P119 Psychometric validation of Korean PROMIS Pain Interference item bank and short forms

Yeonjung Lim[1,2], Jiseon Lee[1,2], Youngha Kim[2], Danbee Kang[1,2], Juhee Cho[1,2]

[1]Department of Clinical Research Design & Evaluation, SAIHST, Sungkyunkwan University, Seoul, Korea, Republic of. [2]Center for Clinical Epidemiology, Samsung Medical, Seoul, Korea, Republic of

Objective: This study aimed to evaluate the psychometric properties of the Korean 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: A cross-sectional survey was conducted with 2,699 Korean adults selected through stratified sampling based on national census distributions. All participants completed the 40-item PROMIS PI item bank. The internal consistency of the scale was evaluated using Cronbach's alpha. Item-rest correlations and exploratory factor analysis (EFA) were used to assess item performance. Convergent validity was examined through Pearson's correlations with the Brief Pain Inventory (BPI) pain interference domain. The known-group validity of the PROMIS PI was assessed by comparing the scores across various subgroups using t-tests.

Results: The participants were 50.3% male, with a mean age of 48.4 ± 16.6 years. Those with multiple comorbidities, particularly cerebrovascular (57.9 ± 9.4) and musculoskeletal (55.4 ± 9.6) diseases, reported substantially higher pain interference. The Korean PROMIS PI full item bank demonstrated excellent reliability (Cronbach's $\alpha = 0.99$). Robust item-rest correlations (0.74–0.93) and substantial factor loadings (0.74–0.93) supported the construct's unidimensionality. Convergent validity was confirmed by strong correlations with BPI pain interference scores ($r = 0.82–0.84$). Known-group validity was demonstrated by significantly higher PI scores among females than males ($p < 0.01$), among participants with chronic conditions (50.8 ± 10.7 vs. 44.2 ± 9.3, $p < 0.01$), and among those with physical disabilities (58.7 ± 9.7 vs. 48.2 ± 10.5, $p < 0.01$). Although age-related differences were not significant in the full item bank ($p = 0.14$), short forms revealed significantly higher PI scores among adults under 65 ($p = 0.01–0.03$).

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