

P31 Assessment of differential item functioning of PROMIS-Fatigue SF-8a by health literacy among community adults

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Objectives: To investigate whether the PROMIS® Fatigue SF-8a allows for valid comparisons between individuals with varying levels of health literacy by examining differential item functioning (DIF).

Methods: Adults aged 18 years and older were recruited from community settings in Boston and Chicago. Health literacy was assessed using the Health Literacy Assessment Using Talking Touchscreen Technology (Health LiTT). Differential item functioning (DIF) was analyzed using ordinal logistic regression and a graded response model. Monte Carlo simulations with 5,000 iterations and an alpha level of 0.01 were used to establish criteria for detecting DIF. The impact of DIF on item scores and the *T*-scores was examined by inspecting item characteristic curves (ICCs) and test characteristic curves (TCCs).

Results: A total of 557 English-speaking participants were included, with 54% having low health literacy (LHL) and 46% having adequate health literacy (AHL). The LHL group was older on average (53.5 vs. 43.8 years), more likely to be Black (75.8% vs. 27.1%), and had lower educational attainment (only 9.9% held a bachelor's degree or higher vs. 64.3% in AHL). Fatigue scores were similar between groups, but participants with LHL were more likely to endorse fatigue interfering with daily activities. Differential item functioning (DIF) analyses indicated small but detectable uniform DIF for Item 1 (“I feel fatigued”), Item 2 (“I have trouble starting things because I am tired”), Item 6 (“To what degree did your fatigue interfere with your physical functioning?”), Item 7 (“How often did you have to push yourself to get things done because of fatigue?”), and Item 8 (“How often did you have trouble finishing things because of your fatigue?”). Item 4 (“How fatigued were you on average?”) demonstrated non-uniform DIF. Despite these findings, the ICCs and TCCs showed that the magnitude and impact of DIF on the item and *T*-scores were negligible.

Conclusions: The results of this study provide support for measurement equivalence of self-reports of fatigue by adults who completed the English surveys. Future analyses are needed to replicate the results of this study in clinical samples.