18yo) laparoscopic bariatric surgery patients.
- PROMIS-29 timepoints:** Pre-operative (Baseline), postoperative week (POW) 1-4, postoperative months 6 and 12 (POM6, 12)

PSYCHOMETRIC PROPERTIES



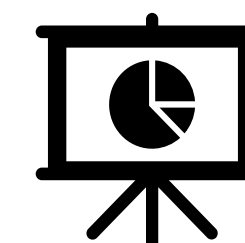
Tested according to **COSMIN guidelines** (Mokkink et al., 2019) :

- Construct Validity & Responsiveness:** Assessed based on *a priori* hypotheses (Results Tables).
- Internal Consistency:** Assessed using Cronbach's alpha.

Data Analysis: PROMIS-29 Physical (PHS) and Mental (MHS) Summary Scores were derived from domain T-scores (Mean=50, SD=10) (Hays et al., 2019) . Linear regression models used to calculate mean differences (MD) between groups; **MD ≥ 3 points** considered clinically meaningful. Confirmed hypotheses are bolded in tables.

According to COSMIN, **measurement properties were deemed acceptable if ≥75% of the hypotheses were confirmed.**

RESULTS



Sample characteristics: 351 patients, age 44 (±10.7), pre-operative BMI 45 (±8), 77% female, 70% sleeve gastrectomy, 21% RNYGB

✓ **Adequate Internal Consistency (100% hypotheses confirmed)**

	POW1	POW2	POW3	POW4	POM6	POM12
<i>Physical health summary score</i>	0.85	0.87	0.87	0.87	0.86	0.86
<i>Mental health summary score</i>	0.85	0.87	0.87	0.87	0.86	0.86

Internal consistency was measured using Cronbach's alpha.
A Cronbach's alpha > 0.7 is deemed acceptable.

✗ **Limited Construct Validity:** PROMIS-29 could not discriminate groups expected to have different health status (**0-50% of hypotheses confirmed**).

Construct Validity	POW1	POW2	POW3	POW4
<i>Physical health summary score</i>				
1. 30- day complications vs. No 30-day complications	-1.1 [-4.4, 2.3]	-2.4 [-5.7, 1.0]	-2.1 [-5.2, 1.1]	-2.2 [-5.0, 0.6]
2. Unplanned healthcare utilization vs. No unplanned healthcare utilization	-3.6 [-6.4, -0.8]	-5.0 [-7.7, -2.3]	-3.7 [-6.2, -1.2]	-2.8 [-5.1, -0.4]

<i>Mental health summary score</i>				
1. 30- day complications vs. No 30-day complications	-2.9 [-6.0, 0.1]	-3.1 [-6.2, -0.1]	-1.3 [-4.1, 1.6]	-0.7 [-3.5, 2.1]
2. Unplanned healthcare utilization vs. No unplanned healthcare utilization	-3.7 [-6.3, -1.0]	-4.8 [-7.3, -2.3]	-3.5 [-5.9, -1.3]	-2.0 [-4.3, 0.4]

Construct Validity	POM6	POM12
<i>Physical health summary score</i>		
1. Older vs younger patients	-1.4 (-2.7, -0.1)	-0.5 (-1.7, 0.6)
2. Higher vs lower BMI	-1.1 (-2.5, 0.2)	-0.7 (-2.0, 0.6)
3. Lower %EWL vs higher %EWL	-1.6 (-3.0, -0.2)	-1.4 (-2.6, -0.1)

<i>Mental health summary score</i>		
1. Preoperative anti-depressant treatment vs No preoperative anti-depressant treatment	-2.2 (-3.6, -0.7)	-3.2 (-4.7, -1.7)
2. Lower %EWL vs higher %EWL	0.4 (-1.3, 2.2)	-0.9 (-2.7, 0.8)

⚠ **Limited Short-term, Adequate Longer-term Responsiveness**

PROMIS-29 was responsive to the expected trajectory of health only beyond the recovery period (**25% vs. 100% of hypotheses confirmed**).

Responsiveness	PHS	MHS
<i>Short-term</i>		
1 .POW1 vs. Baseline	-2.7 [-3.9, -1.5]	0.1 [-1.0, 1.3]
2. POW2 vs. POW1	4.6 [3.4, 5.8]	3.9 [2.8, 5.1]
3. POW3 vs. POW2	2.7 [1.5, 3.9]	2.2 [1.0, 3.3]
4. POW4 vs. POW3	1.8 [0.7, 2.9]	1.7 [0.6, 2.8]
<i>Longer-term</i>		
1. POM6 vs. Baseline	9.1 [8.0, 10.1]	8.4 [7.2, 9.5]
2. POM12 vs. Baseline	9.6 [8.6, 10.6]	8.4 [7.2, 9.6]