

**NINDS CDE Notice of Copyright
Fatigue Scale for Motor and Cognitive Functions (FSMC)**

Availability:	Copyright belongs to Dr. Iris-Katharina Penner. Permission required for use: lk.penner@unibas.ch
Classification:	Supplemental
Short Description of Instrument:	<p>Construct measured: Mental and physical fatigue</p> <p>Generic vs. disease specific: Disease specific</p> <p>Means of administration: Self-administered</p> <p>Intended respondent: Patient</p> <p># of items: 20</p> <p># of subscales and names of sub-scales: 2 subscales (mental and physical fatigue)</p> <p># of items per sub-scale: 10</p>
Comments/Special instructions:	<p>Scoring: A Likert-type 5-point scale (ranging from *does not apply at all* to *applies completely*) produces a score between 1 and 5 for each scored question. Thus minimum value is 20 (no fatigue at all) and maximum value is 100 (severest grade of fatigue). Absolute thresholds for clinical meaningfulness have been defined by ROC analysis. The scale enables to graduate the amount of fatigue into mild, moderate and severe for the total sale and for the two subscales, separately.</p> <p>Background: The FSMC was developed and validated on a large sample of MS patients (N=309) and healthy controls (N=147) and tested against two common fatigue scales (FSS and MFIS). Superior sensitivity and specificity for the FSMC were found. In addition, differentiation between mental and physical fatigue seems to be crucial in MS.</p>
References:	Penner et al. (2009). The Fatigue Scale for Motor and Cognitive Functions (FSMC): validation of a new instrument to assess Multiple Sclerosis-related fatigue. <i>Mult Scler</i> , 15, 1509-1517.

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Rationale/ Justification:	<p>Strengths/Weaknesses: Administration takes 5-7 minutes. Excellent psychometric properties. Translations in about 30 languages available with forward and backward translation. Validation data on a large sample available.</p> <p>Psychometric Properties:</p> <p>Reliability: Cronbach's alpha: .93 for the cognitive subscale, .91 for the motor subscale and .95 for the entire scale.</p> <p>Test-retest reliability: 0.85 for the cognitive FSMC subscale, 0.86 for the motoric FSMC subscale, and 0.87 for FSMC total scale.</p> <p>Convergent Validity: correlates with MFIS: Pearson $r=.829$, $p<.01$ and FSS: Pearson $r= 0.797$, $p<.01$.</p> <p>Divergent Validity: Modest correlation with Beck Depression Inventory ($r=.49$, $p<.01$), EDSS ($r= .27$, $p<.01$; $r= 0.25$, $p<.01$ after controlling for BDI), 9HPT ($r=.14$, $p<.05$) and 25FW ($r=.12$, $p<.05$). Correlations with cognitive outcomes: MSNQ_P: $r=.44$, MSNQ_I: $r=.27$, FST: $-.25$, SDMT; $-.34$; PASAT: $-.24$.</p> <p>Sensitivity: FSMC total scale: 88.7, Specificity: FSMC total scale: 83.0</p> <p>Administration: Self completion by the patient in 5-7 minutes.</p>
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