



INTRODUCTION & OBJECTIVES

MS Fatigue is the most frequent symptom affecting 65%-90% of MS patients, and is also reported as one of the most disabling symptoms impacting QoL more than physical aspects of MS, e.g. spasticity. However, the pathophysiology, and thereby treatment, of fatigue still remains uncertain. Dimethyl fumarate (DMF) is a recent oral DMT against relapsing remitting multiple sclerosis (RRMS) which is both anti-inflammatory and neuroprotective. However, no study has investigated changes of fatigue during treatment with DMF. To investigate fatigue in patients with relapsing remitting multiple sclerosis (RRMS) before and after treatment with DMF.

METHODS

Prospective phase IV trial with 52 newly diagnosed treatment naïve patients with RRMS. Fatigue was evaluated with Fatigue Scale of Motor and Cognitive Function (FSMC) and the Modified Fatigue Impact Scale (MFIS) at baseline (BL) after 3, 6, 12 and 24 months (given as lowered numbers after fatigue scales). We use Kruskal Wallis multiple comparison, Spearman linear regression, standard deviation given in brackets.

Patients RRMS	Female	Age (± SD)	EDSS (± SD)
N = 52	42 (80.8%)	33 ± 8.04	1.73 ± 0.91

Table 1. Baseline Demographics. Gender, Age and Expanded Disability Status Scale (EDSS) ± Standard Deviation at the time of inclusion.

RESULTS

- Patients were on average fatigued with following baseline values: MFIS_{BL} of 31.2(±20.4) and FSMC_{BL} of 46.7 (±20.8).
- MFIS scores demonstrated a significant reduction after treatment with DMF at;
 - MFIS₃: 7.85 (±12.20; p=0.003**)
 - MFIS₆: 7.75 (±15.59; p=0.0032**)
 - MFIS₁₂: 8.40 (±15.55; p=0.0015**)
 - MFIS₂₄: 10.25 (±10.92; p=0.000**)
- FSMC scores were decreased at follow-up: FSMC₃ of 3.25 (±12.07; p=0.096), FSMC₆: 3.42 (±13.17; p=0.096), FSMC₁₂: 3.67 (±15.73; p=0.133) and FSMC₂₄: 3.87 (±13.51; p=0.121), however not significant .
- Self-reported health perception correlated with levels of fatigue and subscales for motor and cognition:
 - MFIS (r=0.52, p<0.01*) and FSMC (r=0.53, p<0.01*).
- Self-reported health perception correlated with Beck's Depression Inventory Fast Screen
 - BDI-FS (r = 0.0474, p<0.01*)

