# Predictors of Unemployment in Patients with NMO: Characterization of a Global Cohort

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## Background & Objectives

- The symptoms and effects of NMO can greatly restrict a patient's employment opportunities, and directly impact their income source. Currently, there are few data for employment in NMO globally, particularly in middle- and low-income countries.
- **This prospective global cohort aims to characterize potential sociodemographic and clinical predictors of unemployment in a global cohort of patients with NMO.**

## Methods

- Physicians at neurology centers in Egypt, Malaysia, Iran, Venezuela, Kuwait, Colombia, Mexico and Guinea administered a REDCap-based survey to patients who
  1) have been diagnosed with NMO by a clinician,
  2) are 18 to 70 years old, and
  3) are AQP4 antibody positive, MOG antibody positive or double seronegative.
- The survey is available in 5 languages, and includes questions about:
  - individual and household demographic information
  - NMO diagnosis
  - current symptoms
  - employment history
- Enrollment for this interim analysis occurred between July 18th, 2022, and February 1st, 2023.
- Analyses of de-identified data were performed using Python, Minitab, and MATLAB.
- A logistic regression model was developed to identify potential associations with unemployment.

## Results

### 1 Demographic Information

- 221 patients enrolled, 176 female, and 45 male.
- 49% identified as Hispanic or Latino, 41% as Asian, 32% as Middle Easter, 29% as Caucasian, and 2% as Black or African American.

### 2 NMO History and Symptoms

- On average, patients were diagnosed with NMO at 34 years old, and had had 6.7 attacks since.
- 56.6% of patients were AQP4-positive, 3.2% were MOG-positive, and 40.2% were double seronegative.
- 88% of patients reported being affected by fatigue or pain, and 61% experienced both.
- Fatigue was cited as the cause of reduced or interrupted work for 53%, while 52% of patients said pain was an impediment to their work.

### 4 Limitations

- Controls for patients without NMO must be incorporated to future models.
- Variables are often self-reported
- Data collection is ongoing in additional countries; the full cohort is not yet represented by these results.

### 3 Logistic Regression Analysis

**Table 1:** Logistic regression analysis of variables associated with employment pre- and post-NMO diagnosis

| Outcome | Predictors | Logistic Regression Analysis | |
|---|---|---|---|
| | | Odds ratio | *p*-value |
| Employed pre-diagnosis | Sex | 0.664 | 0.739 |
| | Age | 0.355 | 0.234 |
| | ≥ 12 yrs formal education | 0.614 | 0.024* |
| Employed post-diagnosis | Sex | 0.323 | 0.045* |
| | Age | 0.378 | 0.094 |
| | Fatigue frequency | 0.338 | 0.045* |
| | Pain | 0.362 | 0.085 |
| | Visual loss | 0.472 | 0.739 |
| | Spinal cord disease | 0.600 | 0.234 |
| | ≥ 12 yrs formal education | 0.817 | 0.024* |

* $p \leq 0.05$

- Patients experiencing fatigue frequency above the median (2 or "Sometimes") were 55% less likely to be employed (p = .045).
- Post-NMO diagnosis, women were 68% less likely to be employed than men (p = .045).
- Patients with over 12 years of formal education (High School and above) were 4 times more likely to be employed post-diagnosis than patients with less than a High School education.

## Conclusions

**Female gender, less than a High School education, and higher fatigue frequency were found to be associated with unemployment in patients with NMO.**

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