

This is a **Sample** version of the

Multidimensional Fatigue Assessment (MAF)

The **full version** of the MAF comes without 'sample' watermark.

The full complete 12 page version includes –

- MAF Overview information
- MAF Scoring/ Administration instructions
- MAF Complete Questionnaire/ Assessment
- MAF Clinical Validity

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Psychosocial Correlates of Fatigue in Multiple Sclerosis

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ABSTRACT. Schwartz CE, Coulthard-Morris L, Zeng Q. Psychosocial Correlates of fatigue in multiple sclerosis. *Arch Phys Med Rehabil* 1996;77:165-70.

Objective: To explore: (1) the interrelation among the neuropsychological, psychological, and psychosocial factors and fatigue as measured by the Multidimensional Assessment of Fatigue scale, and (2) the impact of fatigue on role performance.

Design: Clinical interview with neuropsychological testing and cross-sectional study by mail.

Setting: Multiple sclerosis (MS) clinic registry of a large Boston teaching hospital.

Patients: 139 MS patients representing a broad range of disability.

Main Outcome Measures: The Multidimensional Assessment of Fatigue (MAF) scale, the Extended Disability Status Scale, the Sickness Impact Profile, Rao cognitive battery, the Trailmaking Test, depression, anxiety, and social activity limitations subscales from the Arthritis Impact Measurement Scales, and the Ryff Happiness Scale.

Results: Stepwise multiple regression analyses revealed that having a low sense of environmental mastery was the best psychosocial predictor of both global fatigue and fatigue-related distress, after adjusting for sociodemographic and medical factors. Further, people who reported being more depressed tended to report more severe fatigue. Neuropsychological performance was not associated with fatigue. Fatigue was found to limit social, work, and overall role performance, but not physical role performance.

Conclusions: People who feel that they can choose or create environments suitable to their psychic or physical conditions report less global fatigue and less fatigue-related distress, and fatigue can have an important impact on role performance. The implications of these findings for designing fatigue management interventions are discussed.

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FATIGUE is one of the most common complaints reported by multiple sclerosis (MS) patients.^{1,2} It is also, unfortunately, one of the most difficult symptoms to treat and understand. Family members, friends, and even patients can misinterpret fatigue for laziness and minimize its importance. In reality,

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fatigue can have a devastating impact on the daily functioning^{3,4} and on the overall well-being of many people with MS. Furthermore, fatigue is one of the two major reasons for unemployment among MS patients.^{5,6} Understanding this symptom and the factors affecting it is critical to the further development of effective psychosocial interventions. Our purpose was to review the current understanding of fatigue in MS, and to investigate the interrelationships among the neuropsychological, psychological, and psychosocial factors associated with fatigue in MS in a cross-sectional study.

The prevalence of fatigue among people with MS is much higher than earlier suspected. In 1938, Ivers and Goldstein⁷ reported that only 3% of MS patients suffered from severe fatigue. As our understanding of MS has improved to include fatigue as a symptom, prevalence estimates have risen considerably. More recent studies suggest that approximately 77% of patients experience fatigue to varying degrees.^{3,4} Fatigue among people with MS is not a homogeneous phenomenon, however.

Shapiro and colleagues⁸ have described four specific types of fatigue, one of which is considered unique to MS. Although these are distinct categories, MS patients can experience more than one type of fatigue simultaneously.⁸

1. *Physical Exertion.* This type of fatigue is experienced by the general population after a hard day of physical activity. The recommended management strategy for this "normal" fatigue is rest.⁸
2. *Depression.* The second type of fatigue is associated with clinical signs of depression, such as change in appetite, sleep disturbance, poor self-esteem, mood fluctuations, loss of interest in life activities, and loss of energy.⁹ Fatigue from depression is treated with a combination of anti-depressant medication and psychotherapy.⁸
3. *Nerve Impulse Fatigue.* This type of fatigue occurs when the nervous impulses that control a particular muscle are worked beyond its capacity. This type of fatigue usually dissipates with adequate rest.⁸
4. *Idiopathic Lassitude.* The etiology of this type of fatigue is unknown.^{1,3,10,11} Some investigators have referred to it as an abnormal sense of tiredness or lack of energy that is disproportional to the amount of energy expended and to the level of disability.¹² Patients describe it in terms of weakness, tiredness, fatigue, and lack of energy or stamina.^{1,4} Similarly, Krupp and colleagues² defined fatigue in MS as a sense of physical tiredness and lack of energy, distinct from sadness or weakness.² However, these terms may not differentiate this type of fatigue from the previous types described above, and may also confuse the definition of fatigue with its correlates. Suggested management strategies have included rest, energy conservation,⁸ and medication.^{3,10,13}

