Physical Functioning

Ron D. Hays September 12, 2006 Network Testing ~ 5 or 6pm

Physical Functioning Items

- Form C
 - 112 items (16 HAQ like)
- Form G
 - 56 items (4 HAQ like)
- Sub-domains
 - IADL
 - Upper
 - Central
 - Lower

Analyses Conducted

- Descriptive statistics
- Classical test theory/reliability
- Monotonicity/scalability
- Dimensionality
- IRT

Classical Test Theory

- Form C (112 items)
 - Alpha =.99
 - Range of item/total correlations (corrected for item overlap): 0.40 (able to brush teeth) to 0.85 (able to do yard work)
- Form G (49 items)
 - Alpha =.98
 - Range of item/total correlations (corrected for item overlap): 0.30 (open previously opened jar) to 0.87 (help limit climbing flight of stairs)

Monotonicity/Scalability

- Monotonicity assessed using Mokken Scale Procedure
 - No items in Form C or G had monotonicity problems (minimum violation index < .03)
- Scalability assessed using Loevinger's H
 - Form C
 - H ranged from 0.50 (health limit you eating a meal in a normal time) to 0.80 (able to run or jog for two miles)
 - Form G
 - H ranged from 0.36 (open previously opened jar) to 0.84 (help getting dressed)
 - Scalability "strong" when H > 0.5

Unidimensionality

- Confirmatory factor analysis conducted using Mplus with polychoric correlations and WLSMV estimator
- Form C
 - CFI = 0.973, RMSEA = 0.091
 - Factor loadings ranged from 0.74-0.95
- Form G
 - CFI = 0.926, RMSEA = 0.136
 - Factor loadings ranged from 0.54-1.04*

IRT Analysis

- Graded Response Model fit using MULTILOG
- Form C
 - Too few observations in some categories for 28 items to estimate SEs
- Form G
 - Too few observations in some categories for 3 items to estimate SEs
- So collapsed categories and reran model

Form C GRM Results

- χ² = 17,087.3 (1-PL); χ² = 16,829.9 (2-PL)
- Marginal reliability = 0.9924
- Slopes ranged from 1.68 (PFB6) to 4.07 (PFB15)
- Thresholds ranged from -2.78 (PFA54) to 3.06 (PFA39)

PFB6 (health limit you in eating a meal within a normal time)PFB15 (able to change the bulb in a table lamp)PFA54 (able to button your shirt)PFA39 (able to run at a fast pace for two miles)

Item Characteristic Curves for 112 Form C Physical Functioning Items



Item Characteristic Curves for 112 Form C Physical Functioning Items 101 - 104 105 - 108







Information Curve for 112-Item Form C Physical Functioning Scale



Form G GRM Results

- χ² = 21,019.4 (1-PL); χ² = 20,407.7 (2-PL)
- Marginal reliability = 0.9803
- Slopes ranged from 1.06 (PFC27) to 5.08 (PFC16)
- Thresholds ranged from -4.69 (PFC43) to 3.19 (PFC33)

PFC27 (use jar opener or help to open previously opened jars)PFC16 (need buttonhook, zipper pull, other gadget or help to get dressed)

PFC43 (able to use hands to turn faucets, etc.)

PFC33 (able to run ten miles)



Information Curv e for 49-Item Form G Scale



Questions?

