Multiple Sclerosis Impact Scale

Gail L. Widener, PT, PhD, Diane D. Allen, PT, PhD

The Multiple Sclerosis Impact Scale (MSIS-29) is a 29-item self-report measure comprised of 20 items associated with a physical scale and 9 items associated with a psychological scale. Items question patients (or their proxies) about the impact of multiple sclerosis (MS) on day-to-day life in the last 2 weeks. All items have 5 response options from 1 (not at all) to 5 (extremely). Each of the 2 scales are scored by summing the responses across items, then converting to a 0 to 100 scale, where 100 indicates greater impact of disease on daily function (worse health). The items were selected via a standardized psychometric process: generating a large item pool from patient interviews and professional judgment, then winnowing down to the current items based on pilot and field testing. Reliability and validity evidence have been obtained in multiple samples of people with MS from disability levels of 0 to 9.5 on the Expanded Disability Status Scale. The MSIS-29 is responsive to intervention, with a change score of about 8 on the physical scale or about 6 on the psychological scale having moderate to high sensitivity and specificity for patients, indicating whether they had improved or not. A 7-member MS Outcome Measure Task Force of the neurology section of the American Physical Therapy Association highly recommends this measure for use in this population across disability levels and practice settings (http://neuropt.org/go/healthcare-professionals/neurology-section-outcome-measures-recommendations/multiple-sclerosis).

This abbreviated summary provides a review of the psychometric properties of the MSIS-29. A full review of the MSIS-29 and 62 other measures for patients with MS can be found at http://neuropt.org/go/healthcare-professionals/neurology-section-outcome-measures-recommendations/multiple-sclerosis. Reviews of nearly 200 other instruments for patients with various health conditions can be found at www.rehabilitationmeasures.org.

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BIBLIOGRAPHY


This instrument summary is designed to facilitate the selection of outcome measures by trained clinicians. The information contained in this summary represents a sample of the peer-reviewed research available at the time of this summary’s publication. The information contained in this summary does not constitute an endorsement of this instrument for clinical practice. The views expressed are those of the summary authors and do not represent those of authors’ employers, instrument owner(s), the Archives of Physical Medicine and Rehabilitation, the Rehabilitation Measures Database, or the United States Department of Education. The information contained in this summary has not been reviewed externally.

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### Measure Name:
Multiple Sclerosis Impact Scale - 29

### Acronym:
MSIS-29

### Summary Author:
Widener G, Allen D

<table>
<thead>
<tr>
<th>Population Reviewed:</th>
<th>Admin Time:</th>
<th>Items:</th>
<th>Score:</th>
<th>Required Equipment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Sclerosis</td>
<td>10 to 15 minutes</td>
<td>29</td>
<td>0/100 (min / max)</td>
<td>MSIS-29 Questionnaire</td>
</tr>
</tbody>
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### Purpose and Administration Instructions:
- Self-report measure of ADL assessed over two weeks\(^1\)
- Composed of a 20-item physical scale and 9-item psychological scale; scales scored separately
- Ranges from 1 “not at all” to 5 “extremely”; Higher scores indicate greater impact of the disease

### Validity:
- **Concurrent Validity:**
  - *Excellent* correlation with the SF-36 physical, Barthel Index, FAMS,\(^1\) GNDS\(^2\)
  - *Poor*\(^3\) to *Excellent*\(^2\) correlation with EDSS
  - *Adequate* negative correlation with MSFC\(^3\)
  - *Excellent* correlation with fatigue\(^4\)
- **Discriminant Validity:** Differentiated among groups of EDSS scores\(^5\)

### Reliability:
- **Test-retest Reliability:** *Excellent* test-retest reliability\(^1,6\)
- **Interrater Reliability:**
  - *Adequate* between patient and proxies for the physical scale\(^7\)
  - *Poor* between patient and proxies for the psychological scale\(^7\)
- **Internal Consistency:** *Excellent* internal consistency\(^1\)

### Floor / Ceiling Effects:
- 0.9% scored minimum on physical scale; 1.7% scored minimum on the psychological scale\(^1\)
- 3.9% scored maximum on physical scale; 1.9% scored maximum on psychological scale\(^1\)

### MCID:
- **EDSS range of 0-5:** 7 point change on physical scale associated with 1 point change in EDSS\(^8\)
- **EDSS range 5-8:** 8 point change in MSIS-29 associated with a 0.5 step change in EDSS\(^8\)
- At 6 months, people who believed they had deteriorated had an average 8 point increase; if improved, 13.4 point decrease\(^9\)

### Score Interpretation:
- Score of zero indicates no impact on daily living

### Considerations:
- Proxy version is available
- Rasch analysis demonstrated improved ordering of response options on the physical scale when the choices were collapsed to a 1-3 rather than a 1-5 point scale\(^10\)

### Score Interpretation:

<table>
<thead>
<tr>
<th>r</th>
<th>ICC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>≥ 0.6</td>
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<tr>
<td>Adequate</td>
<td>0.31-0.59</td>
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<tr>
<td>Poor</td>
<td>≤ 0.3</td>
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</tbody>
</table>

### Abbreviations:
- ADL: Activities of Daily Living
- EDSS: Expanded Disability Status Scale
- FAMS: Functional Activity Measure
- GNDS: Guys Neurological Disability Scale
- MCID: Minimal Clinical Important Difference
- MSFC: Multiple Sclerosis Functional Composite
- SEM: Standard Error of Measurement
- SF-36: The Short Form (36) Health Survey