


Determining Reliable Change Using the Abbreviated Modified Fatigue Impact Scale

Ryan E Allen, B.A.
Neuropsych Research Lab - Psychology Department
University of Missouri-Kansas City



Outline

- ▶ Fatigue in Multiple Sclerosis
- ▶ Measuring Fatigue
 - ▶ Reliable Change
- ▶ Determining Reliable Change in Fatigue
 - ▶ Methods
 - ▶ Findings
 - ▶ Implications



Fatigue in Multiple Sclerosis

- ▶ A subjective feeling of tiredness or exhaustion which could refer to both physical (motor activities) and mental (cognitive or emotional) processes.
- ▶ Extremely high rate of significant and debilitating fatigue
- ▶ Impact on Quality of Life



Fatigue Treatment

- ▶ Treatment approaches of fatigue are multi-modal
- ▶ Physical Therapy
- ▶ Psychotherapy
- ▶ Pharmacotherapy

Fatigue Measurement

- ▶ Brief
- ▶ Inexpensive
- ▶ Easy to administer and interpret
- ▶ Reliably evaluate change in fatigue
- ▶ Currently there are no quick measures to determine reliable change in fatigue

Measuring Fatigue

- ▶ Abbreviated Modified Fatigue Impact Scale (MFIS-5)
 - ▶ Self-report measure
 - ▶ Takes 2-3 minutes to administer the measure

Because of my fatigue during the past 4 weeks...

	<u>Never</u>	<u>Rarely</u>	<u>Sometimes</u>	<u>Often</u>	<u>Almost always</u>
1. I have been less alert	0	1	2	3	4
2. I have been limited in my ability to do things away from home.	0	1	2	3	4
3. I have had trouble maintaining physical effort for long periods.	0	1	2	3	4
4. I have been less able to complete tasks that require physical effort.	0	1	2	3	4
5. I have had trouble concentrating.	0	1	2	3	4

Objective

- ▶ To evaluate the psychometric properties of the MFIS-5
- ▶ Use the MFIS-5 to calculate clinically useful and reliable change scores in fatigue

Classification of Reliability

- $\geq .90$ = very high
- $.80-.89$ = high
- $.70-.79$ = adequate
- $.60-.69$ = marginal
- $< .60$ = low



Reliability and Change

▶  Reliability =  Sensitivity to Change

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Determining Reliable Change

- ▶ Larger study examining treatment adherence
- ▶ Evaluate psychometric properties of MFIS-5
 - ▶ Internal reliability
 - ▶ Test-retest reliability



Participants

- ▶ Completed MFIS-5 at baseline and 10-week follow up
- ▶ 69 Relapsing-remitting MS patients
 - ▶ 62 Female, 7 Male
 - ▶ 57 Caucasian, 12 African American
 - ▶ Age 45.3 ± 10
 - ▶ EDSS = 2.94 ± 1.37



Methods

- ▶ Kansas City and the New York Metro Region.
- ▶ Participants recruited as part of a recently completed trial focused on DMT adherence in MS
- ▶ MFIS-5 given as part of a larger battery of tests at 2 time points 10 weeks apart


Analyses

- ▶ Reliability
 - ▶ Cronbach's Alpha
 - ▶ Intraclass Correlation Coefficient
- ▶ Reliable Change
 - ▶ Reliable Change Index (RCI)
 - ▶ Jacobson & Truax (1991)

$$\begin{aligned} RCI &= 1.96 * S_{diff} \\ S_{diff} &= \sqrt{2}S_E \\ S_E &= SD\sqrt{1 - r_{xx}} \end{aligned}$$


Results

- ▶ Paired samples t-test found no significant difference in MFIS-5 total score between baseline (9.96 ± 4.77) and week 10 (9.86 ± 5.03).
- ▶ Cronbach's alpha indicated good internal reliability ($\alpha = .80$)
- ▶ The MFIS-5 demonstrated good test-retest reliability (sICC=.75)



Results

- ▶ Reliable meaningful change for the MFIS-5
 - ▶ Differences of 4.3 = 90% chance of true Δ
 - ▶ Differences of 5.6 = 95% chance of true Δ
- ▶ Changes of composite score ≥ 4 on the abbreviated fatigue measure represent a reliable and meaningful change



Discussion

- ▶ First study to examine longer term test-retest reliability in the MFIS-5
- ▶ Results suggest that this measure can be used to reliably evaluate change in fatigue
- ▶ Clinicians are encouraged to use this brief, free measure to evaluate fatigue prior to and following treatment.



Limitations

- ▶ Limitations of self-reported fatigue
- ▶ Relapsing-remitting patients only
- ▶ Participants not adherent to DMT



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Questions?

