

Psychometric Validation of the Korean PROMIS® Pain Interference Item Bank and Short Forms

Yeonjung Lim^{1,2} · Jiseon Lee^{1,2} · Youngha Kim^{1,2} · Danbee Kang^{1,2} · Juhee Cho^{1,2,3}

¹Department of Clinical Research Design & Evaluation, Samsung Advanced Institute for Health Sciences and Technology, Sungkyunkwan University, Seoul, 06351, Korea
²Center for Clinical Epidemiology, Samsung Medical Center, Seoul, South Korea
³Cancer Education Center, Samsung Medical Center, Seoul, South Korea



INTRODUCTION



Background: Measuring pain interference is important because it captures the real-life impact of pain on functioning and well-being. It complements pain intensity measures and provides a more patient-centered understanding of treatment outcomes. Patient-Reported Outcomes Measurement Information System (PROMIS®) is commonly used across medical conditions to measure pain interference.

Objectives: To evaluate the psychometric properties of the Korean-translated **PROMIS® Pain Interference (PI) item bank and its short forms (SF4a, SF6a, SF6b, SF8a)**. We examined internal consistency, item performance, and known-group validity in a nationally representative adult population to support its applicability in pain research and clinical assessments.

METHODS

Study Design
 • National survey (December 2021 to January 2022)

Study Population
 • N=2,699 (aged 18-85 years old)
 • Proportionate stratified sampling methods (include all 17 provinces in South Korea, Age, Gender)

Data Collection
PROMIS® – Pain Interference (PROMIS®-PI)
 • Item Bank (40 items)
 • Short form 4a (4 items) / 6a & 6b (6 items) / 8a (8 items)

Brief Pain Inventory (BPI) Pain Interference domain
 • 7 items (general activity, mood, walking, normal work, relations with others, sleep, and enjoyment of life)

Statistical Analysis
 • Descriptive analysis
 • Internal consistency reliability
 • Convergent validity
 • Known group validity

RESULTS

Age, years old (mean [SD]) • South Korea: 48.4 (16.6) • 18-34: 24.6% • 35-49: 27.7% • ≥ 65: 18.2%	Gender • Male: 50.3%	Education level • ≤ Middle school: 12.7% • High school: 17.1% • ≥ Colleges: 70.2%	Total income (a year) • ≤ \$19,999: 19.1% • \$20,000-49,999: 39.6% • \$50,000-99,999: 33.9% • ≥ \$100,000: 7.4%	Physical disability • Yes: 3.5%	Presence of comorbidities • Yes: 65.5%
Marital status • Married: 59.9%					

