

Rasch Calibration of the 18-Item Multidimensional Health Locus of Control - Form B Scale

 Hyllore Imeri, Irene Nsiah, Marie Barnard, Erin Holmes, Shane Desselle, Meagen Rosenthal, Minsoo Kang

BACKGROUND

- MHLC-Form B has been used for 40+ years to measure HLOC in patients with chronic conditions
- Study aim: Assess the psychometric properties of the MHLC-Form B using Rasch analyses

METHODS

- n=300 adults with chronic conditions, recruited via MTurk Amazon
- Rasch models, item-person maps and differential item functioning analyses were estimated/conducted for each subscale, using SAS v9.4 and Winsteps v3.65

RESULTS

- MHLC-Form B: acceptable model-data fit
- Individual HLOC levels: wide distributions for all subscales (i.e., Internal: -1.06 ± 1.15, -5.27 – 2.50 logits)
- Item difficulty levels: concentrated in a narrowly centralized distribution, with an overall range of -0.43 to 0.43 logits
- Proper functioning of all items across respondents varying in sex or level of education

Multidimensional Health Locus of Control-Form B needs additional items to accurately measure a wider range of HLOC levels in adults with chronic conditions



Take a picture to download the abstract

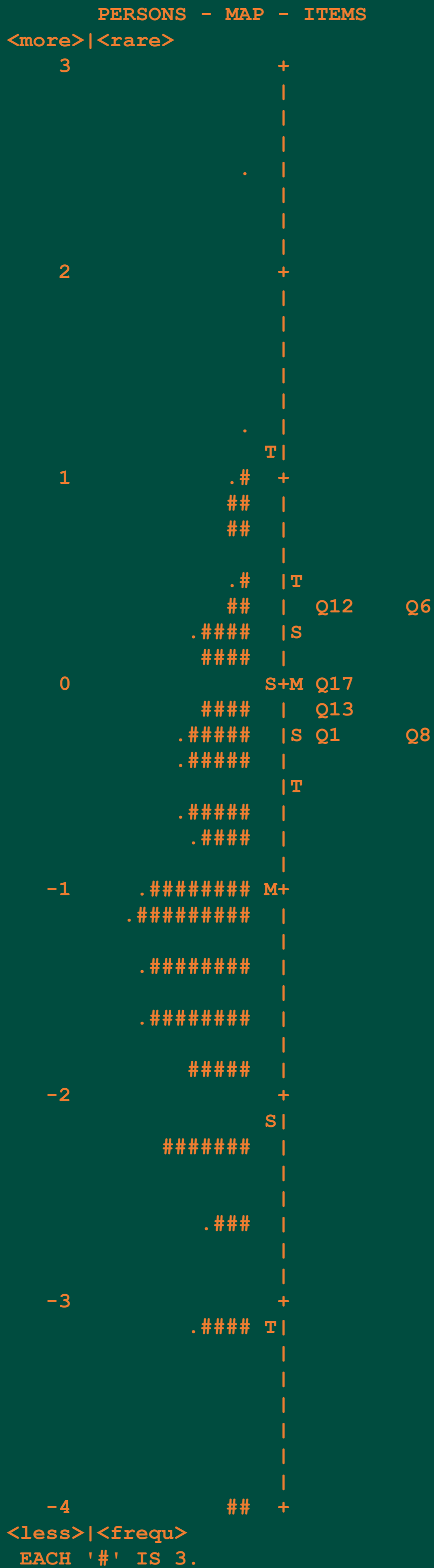


Table 1. Demographic data of the participants (n=300)	
Variables	n (%)
Age (mean ± SD)	36.62 ± 10.92
Gender	
Male	199 (66.3%)
Female	99 (33.0%)
Other/would rather not say	2 (0.7%)
Race	
Hispanic, Latinx, or Spanish origin	17 (5.7%)
American Indian or Other Native American	5 (1.7%)
Asian American or Pacific Islander	14 (4.7%)
Black/African American	50 (16.7%)
White	212 (70.7%)
Other: Specify: multiracial	2 (0.6%)
Education level	
Less than college degree	72 (24.0%)
At least college degree or higher	228 (76.0%)

Table 2. Model-data fit statistics for three subscales of MHLC-Form B				
MHLC-Form B subscale	Infit statistics		Outfit statistics	
	Mean ± SD	Range	Mean ± SD	Range
Internal	1.01 ± 0.11	0.84 – 1.17	1.00 ± 0.14	0.82 – 1.20
Chance	0.99 ± 0.15	0.77 – 1.27	0.98 ± 0.15	0.77 – 1.28
Powerful	0.98 ± 0.18	0.70 – 1.31	1.00 ± 0.15	0.71 – 1.28
Others			0.18	1.30

Table 3. Item Difficulty Summary of Rasch Calibration in MHLC-Form B				
MHLC-Form B/Internal subscale	Calibration logits	SE logits	Infit MNSQ	Outfit MNSQ
6. I am directly responsible for my health	0.34	0.07	1.04	1.02
12. My physical well-being depends on how well I take care of myself	0.34	0.07	0.87	0.82
17. I can pretty much stay healthy by taking good care of myself	0.00	0.07	0.84	0.82
13. When I feel ill, I know it is because I have not been taking care of myself properly	-0.18	0.06	1.07	1.12
8. Whatever goes wrong with my health is my own fault	-0.24	0.06	1.05	1.05
1. If I become sick, I have the power to make myself well again	-0.26	0.06	1.17	1.20

