

# Variation in employment status among people with MS in the United States, United Kingdom and Germany

P4.2-057

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## INTRODUCTION

- Physical and cognitive impairments lead to high rates of unemployment in MS
- The rate of unemployment for those with MS varies by age and country<sup>1</sup>
- Variability in unemployment rates across countries may reflect differences in health systems, levels of support and social policies regarding employment accommodations

## OBJECTIVE

- To compare employment rates among people with MS living in three countries with different health systems

## METHODS

- We included working age participants (18 - 62 years) from 3 registries:
  - North American Research Committee on Multiple Sclerosis (NARCOMS) Registry
  - UK MS Register (UK-MS)
  - German MS Register (GMSR)
- A minimal dataset was developed for data captured across the registries.
- Retrospective data harmonization followed the Maelstrom guidelines
- Harmonization of the following covariates and employment outcomes was conducted:
  - Demographics (age, gender)
  - Disability status was measured using the:
    - Patient Determined Disease Steps<sup>2</sup> (PDDS) in NARCOMS (PDDS 0-1: mild, PDDS 2-4: moderate, or PDDS 5-8: severe)
    - MS Impact Scale<sup>3</sup> (MSIS) in UK-MS
    - Expanded Disability Status Scale<sup>4</sup> (EDSS) in GMSR (EDSS 0-2.5: mild, EDSS 3-5.5: moderate, or EDSS ≥ 6: severe)
- Employment Outcomes
  - Employed (full-time or part-time) vs not working
- Differences in employment were summarized overall, by demographics and disability status for each registry, and compared using chi square tests

## RESULTS

- Overall employment rates were statistically significantly higher for GMSR (66.8%) compared to the UK-MS (48.1%) and NARCOMS (42.7%,  $p < 0.001$ )

Table 1. Characteristics of Participants by Registry

	NARCOMS (n=5436)	UK-MS (n=10529)	GMSR (n=15046)
Female, n (%n)	4514 (83.0)	7830 (74.4)	10809 (71.8)
Age, mean (SD)	52.5 (7.9)	50 (9.7)	44 (10.5)
Disability Status, n (%n)			
Mild	2459 (45.5)	1495 (14.7)	10483 (69.7)
Moderate	1432 (26.5)	4651 (45.8)	3821 (25.4)
Severe	1517 (28.1)	4000 (39.4)	740 (4.9)

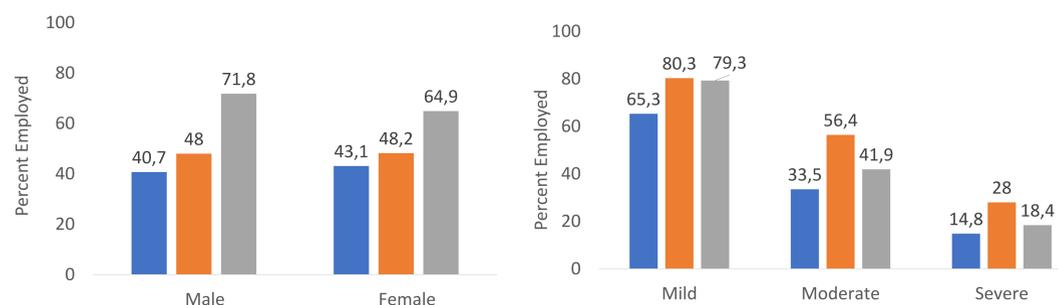


Figure 1. Employment Rates by Gender (%)

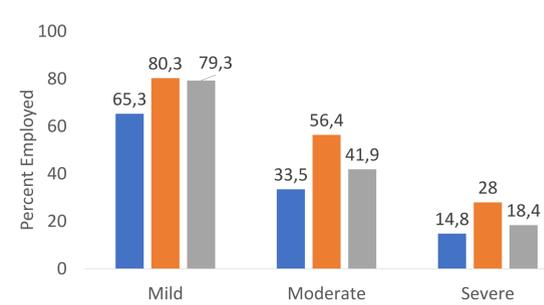


Figure 2. Employment Rates by Disability Status (%)

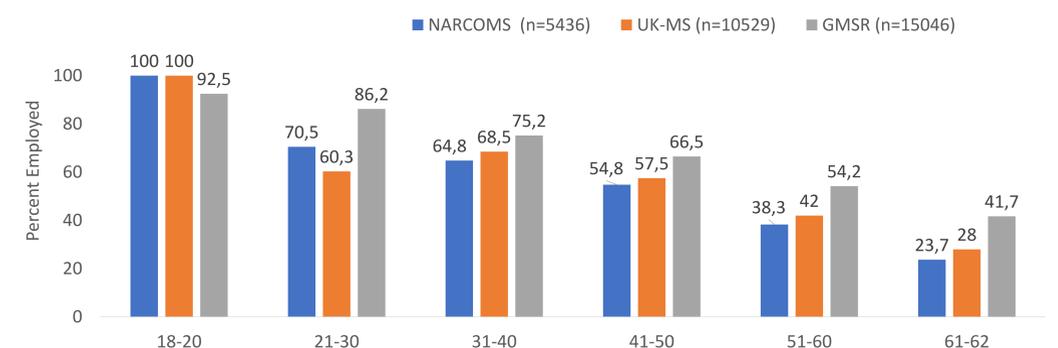


Figure 3. Employment Rates by Age (%)

## CONCLUSION

- Employment rates of participants varied across countries
- GMSR had higher rates of employment overall, and stratified by gender and age
- Employment rates by disability status were less consistent across the registries, potentially due to using different measures to assess disability level

## REFERENCES

- Kobelt G, Thompson A, Berg J, et al. New insights into the burden and costs of multiple sclerosis in Europe. *Mult Scler* 2017; 23: 1123–1136.
- Hohol MJ, Orav EJ, Weiner HL. Disease steps in multiple sclerosis: a simple approach to evaluate disease progression. *Neurology* 1995;45:251-5
- Hobart J, Lamping D, Fitzpatrick R, Riazi A, Thompson A. The Multiple Sclerosis Impact Scale (MSIS-29): a new patient-based outcome measure. *Brain* 2001;124:962–973.
- Kurtzke JF. Rating neurologic impairment in multiple sclerosis: an expanded disability status scale (EDSS). *Neurology* 1983;33:1444–1452.

## DISCLOSURES

Amber Salter: Nothing to disclose  
 Alexander Stahmann: Nothing to disclose  
 Jeff Rodgers: Nothing to disclose  
 Janina Schrader: Nothing to disclose  
 Richard Nicholas: Biogen: honoraria for speaking, advisory boards. Biogen, Novartis and Roche participating in clinical research.  
 Ruth Ann Marrie receives research funding from CIHR, the National MS Society, the MS Society of Canada, the MS Scientific Research Foundation, Research Manitoba, the Consortium of MS Centers, Crohn's and Colitis Canada and the Waugh Family Chair in Multiple Sclerosis  
 Rod Middleton: Nothing to disclose

## ACKNOWLEDGEMENT

GMSR is a project of the German MS Society. It is supported by the German MS Society's Trust and the MS Society itself. In 2018, Merck and Novartis supported the Register's development with grants.

The UK MS Register is funded by the MS Society and operated and managed by Swansea University Medical School

NARCOMS is a project of the Consortium of Multiple Sclerosis Centers (CMSC).