Patient surveys have revealed that fatigue in MS generally occurs daily, and worsens as the day progresses.^{2,4} It usually resolves within a few hours, and can vary in length.³ Both MS patients and normal healthy adults report that fatigue is aggravated by exercise, stress, and depression.² In contrast, it improves with rest, sleep, sex, positive experiences,² moderate exercise, relaxation/prayer, and cool water.⁴

To distinguish this idiopathic lassitude from other types of fatigue, investigators have studied characteristics that differentiate fatigue in MS from the experiences of normal or other

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Multidimensional Assessment of Fatigue (MAF)

User's Guide

Introduction

The Multidimensional Assessment of Fatigue (MAF) scale contains 16 items and measures four dimensions of fatigue: severity (#1-2), distress (#3), degree of interference in activities of daily living (#4-14), and timing (#15-16). Fourteen items contain numerical rating scales (#1-14) and two items have multiple-choice responses (#15-16). Respondents are asked to reflect on fatigue patterns for the past week. The MAF is a revision of the Piper Fatigue Scale, a 41-item measure of fatigue developed for research purposes and tested with oncology patients (Piper, Lindsey, Paul, & Weller, 1989).

Psychometric Properties

Psychometric properties of the original MAF (using visual analog scales) were tested with 133 respondents with rheumatoid arthritis (RA) (Tack, 1991; Belza et al., 1993). Cronbach's alpha was computed for the MAF to determine internal consistency. The computed value of Cronbach's alpha was 0.93, much higher than the criterion level of .70 for newly developed instruments. To determine concurrent validity of the MAF, respondents completed the Profile of Mood States (POMS). The POMS consists of 65 items measuring a broad, diverse set of mood states (McNair, Lorr, & Droppleman, 1971). Of particular interest are the two subscales of fatigue and vigor. Pearson correlations indicated that the MAF has convergent validity with the fatigue subscale and has divergent validity with the vigor subscale.

Scales on the MAF were changed to numerical rating scales and tested in 51 patients with RA and 26 age and gender matched controls (Belza, 1995). Cronbach's alpha was 0.93. The change in the response format facilitated the scoring of the MAF, did not require interpretation of unclear markings on the VAS, and did not adversely affect the instrument's reliability. Pearson correlations indicated the MAF has concurrent validity with the POMS fatigue subscale ($r=0.84$; $p<0.01$) and divergent validity with the POMS vigor subscale ($r=-0.62$; $p<0.01$). Stability of the MAF was determined by analyzing correlations of the MAF at three time points. The stability correlation ranged from a high of 0.73 for controls at time 1 to a low of 0.47 for the controls at time 3.

Since the initial testing of the MAF by Belza in healthy controls and patients with RA, the MAF has been tested in other chronic conditions such as HIV, multiple sclerosis, and cancer, and postpartum women. Refer to the list of published studies for the psychometric properties obtained in other samples.

Strengths of the MAF

The MAF scale is a good choice when selecting an instrument to measure fatigue in chronic illness as it is: easy to administer and score, relatively short in length, and assesses the subjective aspects of fatigue including quantity, degree, distress, impact, and timing. The questionnaire allows patients to omit activity items that do not apply, thus making it a more accurate assessment of the impact of fatigue on activities of daily living (ADLs).

Instructions

To yield reliable and valid responses, instructions are included on page one of the three-page instrument. The instructions read: "These questions are about fatigue and the effect of fatigue on how you have been feeling during the past week." If no fatigue is reported, if respondents answer item #1 by indicating they have not had any fatigue in the past week, then they are instructed to stop.

Administration

The MAF is self-administered. Respondents are given the questionnaire and asked to complete it. It takes less than five minutes to complete. Individuals who administer the instrument should verify respondents have answered all of the items.

Scoring

To calculate the Global Fatigue Index (GFI): Convert item #15 to a 0-10 scale by multiplying each score by 2.5 and then sum items #1, 2, 3, average #4-14, and newly scored item #15.

Scores range from 1 (no fatigue) to 50 (severe fatigue). Do not assign a score to items #4-14 if respondent indicated they "do not do any activity for reasons other than fatigue." If respondents select no fatigue on item #1, assign a zero to items #2-16. Item #16 is not included in the Global Fatigue Index

[See: GFI Scores Across Samples](#)

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