A real-world longitudinal study characterizing the impact of fatigue in adults with relapsing multiple sclerosis

Sellem L.[1], Laurent J.[1], Radoszycki L.[1]

1. Carenity, Online Patient Community, Paris, France

142203

INTRODUCTION

Around 900,000 adults in the United States (US) suffer from **multiple sclerosis** (MS), one of the most common progressive neurologic disease in young adults[1].

Most MS patients suffer from **fatigue**, which is one of the main causes of their impacted **quality of life**[2].

The Fatigue Symptoms and Impacts Questionnaire – Relapsing Multiple Sclerosis (FSIQ-RMS) is a disease-specific tool designed to assesses its impact on **quality of life** from a patient perspective.

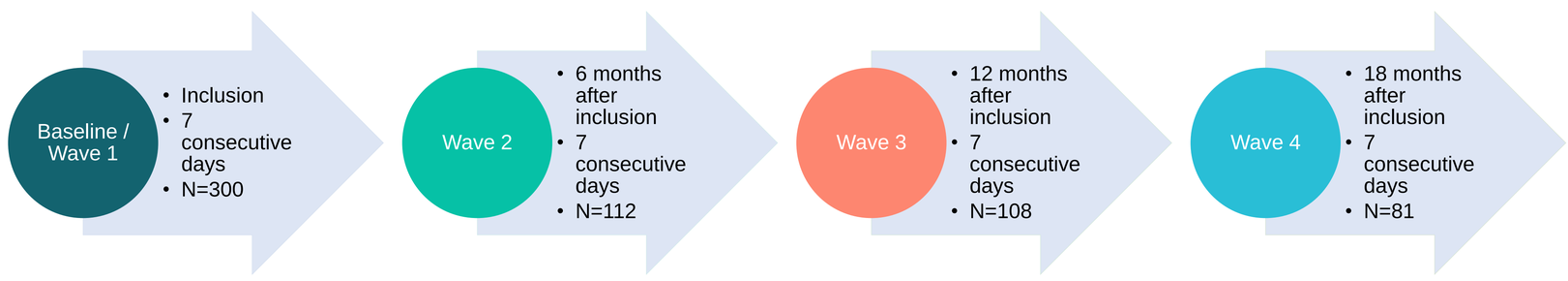
OBJECTIVE

This study aimed to identify the **factors** impacting **FSIQ-RMS** scores over time in **RMS patients** from the **US**.

METHOD

- Adult patients with **RMS** and a Patient Determined Disease Steps **(PDDS) below 5** (ambulatory patients), living in the **US** were recruited through **Carenity**[3], an online patient community, to complete a **7-day FISQ-RMS** symptom diary (daily recall) as well as socio-demographic and medical questionnaires.
- The **FSIQ-RMS** composed of 20 items addresses **MS fatigue**, rated for severity based on the mean daily ratings over, **7 days** and the corresponding impacts of fatigue on **3 subdomains**: physical, cognitive/emotional, and coping.
- The FSIQ-RMS domain scores range from 0-100 (higher score=greater severity).
- Follow-up FSIQ-RMS were collected at **6, 12** and **18 months**.

Fig. 1: Design: A longitudinal, non-interventional, prospective study



- Patients who responded to at least two waves (n=160) were included in a **longitudinal analysis** using **a multivariate linear mixed model** (random intercept and slope) to identify **risk factors** for a **higher FSIQ-RMS score** (fatigue-related symptom component). Risk factors were identified based on their univariate association with the FSIQ-RMS score followed by a **backward selection procedure**, keeping only those significantly and independently associated with the FSIQ-RMS score.

RESULTS

- **Five factors** were significantly and independently associated with the FSIQ-RMS **fatigue-related symptoms score**:
  - PDDS score at baseline,
  - Presence of fatigue-impacting factors (ex: personal issues, physical effort, work overload, change in medication…)
  - Fatigue treatment intake
  - Presence of anxiety/depression
  - Presence of pain
- **No significant time-effect** was observed in the final multivariate model, but a change over time was observed in sub-groups of patients.

