Assessing known-groups and convergent validity of the EQ-5D-5L in assessing the health-related quality of life of individuals with obesity who have and have not received bariatric surgery

MSR40

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BACKGROUND

- Asians face higher cardiovascular risk and qualify for bariatric surgery (BS) at lower BMI. Given the association between BMI and health-related quality of life (HRQoL), we examined the convergent and known-groups validity of EQ-5D-5L among Asians with and without BS in Singapore.

METHODS

- **Eligibility criteria:** Adults (≥21 years) who had undergone BS ≥6 months ago or adults with obesity who qualified for BS but have not received BS.
- **Setting:** Participants were recruited during their visit to the hospital specialist outpatient management clinics. About 85% self-completed the questionnaire at the clinics, the remaining self-completed the questionnaire after leaving the clinic.
- Participants completed EQ-5D-5L, selected BODY-Q subscales, PROMIS overall health & QOL questions, & demographic questions. BS participants also completed QOLOS excess skin scale.

Instrument	Outcome variable	Variable type
EQ-5D-5L	EQ VAS	0 (Worst) to 100 (Best)
	EQ-5D Index	-0.851 (Worst) to 1.000 (Best)
QOLOS	Excess skin	8 (Worst) to 40 (Best)
	Appearance-related psychosocial distress	0 (Worst) to 100 (Best)
	Physical function	
	Body image	
	Social function	
	Eating behaviour	
PROMIS-10	Overall health	Good / Very good / Excellent vs. Poor / Fair
	Overall quality of life	
Pittsburgh Sleep Quality (PSQI)	Subjective sleep quality	Very good/Fairly good vs. Fairly bad / Very bad

- **Statistical analysis:** ***Convergent validity*** was examined using Pearson's correlations (r) between EQ-5D-5L scores and BODY-Q and/or QOLOS. ***Known-groups validity*** was assessed using Cohen's d by comparing EQ-5D-5L scores (EQ VAS and EQ-5D-5L index) across BS status, overall health, overall QOL, and sleep quality.

RESULTS

- We recruited 89 non-BS patients and 85 patients (Table 1).
- Non-BS patients were significantly younger than BS patients. Both groups were similar in gender and ethnicity.

Table 1. Participant characteristics.

		Non-BS patients (N = 89)	BS patients (N = 85)
Age**		37.8 ± 12.1	43.3 ± 9.1
Gender	Male	36 (40.5%)	32 (37.7%)
	Female	53 (59.6%)	53 (62.4%)
Ethnic group	Chinese	28 (31.5%)	26 (30.6%)
	Malay	44 (49.4%)	39 (45.9%)
	Indian	14 (15.7%)	15 (17.7%)
	Others	3 (3.4%)	5 (5.9%)

* p<0.05; ** p <0.01; *** p<0.001

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RESULTS

- **Convergent validity:** The correlations of EQ VAS with BODY-Q/QOLOS ranged between weak and moderate among non-BS (r: 0.32-0.57) and BS participants (r: 0.29-0.49). The index score had very weak to moderate correlation among non-BS participants (r: 0.01–0.43) and ranged from weak to moderate (r: 0.21-0.57) among BS participants (Table 2).