Figure 1. General characteristics of study population

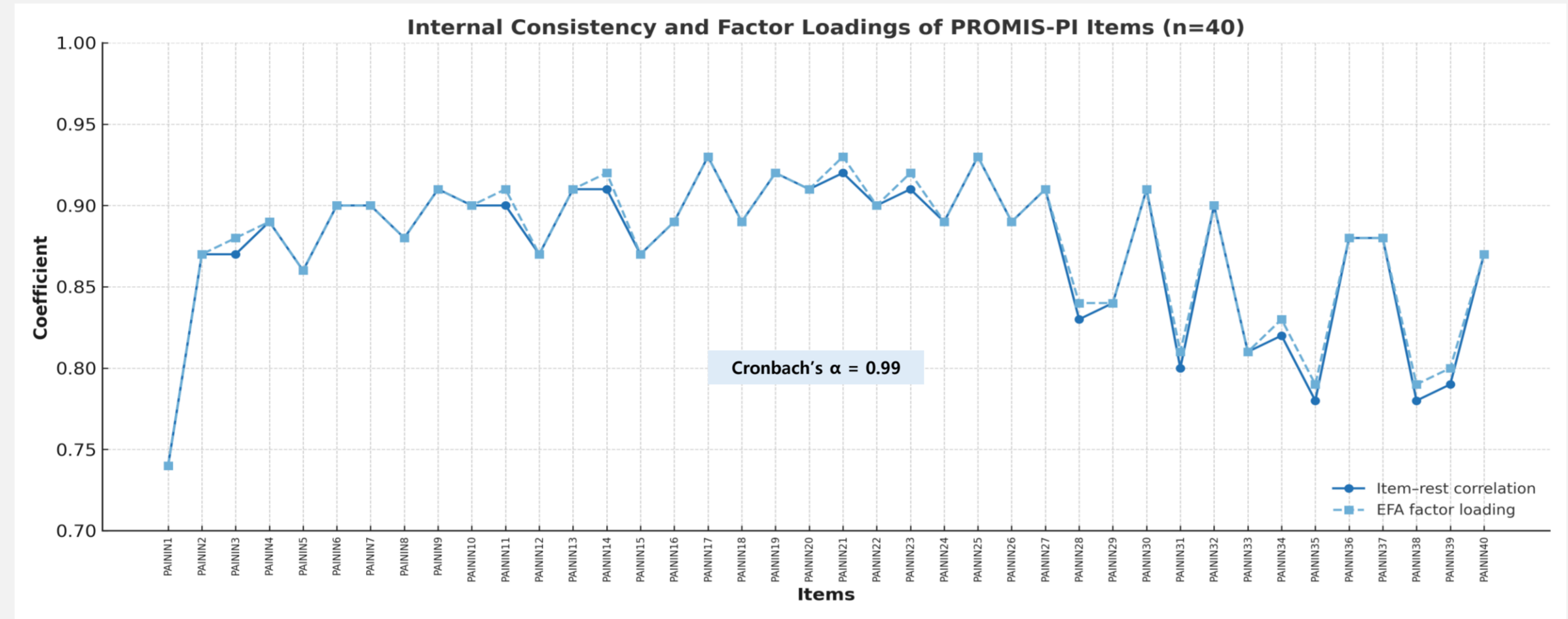


Figure 2. Internal consistency reliability, item-rest correlations, and factor loadings of the PROMIS®-PI Item Bank

