Effect of recall period on item responses to activity limitation items in multiple sclerosis

Peter Hagell, The PRO-CARE Group, School of Health and Society, Kristianstad University, Kristianstad, Sweden, Department of Neurology, Lund University Hospital, Lund, Sweden

Introduction

Patient-reported rating scales typically include instructions regarding recall periods. However, it is unclear whether such instructions affect items response functions.

This study addressed the impact of specifying a recall period on how respondents with multiple sclerosis (MS) treat activity related items.

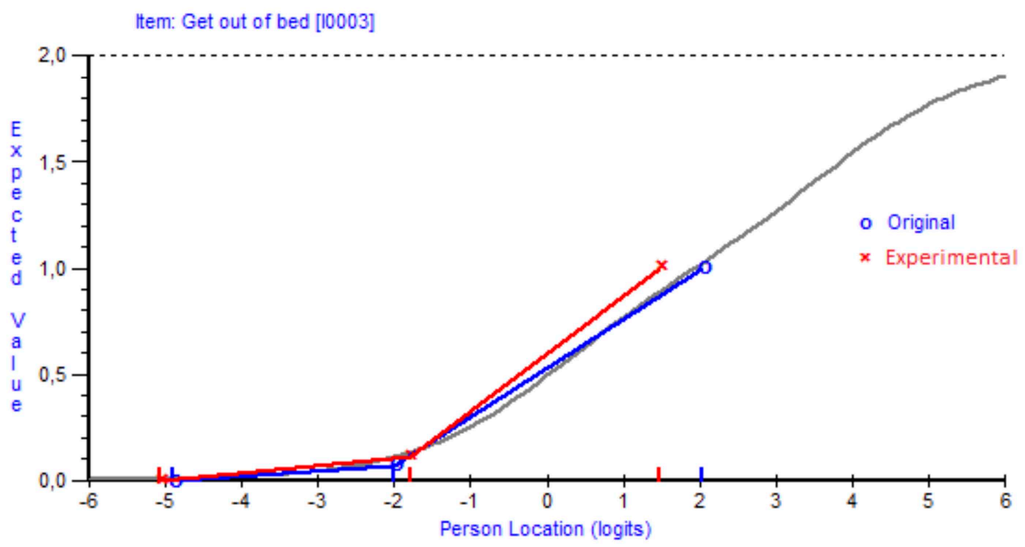
Methods

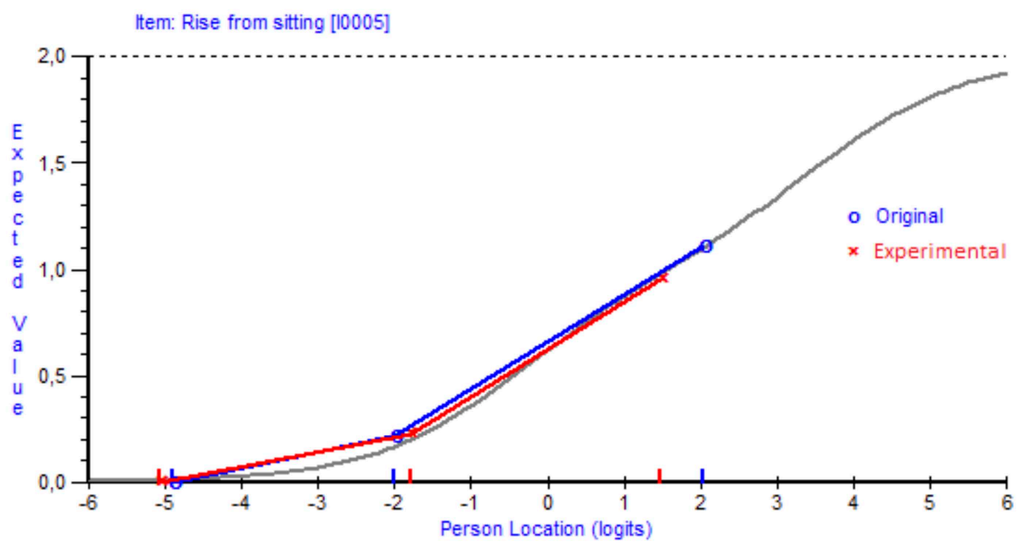
The Activity section of the Patient-Reported Outcome Indices for Multiple Sclerosis (PRIMUS-A) was mailed to 285 people randomly selected from a local Swedish MS registry, of whom 199 (70%) responded. Respondents had been randomized to receive either the original PRIMUS-A (instruction: "please describe your ability to do each of the 15 activities listed below during the last week, without the use of aids or assistance") or an experimental PRIMUS-A version (instruction: "please describe your ability to do each of the 15 activities listed below without the use of aids or assistance"). Response categories were "Able to do on own without difficulty", "Able to do on own with difficulty" and "Unable to do on own", scored 0-2, respectively.

