P67 Bivariate latent change score modeling of PROMIS Pain Interference and Physical Function in osteoarthritis

Aaron Kaat[1], James Burns[1], Martha Burla[1], Wenjun Li[2], Patricia Franklin[1]

[1]Northwestern University, Chicago, USA. [2]UMass-Lowell, Lowell, USA

Objective: The A.S.K. (Assessing Shared Knowledge) study was designed to create a web-based tool to help inform osteoarthritis patients about when to have a joint replacement. When developing the shared decision-making tool, and as part of the A.S.K. study, multiple patient-reported outcome measures were collected at baseline, 6-, and 12-months, including custom short forms from the Patient-Reported Outcomes Measurement Information System® (PROMIS) Pain Interference and Physical Function item banks and the KOOS-12, which has domain scores for pain, function, and quality of life. This project is a secondary re-analysis of PROMIS data to evaluate the interrelationships among pain and function, including the impact of clinical and sociodemographic covariates, and comparing it to the KOOS-12 change.

Methods: Two bivariate latent change score models—one for PROMIS and one for the KOOS-12—in the A.S.K. data. External variables were added in blocks representing sociodemographic, emotional health, and physical health (including surgery) covariates.

Results: Most change occurred within 6 months after the index visit, with minimal additional change between 6- and 12-month follow-ups. At baseline, those who went on to have knee arthroplasty were generally in poorer health, with greater differences observed for PROMIS than for KOOS-12 (PROMIS $|\beta|$ = .32 and.35, KOOS-12 $|\beta|$ = .13 and .14 for pain and function, respectively). Change was significantly associated with treatment status. Cross-domain coupling was observed for both domains on the KOOS-12 except baseline function predicting 6-month pain, whereas only unidirectional coupling occurred on PROMIS (with Pain Interference associated with earlier Physical Function). The effect of covariates was broadly comparable across the models, with more noticeable effects related to surgical status, age, and baseline emotional health.

Conclusions: PROMIS is frequently used to assess orthopaedic patients considering knee arthroplasty. The A.S.K. study was designed to create a shared decision-making tool useful for supporting the use of patient-reported outcomes at the individual level. This secondary analysis of A.S.K. data compared the longitudinal trajectory of pain and function at 6- and 12-months after the index visit and shows similar change on PROMIS to change on the KOOS-12.