

Quick Review of Model System Research

Development and Initial Evaluation of the SCI-FI/AT^{1*}

What is the study about?

Researchers set out to develop a general measure of function for people with spinal cord injury and one that allows for use of assistive technology (AT). They developed and tested the Spinal Cord Injury Functional Index (SCI-FI/AT), a version for individuals who use Assistive Technology (SCI-FI/AT). The researchers believe this was needed to provide a sensitive measure of function that could detect meaningful change that reflects individuals' use of AT.

Who participated in the study?

A sample of 460 adults with traumatic spinal cord injury (SCI) stratified by level of injury, completeness of injury, and time since injury was recruited from 9 national SCI Model Systems programs. Eligibility criteria included age of 18 or older and the ability to speak and understand English. The sample was representative of the key demographic variables reported by the National Spinal Cord Injury Statistical Center (NSCISC).

How was the study conducted?

This study analyzed the structure of the SCI-FI/AT item banks, described the calibration and development of the SCI-FI/AT items and scales in each identified domain, discussed the initial psychometric properties of the SCI-FI/AT item banks, and compared the SCI-FI/AT item level difficulties with parallel item content in the original SCI-FI. First, external reviewers eliminated original SCI-FI items that included use of a specific type of AT and ensured that all important functional activities assessed in the original SCI-FI were also included in SCI-FI/AT. The SCI-FI/AT includes 47 Basic Mobility items, 35 Fine Motor Function items, 78 Self-care items, and 30 Ambulation items. Trained data collectors administered the SCI-FI/AT questions in an interview format. Responses were put through a variety of statistical tests to determine if they are eligible for use in the SCI-FI/AT. They also compared the full test with a 10 item simulated computerized adaptive test (CAT), to see if the number of items could be reduced and thereby lower the amount of questions that needed to be administered.

What did the study find?

Researchers find that SCI-FI/AT is a well constructed tool to evaluate a person's ability to function using AT. Preliminary evidence demonstrates that SCI-FI and SCI-FI/AT provided similar information in 4 unidimensional domains: Basic Mobility, Self-care, Ambulation, and Fine Motor Function with strong psychometric properties for all functional domain scales in a sample of adults with paraplegia or tetraplegia. The CAT provided high measurement reliability for the simulated CAT scales compared with the full item bank. The SCI-FI/AT could be useful to include in trials or clinical practice to evaluate individuals' functional performance and long-term functional prognosis after a SCI.

The contents of this quick review were developed under a grant (number H133A110004) from the U.S. Department of Education, National Institute on Disability and Rehabilitation Research. However, these contents do not necessarily represent the policy of the U.S. Department of Education, and you should not assume endorsement by the Federal Government.

¹ Jette, A.M., Slavin, M.D., Ni, P., Kisala, P.A., Tulskey, D.S., Heinemann, A.W.,... Williams, S. (2015). Development and initial evaluation of the SCI-FI/AT. *The Journal of Spinal Cord Medicine*, 38(3). DOI 10.1179/2045772315Y.0000000003

*The contents of this quick review have been reviewed by the corresponding author of the original study.