Fig. 2: Evolution of FSIQ-RMS symptoms score by PDDS level at baseline. Symptoms scores are higher at baseline for patients with high PDDS and tend to meet over time (time-effect for low PDDS group, p=0.01, not significant for high PDDS)

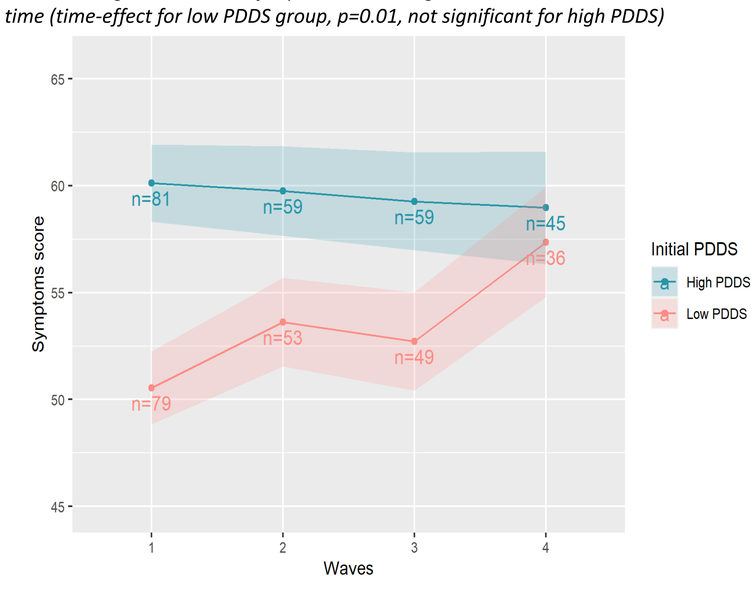


Fig. 3: Evolution of FSIQ-RMS symptoms score by number of fatigue impacting-factors. Patients having one or more than one factors impacting fatigue have significantly higher symptoms score (p-value=0.003 and 0.005 respectively, no time-effect)

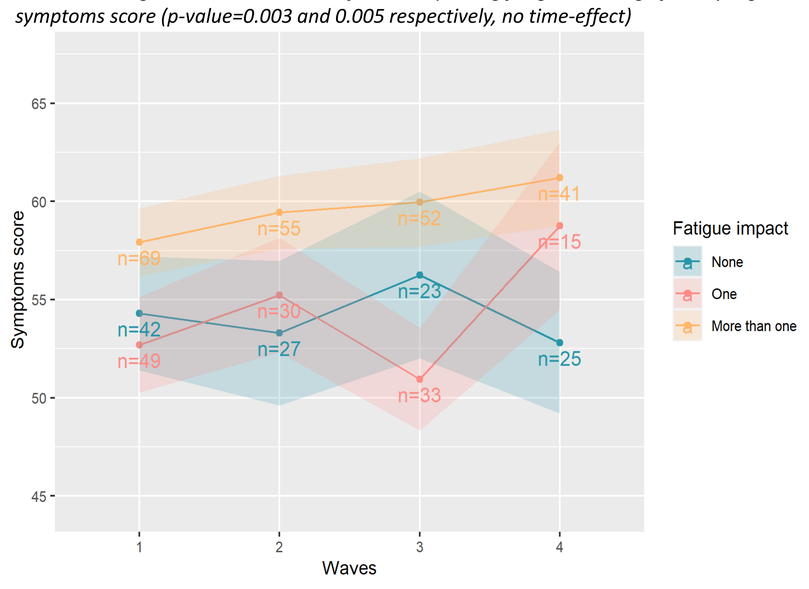


Fig. 4: Evolution of FSIQ-RMS symptoms scores by intake of treatment for fatigue. Symptoms scores are lower at baseline for patients who never took a treatment for fatigue and tend to meet over time (time-effect for never treated patients, p=0.035, not significant for always or at least once)