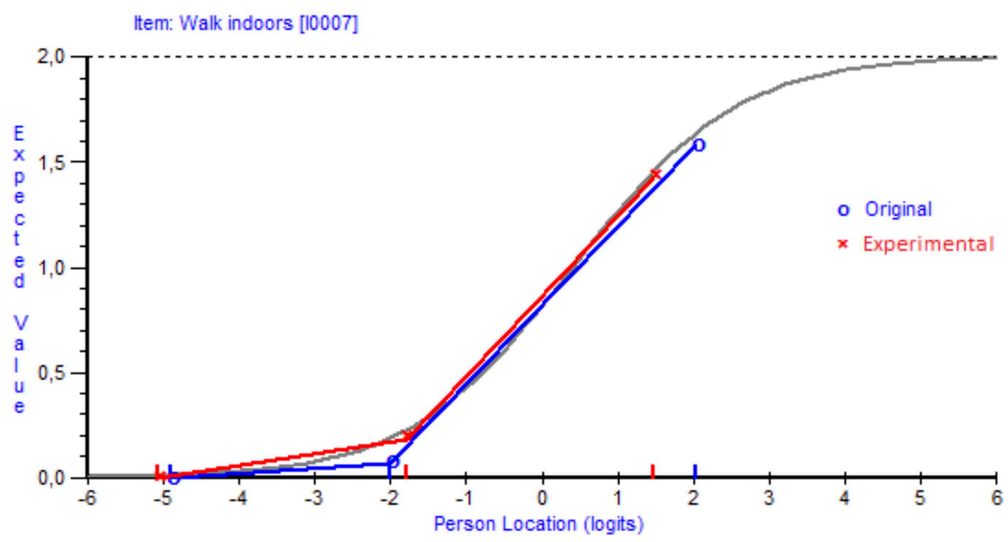
Complete data from 195 respondents (67% women; mean age, 50; mean MS duration 11.5 yrs; median perceived symptom severity, "moderate" ("mild"-"severe"); 27% and 43% needing walking aids in- and outdoors, respectively) were analyzed regarding Differential Item Functioning (DIF) by questionnaire version (original vs experimental PRIMUS-A) using the unrestricted (partial credit) polytomous Rasch measurement model, as implemented in the RUMM2030 software.

Results

Floor/ceiling effects were 30/5%, respectively. Reliability (Person Separation Index) was 0.93. Data demonstrated overall fit to the Rasch model (item-trait interaction chi-2, 19.02; P=0.94) with standardized item residuals ranging between -1.79 to 0.12 (chi-2, <4.71; unadjusted P, ≥0.09). Very similar results were obtained when analysing the two versions separately. There was no DIF by questionnaire version (F, <3.99; unadjusted P, ≥0.05; see example plots below). Nor were there any DIF detected by gender, age, symptom severity or ability to walk outdoors.







Conclusions

Lack of DIF between PRIMUS-A versions suggests that recall period specification does not affect item response functions among respondents. This argues against the use of specified recall periods and suggests that questionnaires can be simplified by omitting such instructions without affecting outcomes. Furthermore, rating scale outcomes should not be over interpreted in relation to specified recall periods. Additional studies, including cognitive debriefing interviews using additional scales and samples are needed for a fuller understanding of response processes in relation to recall periods and other factors.

The study was accomplished within the Basal Ganglia Disorders Linnaeus Consortium (BAGADILICO) at Lund University, and was supported by the Swedish Research Council, and the Faculty of Medicine at Lund University.

Contact: **Peter.Hagell@hkr.se**