A Comprehensive Revision of the Incapacity Status Scale: ISS-2
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Abstract

Aims

- Revise the format from a structured interview to a PRO. The PRO format will save clinicians time, and may lead to more accurate scoring of sensitive items like sexual dysfunction.
- Remove ambiguity in the scoring of items that caused uncertainty about how to score sensitive levels of disability.
- Update and simplify language. In the current format, language is simpler and more patient-friendly.
- Replace infrequently used items. Poor reproducibility of items found in the ISS will reduce the number of items and allow ISS scores to be conceptualized in relation to the EDSS.
- Validate revisions. Analyses will be conducted to ensure that the new score is an effective, reliable, and valid measure of disability in MS.

Key Updates to ISS Items

- Medical Problems” was frequently omitted by researchers using the ISS. It has shown very low inter-rater reliability, and differs conceptually from other disability items. It has been replaced with a revised version assessing the following:
  - Fatigability now queries both physical and cognitive fatigue.
  - Vision” scoring has been altered to assess the multiple types of visual disturbances.
  - Mood and Thought Disturbances” was frequently omitted from research. It has shown modest inter-rater reliability, and has been revised to avoid undue subjectivity in scoring.

- “Sensation” was added to assess function in this key area.
- “Mentation” as originally written anticipated a need for revision as more research was conducted on cognition in MS. Subjectivity in this area has been reduced.
- “Sexual Function” has been rewritten. The item is shorter, with more precise delineations for scoring.

The “Sexual Conflict and Inquiry” supplemental questionnaire has been revised with the 15-item version of the Multiple Sclerosis Intimacy and Sexuality Questionnaire (MSISO-15), which is highly reliable and valid.

Background

- Attempts to standardize dysfunction have led researchers to use the EDSS as a catch-all scale, though it more strictly measures impairment and disease severity than disability.
- Scales of living disability in MS, including the ISS, have had psychometric limitations that have prevented their widespread use.
- Literature has called for a disability scale that can be related to statistical examination reveals room for improvement on the ISS-2 scores to other measures.

Statistical analyses

- Internal consistency and item analyses will be conducted for the 16 items, and 7 secondary scores. Expected Cronbach’s α is greater than .80, while corrected item-total correlations (ITC) are expected to be lower than .50 for primary scores and .65 for secondary scores; most are expected to exceed .70. This will provide a preliminary evaluation of both scoring systems, validity, and allow ISS scores to construct validity of the functional systems clusters in the ISS-2.
- Spearman rank-order correlations will compare primary and secondary score totals to the PDDS, a previously validated Likert scale of dysfunction, to assess criterion validity. Expected correlation to the PDDS is strong (p < .50).
- Spearman correlations with selected self-report scales from the ITC will assess the construct validity of the concurrent validity of the ISS-2 items on fatigability (Modified Fatigue Impact Scale), bowel function (Bowel Control Scale), bladder function (Bladder Control Scale), vision (Impact of Visual Impairment Scale), and cognition (Perceived Deficits Questionnaire).
- Ordinal regression will be used to further evaluate the relationship between secondary scores and EDSS scores, as ISS-2 secondary scores are analogous with the FSS scores used to generate EDSS, there is a reasonable assumption of content validity in this comparison.

References