



# Exploring sample bias in a longitudinal disability survey study with high retention rates

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## Introduction and Objectives

Longitudinal survey studies are important tools that can be used to evaluate causal factors that impact health outcomes. However, attrition is a significant concern for most longitudinal studies and can lead to sample bias that may impact results and conclusions.

The **objectives** of this study were to:

- Explore potential bias in a longitudinal study of individuals with multiple sclerosis (MS) and spinal cord injury (SCI) that had very high retention rates between measurement time points;
- Discuss the implications of bias for this and other studies of disability samples.

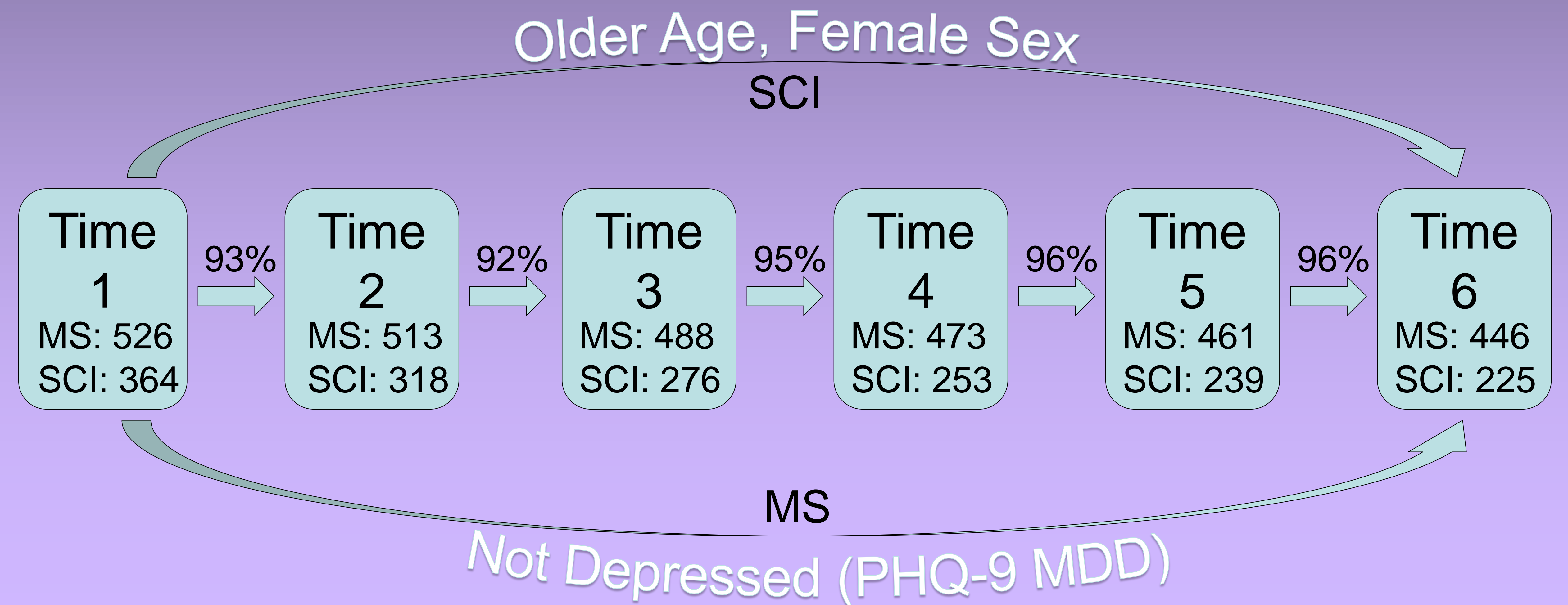
## Methods

**Study Population:** Individuals with MS and SCI recruited from a variety of community sources.

**Survey:** A mailed self-report survey which primarily assessed pain, fatigue, and depression, but included a number of other health domains. Surveys were mailed every 4 months for 20 months, and individuals were paid \$25 for each survey, with an extra \$75 bonus given for completion of all 6 surveys.

**Analyses:** Logistic regression was used to identify variables at time 1 that predicted dropout status by time 6. Regression analyses were run individually on MS and SCI samples as well as on the combined sample. Variables explored included SF8 physical, SF8 mental, average pain, major depression, fatigue, sleep problems, duration of disease, age, and sex.

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Summary of non-uniform dropout by depression, age, and sex in MS & SCI

	Remain in at T6	Dropped by T6
In Persons with MS		
% Depressed at T1	14.6%	28.6%
In Persons with SCI		
Mean Age at T1	45.9	43.0
% Female at T1	38.2%	27.4%

## Results

In the combined sample, older age, female sex, and not being depressed were associated with continued participation in the study. Overall, of those who were depressed at Time 1, 36% dropped by Time 6 compared to 26% of non-depressed persons.

In MS, depression was the only significant factor while in SCI, age and sex were the only significant factors.

The overall retention rate for the study was 72.5%, and between time points averaged 95.3%.

## Discussion

- Even with high overall retention, significant sample bias can occur over time.
- Monetary incentives can reduce sample attrition but are not enough to eliminate bias.
- In these and other disability populations, additional efforts may be needed to encourage younger persons, men, and those with depression to continue to participate in longitudinal studies.
- Future analyses of these longitudinal data need to consider the impacts of non-random attrition in the sample.