# Quality of Life and Fatigue in Radiologically Isolated Syndrome

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## Introduction and Purpose

Radiologically isolated syndrome (RIS) is a demyelinating neurological disorder affecting young adults and factors that trigger a clinical event continue to be debated. As for multiple sclerosis (MS), disease activity and clinical course are unpredictable.
Women are twice as likely as men to be affected with RIS and previous studies demonstrated that inflammatory markers in CSF (OCB) or on brain or spinal MRI (T2 or gadolinium positive lesions) influence the rate of clinical conversion.
Cognitive functions can be affected with the same profile as in clinically isolated syndrome (CIS) or early MS. Fatigue and Quality Of Life have been evaluated in MS patients but have never been explored in RIS.
*We assessed the health-related quality of life (HRQOL) and fatigue of RIS patients at diagnosis and at 1 and 2 years follow-up in non-converted patients.*

## Methods

We have prospectively included patients with RIS and collected self-questionnaires of the health-related quality of life (HRQOL) and fatigue using respectively MSQOL-54 and Modified Fatigue Impact Scale (MFIS). Patients were previously explored with CSF, MRI and neurocognitive studies.
All the RIS patients were matched with controls and CIS patients for age and educational level.
The primary outcome measures were three summary scores derived from the MS Quality of Life- 54 (MSQOL-54): physical health composite (MSQOL- 54P), mental health composite (MSQOL-54M), and overall index (MSQOL-54O)

## Results

| Groups | RIS | CIS | controls |
|---|---|---|---|
| total | 30 | 30 | 30 |
| Gender (F/M) | 28/2 | 28/2 | 28/2 |
| Mean age +/- SD | 31 +/-6.8 | 32 +/-7.3 | 33 +/- 8.9 |
| **Marital status** | | | |
| Single n (%) | 12 (40%) | 11 (36.6%) | 15 (50%) |
| Married n (%) | 13 (43.3%) | 15 (50%) | 12 (40%) |
| Divorced/ separated n (%) | 5 (16.6%) | 4 (13.3%) | 3 (10%) |
| **Professional activity** | | | |
| Employed n (%) | 10 (33.3%) | 12 (40%) | 10 (33.3%) |
| Studying n (%) | 15 (50%) | 8 (26.6%) | 20 (66.6%) |
| Unemployed n (%) | 5 (16.6%) | 10 (33.3%) | 0 |

**Socio-demographic characteristics of study sample**

We included 30 RIS patients (28 women and 2 men, mean age: 32 years). Mean RIS age was 31 (SD:6.8, range 22–53) years. Mean education was 14.5 (SD:2.1) years. All were Caucasians. Mean follow up duration was 24.6 (SD:9.1) years.
Healthy volunteers were enrolled for descriptive purposes to determine which predictor variables deviated from normal. Controls were group-matched to patients on age (mean:33, SD:8.9, range 21–59), education (mean:15.4, SD:2.4), race and gender.
At baseline, patients with RIS score identically on HRQOL measures as compared with the controls. At one and two years time-point, they scored lower on HRQOL measures when compared with controls without statistically differences with CIS patients. The associations for fatigue with either or both physical and mental health composite summaries of HRQoL remained statistically significant between controls, RIS and CIS.
In RIS, factors that affect HRQOL are similar to those in other diseases and the general population and include age, sex, socioeconomic status, and symptoms such as fatigue. The fact that fatigue could be considered as a symptom of the infra clinical autoimmune CNS disease is raised.

Group (RIS vs. normal) differences on demographic factors were not significant by ANOVA and chi-square test. As expected, CIS patients reported lower quality of life on MSQOL-54P than controls and RIS at baseline ($p<0.001$).

| groups | RIS | CIS | controls |
|---|---|---|---|
| **Baseline** | | | |
| MSQOL-54P | 80.1+/-11.3 | 57.6+/-19 | 85.2+/-12.4 |
| MSQOL-54M | 81.3+/-10.6 | 64.8+/-21 | 84.1+/-11.1 |
| MSQOL-54O | 79.3+/-10.4 | 66.5+/-18.1 | 79.7+/-11.6 |
| MFIS/160 | 80+/-4 | 72+/-3 | 110+/-3 |
| **One Year** | | | |
| MSQOL-54P | 78.3+/-16 | 58.3+/-15.1 | 86.3+/-12.2 |
| MSQOL-54M | 76.1+/-11.4 | 65.3+/-16 | 84.3+/-10.3 |
| MSQOL-54O | 76.3+/-10.2 | 66.4+/-17.6 | 80.6+/-11.3 |
| MFIS/160 | 76+/-3 | 70+/-4 | 109+/-5 |
| **Two years** | | | |
| MSQOL-54P | 79.1+/-14 | 55+/-14.5 | 87.1+/-13.9 |
| MSQOL-54M | 75.3+/-12.8 | 66+/-13.8 | 85+/-12.7 |
| MSQOL-54O | 76.2+/-14.5 | 67.3+/-16.5 | 80.3+/-10.4 |
| MFIS/160 | 76+/-5 | 70+/-5 | 110+/-4 |

**MS-QOL and MFIS at baseline, one and two years**

## Conclusions

We suggest that fatigue in RIS patients can significantly impact quality of life, regardless of the disease-related physical disability. Health services and clinicians specializing in providing care to MS patients are recommended to assess the RIS patients level of fatigue and HRQOL. Effective interventions that target fatigue may help improve quality of life in RIS.

## References

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## Disclosures

Authors have no disclosures regarding this study

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