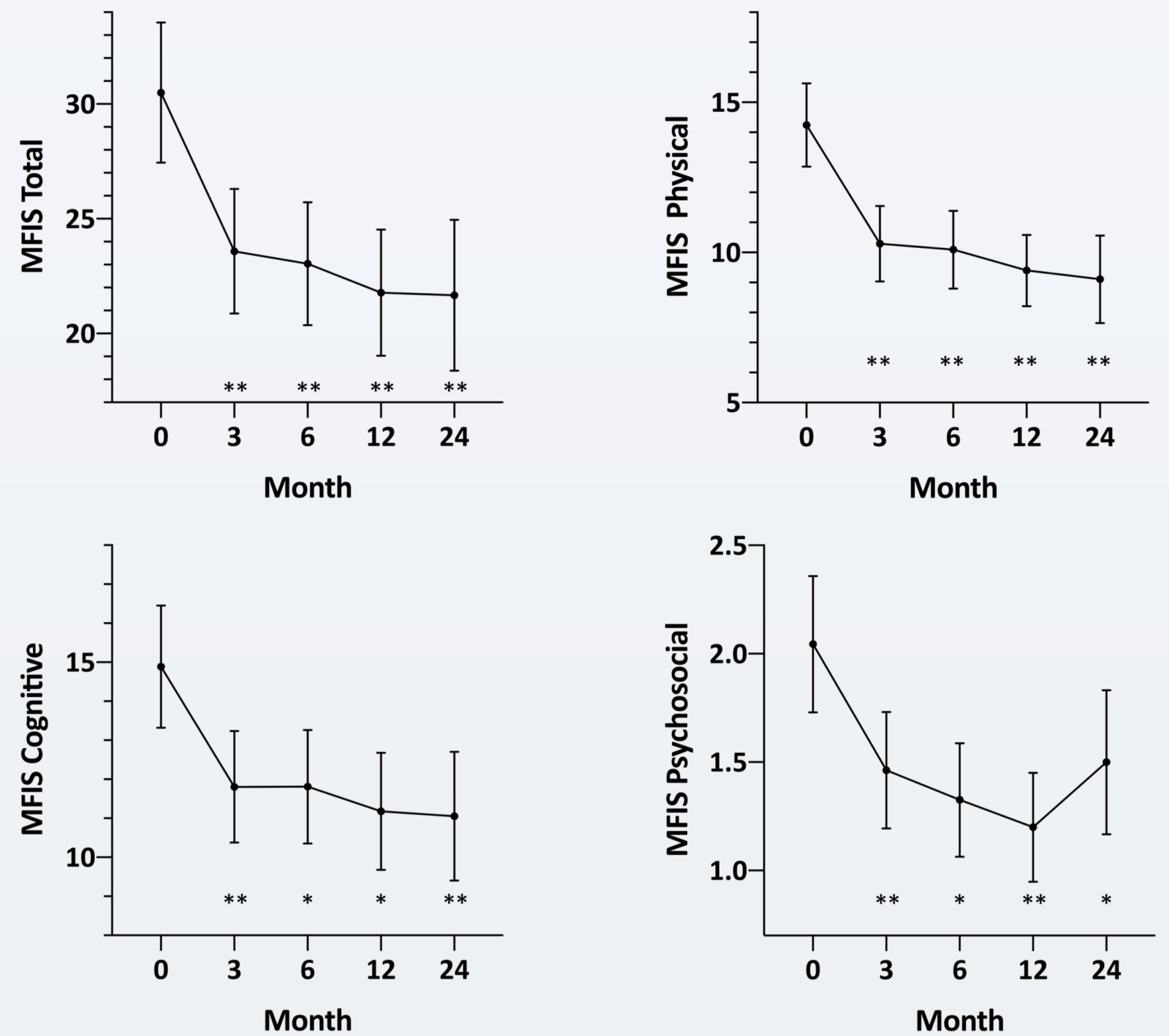


Figure 1. The Modified Fatigue Impact Scale (MFIS) mean score in total and in physical, cognitive and psychosocial subscores at baseline, 3, 6, 12 and 24months illustrated with error bars (Standard Error of the Mean). Significant mean decrease marked with * (p<0.05) and ** (p<0.01)

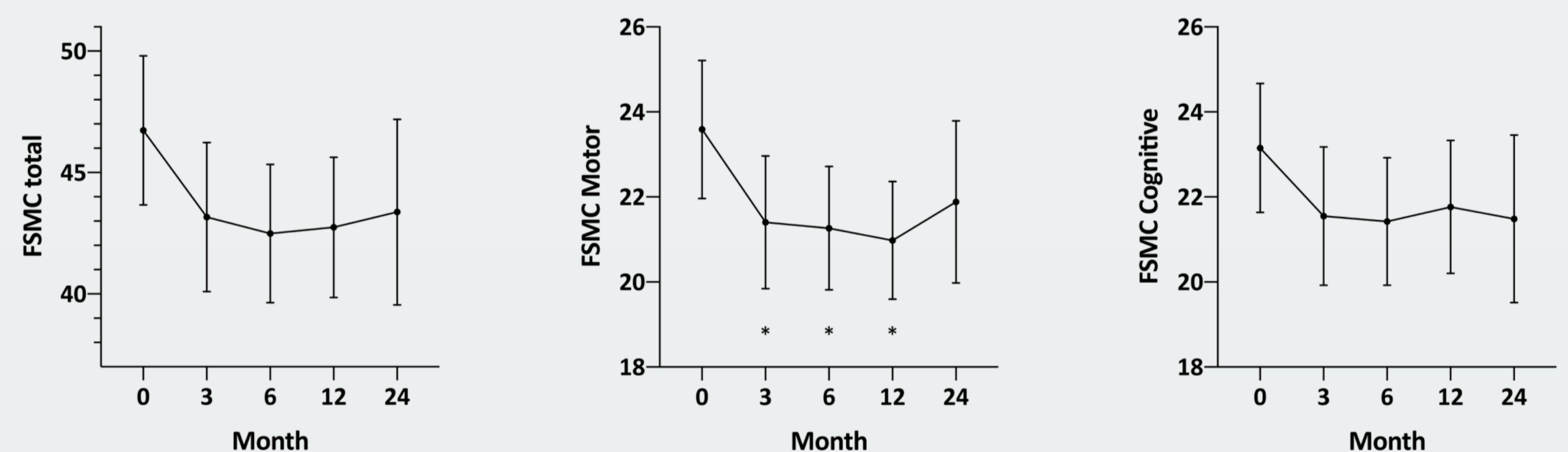


Figure 2. The Fatigue Scale for Motor and Cognitive functions (FSMC) – the total score, motor and cognitive subscores at baseline and month 3, 6, 12 and 24 are shown with error bars (Standard Error of the Mean). Significant mean decrease marked with * (p<0.05)

Changes in Motor, Cognitive and Psychosocial subscales of Fatigue – MFIS & FSMC

	Baseline	3months	6months	12months	24months
MFIS_{COGNITIVE}	15.28(±10.83)	12.33(±9.06)**	12.40(±9.26)*	12.30(±10.10)*	12.31(±9.79)**
MFIS_{PHYSICAL}	14.95(±9.51)	10.74(±7.97)**	10.80(±7.96)**	10.15(±7.92)**	9.94(±6.33)**
MFIS_{PSYCHOSOCIAL}	2.23(±2.19)	1.54(±1.73)**	1.42(±1.74)*	1.27(±1.81)**	1.66(±2.06)*
FSMC_{COGNITIVE}	22.96(±10.46)	21.55(±10.54)	21.22(±10.19)	21.76(±10.72)	21.48(±11.65)
FSMC_{MOTOR}	23.78(±10.85)	21.61(±9.97)*	21.27(±9.71)*	20.98(±9.47)*	21.88(±11.28)

Mean values with Standard Deviation. Significant mean decrease, p<0.05 * p<0.01**

CONCLUSION

MS fatigue improved significant after 3 months of treatment with DMF and reduction was sustained during treatment at up to 24months follow-up when measured by MFIS. FSMC showed a similar trend but results were, however, not significant. Self-reported outcomes are affected by mood and general health perception.

ACKNOWLEDGEMENTS

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