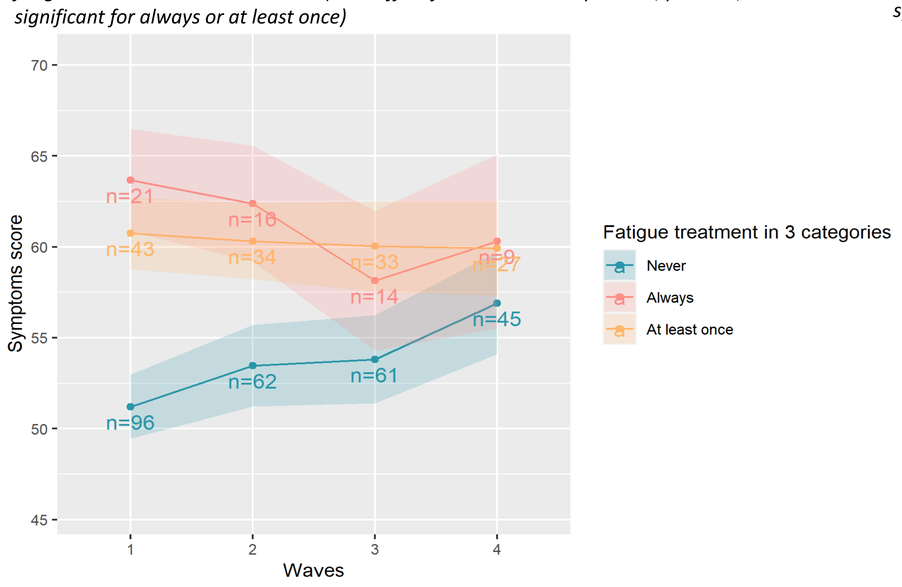


Fig. 5: Evolution of FSIQ-RMS symptom scores by anxiety/depression status. Patients not experiencing anxiety and/or depression have significant lower symptoms scores than anxious/depressed patients (p=0.002, no time-effect)

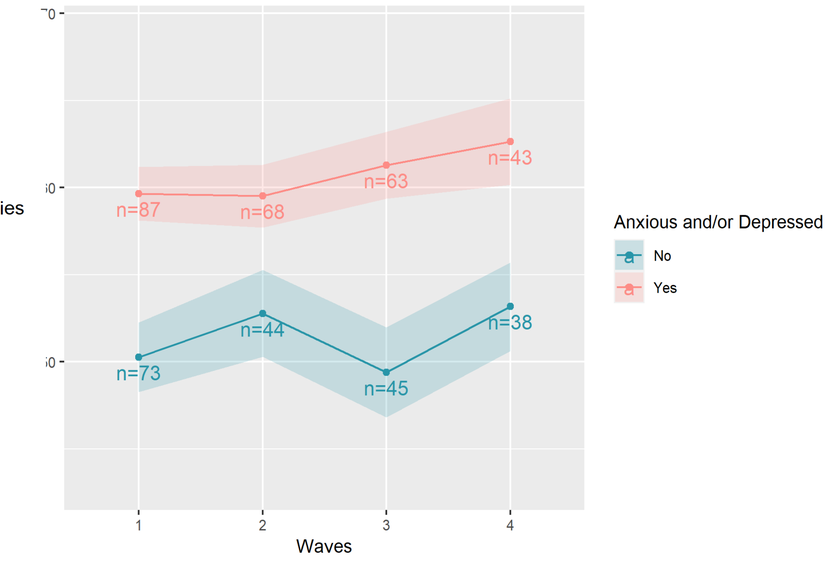
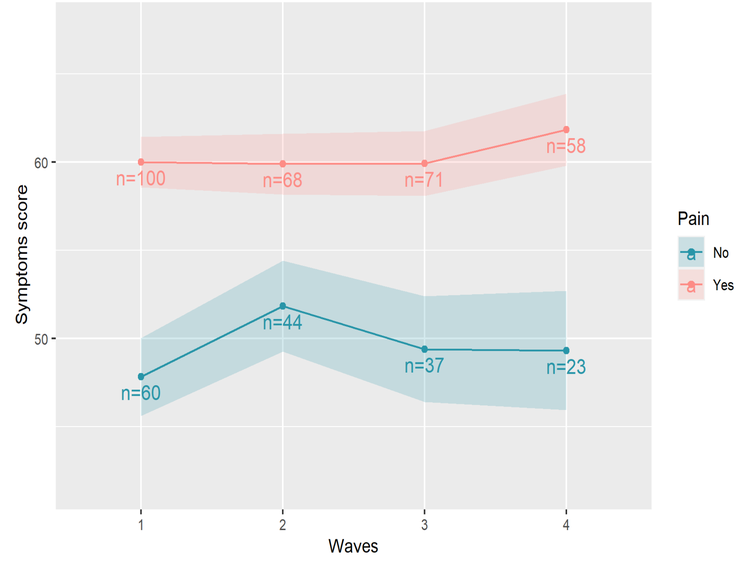


Fig. 6: Evolution of FSIQ-RMS symptom scores by presence of pain. Patients experiencing pain have significant higher symptoms scores than patients not experiencing pain (p=0.008, no time-effect)



CONCLUSIONS

- **Five factors** seemed to impact significantly **FSIQ-RMS fatigue-related symptom component scores** over time in this cohort of US RMS patients: **PDDS score** at baseline, presence of **fatigue impacting factors**, **fatigue treatment** intake, presence of **anxiety/depression** and **pain**
- **No** significant **time effect** was observed overall
- These results provide new insights into patients' perspective on the **impact of fatigue-related symptoms** and supports the integration of **patient-reported instruments** into clinical practice

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3. www,carenity.com

CONTACT INFORMATION

julie@carenity.com