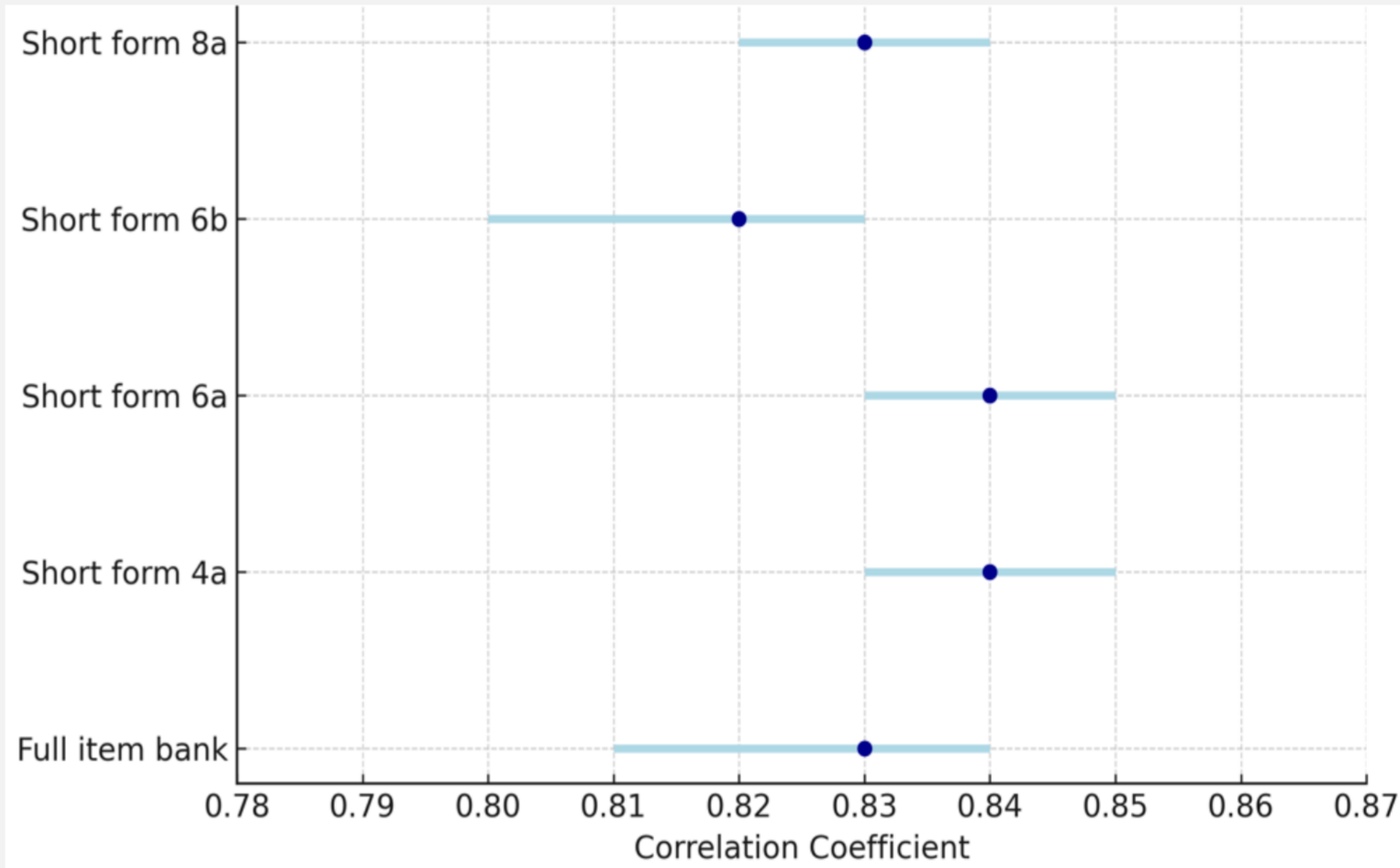


Figure 3. Convergent validity of the PROMIS®-PI

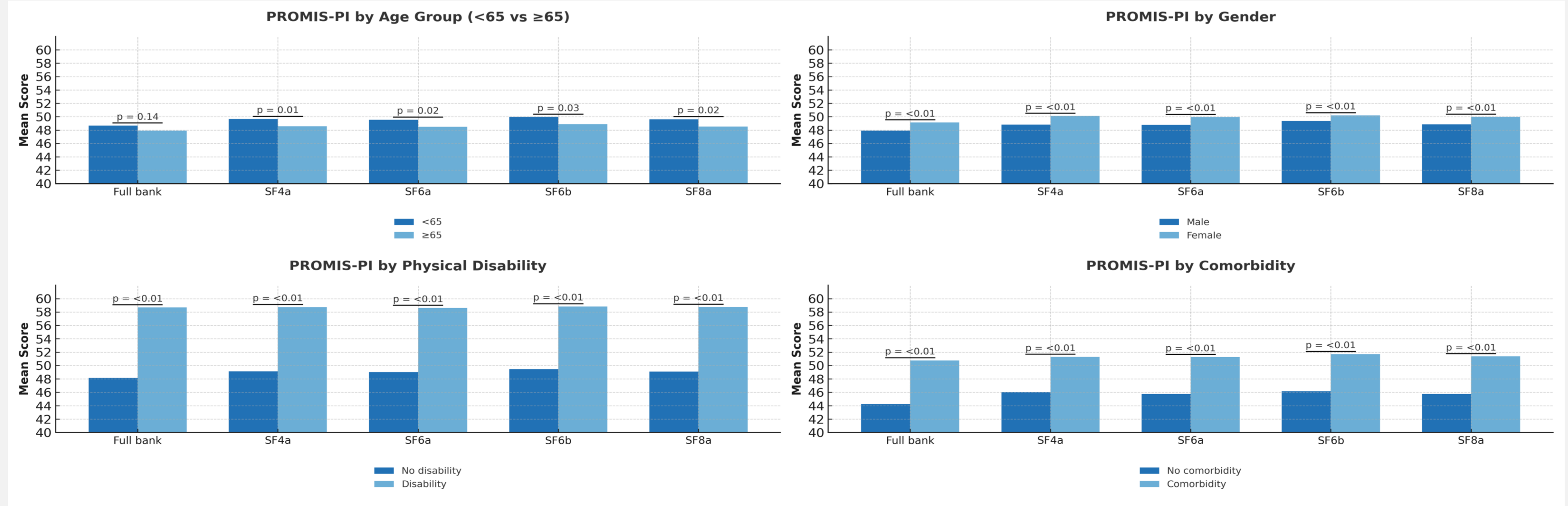


Figure 4. Known-group analysis of participants with PROMIS®-PI Item Bank and short forms

LIMITATIONS

• **Cross-sectional study design** : Due to the cross-sectional nature of the study, it was not possible to evaluate the test-retest reliability or responsiveness to change of the PROMIS® -PI questionnaire for which future longitudinal studies will be needed.

CONCLUSION



Korean version of PROMIS PI item bank and its short forms have been proven to demonstrate optimal internal consistency, item quality, and discriminant validity.

PROMIS®-PI is effectively differentiate pain impact across relevant clinical and demographic groups, supporting their use in Korean clinical and epidemiological contexts for standardized pain assessment and facilitating cross-cultural comparisons in global health research

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