ACRM
AMERICAN CONGRESS OF REHABILITATION MEDICINE

Archives of Physical Medicine and Rehabilitation

journal homepage: www.archives-pmr.org

Archives of Physical Medicine and Rehabilitation 2014;95:1799-1800

ORGANIZATION NEWS

Highlights From the Rehabilitation Measures Database

This content is provided as a service by the American Congress of Rehabilitation Medicine and is not peer reviewed by the Archives.

Measurement Characteristics and Clinical Utility of the Stroke Impact Scale

Jane E. Sullivan, PT, DHS, MS

The Stroke Impact Scale (SIS) is a multidimensional, stroke-specific, self-report outcome measure. There are 59 items in 8 domains including strength, hand function, activities of daily living/instrumental activities of daily living, mobility, communication, emotion, memory and thinking, and participation/role function. Patients use a 5-point Likert scale to rate the level of difficulty they experience during each activity. Summative scores are generated for each domain. An additional item rates stroke recovery on a scale from 0 to 100. Adequate to excellent reliability has been reported.[1,2] Normative data are available. Responsiveness data (minimal detectable change and minimal clinically important difference) have been reported for some domains of the measure.[3] The test can be completed in 15 to 20 minutes. Mail, telephone, and proxy administration have been validated.[1,4] A 16-item version measure (SIS-16) captures physical performance during daily activities.[5] The cost of the measure for nonprofit users is free.

A full review of the SIS as well as reviews of nearly 200 other instruments can be found at www.rehabmeasures.org.

Please address correspondence to rehabmeasures@ric.org.

BIBLIOGRAPHY

1. Carod-Artal FJ, Ferreira Coral L, Stieven Trizotto D, Menezes Moreira C. Self- and proxy-report agreement on the Stroke Impact Scale. *Stroke* 2009;40:3308-3314.
2. Duncan PW, Lai SM, Tyler D, Perera S, Reker DM, Studenski S, Laster LJ. The Stroke Impact Scale version 2.0. Evaluation of reliability, validity, and sensitivity to change. *Stroke* 1999;30(10):2131-2140.
3. Lin KC, Fu T, Wu CY, et al. Minimal detectable change and clinically important difference of the Stroke Impact Scale in stroke patients. Neurorehabil Neural Repair 2010;24:486-92.
4. Duncan PW, Lai SM, Tyler D, Perera S, Reker DM, Studenski S. Evaluation of proxy responses to the Stroke Impact Scale. *Stroke.* Nov 2002;33(11):2593-2599.
5. Fulk GD, Ludwig M, Dunnning K, Golden S, Boyne P, West T. How much change in the Stroke Impact Scale-16 is important to people who have experienced a stroke? Topics in Stroke Rehabilitation. Nov-Dec 2010;17(6):477-483.
6. Lin KC, Fu T, Wu CY, Hsieh YW, Chen CL, Lee PC. Psychometric comparisons of the Stroke Impact Scale 3.0 and Stroke-Specific Quality of Life Scale. Qual Life Res 2010;19:435-443.
7. Huang YH, Wu CY, Hsieh YW, Lin KC. Predictors of change in quality of life after distributed constraint-induced therapy in patients with chronic stroke. Neurorehabil Neural Repair 2010;24:559-66.
8. Stewart AL, Ware JE. Measuring functioning and well-being: the medical outcomes study approach. Duke University Press; 1992.

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, the United States Department of Education, or the Retirement Research Foundation. The information contained in this summary has not been reviewed externally.

The Rehabilitation Measures Database and Instrument Summary Tear-sheets are funded by the National Institute on Disability and Rehabilitation Research, United States Department of Education through the Rehabilitation Research and Training Center on Improving Measurement of Medical Rehabilitation Outcomes (H133B090024) and the Retirement Research Foundation (2011-027).

Rehabilitation Measures	**Measure Name:**	**Acronym:**	**Summary Author:**
	Stroke Impact Scale	SIS	Sullivan J

Population Reviewed:	**Admin Time:**	**Items:**	**Score:**
Chronic Stroke, others reviewed at www.rehabmeasures.org	15-20 minutes	59	0/100 (min / max)

Purpose and Administration Instructions:

- Assesses health status following stroke

Training:

- Read SIS Manual, available on website

Required Equipment:

- Score sheet

Validity:

- *Criterion Validity*: *Adequate* for hand function[6]
- *Concurrent Validity: Excellent* for hand function and the MAL-QOM; ADL/IADL and the FIM[3]
- *Predictive Validity:* Initial FIM score predicted the overall and ADL, IADL domain scores[7]
- *Convergent Validity:*
  - *Excellent* correlation between functional status and mobility and ADL/IADL[1]
  - *Excellent* correlation between the Barthel Index and mobility and ADL/IADL[1]
  - Poor correlation between the HADS depression subscale and emotion[1]

Reliability:

- *Interrater Reliability:*
  - *Excellent* for hand function and mobility[1]
  - *Adequate* for strength, ADL/IADL, memory, and communication[1]
  - *Poor* for emotion and social participation[1]
- *Internal Consistency:*
  - *Excellent* for all domains but emotion[1]

Minimally Clinically Important Difference (MCID):

- *Chronic Stroke:*
  - MCID for strength = 9.2; ADL/IADL = 5.9; mobility = 4.5; hand function = 17.8[3]

Scoring Instructions:

- For each domain: Transformed Scale = [Actual raw score - lowest *possible* raw score) /*Possible* raw score)]x100

Score Interpretation:

- Scores are interpreted using the same scoring algorithm as the SF-36[8]

Minimal Detectable Change (MDC):

- *Chronic Stroke:*
  - MDC for strength = 24.0; ADL/IADL = 17.3; mobility = 15.1; hand function = 25.9[3]

Standard Error of Measurement (SEM):

- *Chronic Stroke:*
  - SEM for strength = 8.7; ADL/IADL = 6.3; mobility = 5.5; hand function = 9.4[3]

Considerations:

- The respondent must be able to follow a 3-step command
- The author recommends that patients score at least 16 on the MMSE
- The SIS can be administered by mail or telephone
- The SIS can be completed by a proxy
- Proxies are more likely to rate a patient as impaired[4]
- Use caution in individuals with only mild impairment as some domains may not capture impairment
- Omit home based items if client has not returned home

Abbreviations:

FIM: Functional Independence Measure
HADS: Hospital Anxiety and Depression Scale
(I)ADL: (Independent) Activities of Daily Living
MAL-QOM: Motor Activity Log Amount of Use
MMSE: Mini-Mental State Exam

Cut-off Criteria:

	r	ICC
Excellent	≥ 0.6	≥ 0.75
Adequate	.31-.59	0.40-0.74
Poor	≤ 0.3	< 0.4