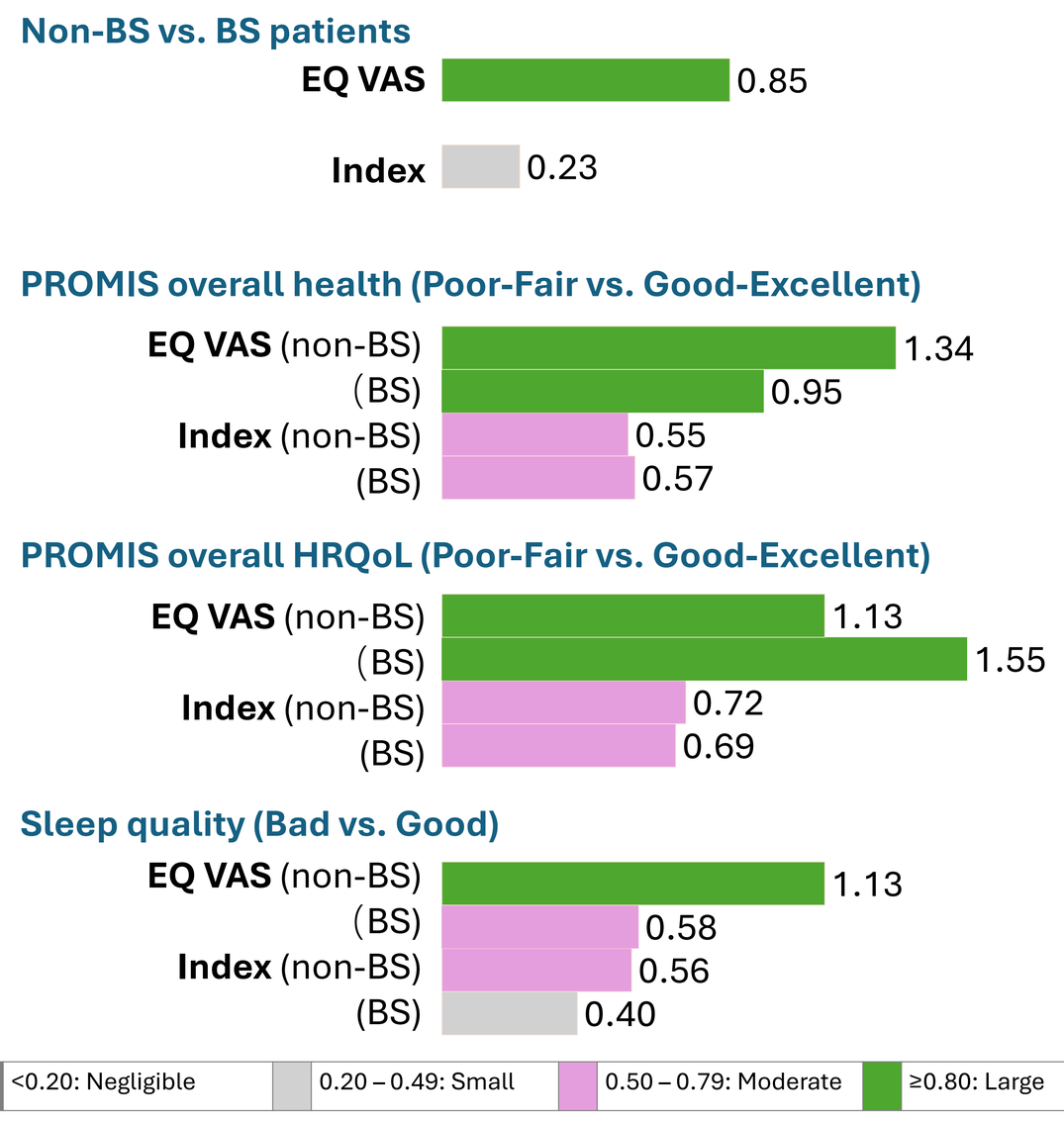
Table 2. Convergent validity.

Scales	EQ VAS		Index	
	Non-BS	BS	Non-BS	BS
QOLOS excess skin	NA	0.35	NA	0.24
BODY-Q: Appearance-related psychosocial distress	-0.53	-0.47	-0.32	-0.48
BODY-Q: Physical function	0.28	0.39	0.40	0.42
BODY-Q: Physical symptoms	0.29	0.49	0.43	0.57
BODY-Q: Psychological function	0.49	0.29	0.26	0.34
BODY-Q: Body image	0.57	0.37	0.26	0.25
BODY-Q: Social function	0.33	0.34	0.29	0.35
BODY-Q: Eating behaviour	0.32	0.30	-0.01	0.21

<0.20: Very weak | 0.20 - 0.39: Weak | 0.40 – 0.59: Moderate | ≥0.60: Strong

- **Known-groups validity:** EQ VAS showed large effect sizes in all known-groups validity testing except for sleep quality among BS patients, where only moderate effect size was observed between BS individuals with good and bad sleep quality. Index showed small to moderate effect sizes in all known-group validity testings (Fig 1).

Fig 1. Effect sizes for each known-groups validity test.



CONCLUSION

- EQ-5D-5L is a valid HRQOL instrument for obese individuals in Asia.
- EQ VAS shows stronger known-groups and convergent validity than the index score.
- The limited ability of the Index score to distinguish between BS and non-BS patients suggests that condition-specific bolt-on dimensions (i.e. additional dimensions) may enhance the ability of EQ-5D-5L when it is used to assess the treatment benefit of BS for obese individuals in Asia.