



# Assessing variables associated with sleep problems and use of sleep medications in multiple sclerosis

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## Introduction and Objectives

Sleep disturbances are common in persons with multiple sclerosis (MS), though research to date has primarily focused on the relationship between fatigue and sleep. In order to improve treatment of sleep disorders in MS, a better understanding of other factors that contribute to MS sleep disturbance and use of sleep medications in this population is needed.

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

- Report use of over the counter (OTC) and prescription sleep medications in persons with MS;
- Identify and evaluate relative contributions of factors associated with sleep problems in persons with MS.



## Multiple Linear Regression Results

Model Predictor	Coefficient	Standard Error	Standardized Beta	t-score	p-value	Final Model Adjusted R <sup>2</sup>
						0.45
						R <sup>2</sup> Contribution
Depression	1.47	0.23	0.33	6.51	<0.001	0.329
Leg Cramps	3.44	0.80	0.18	4.30	<0.001	0.039
Age	-0.28	0.07	-0.15	-3.80	<0.001	0.030
Pain	0.96	0.27	0.16	3.63	<0.001	0.029
Male Sex	4.44	1.69	0.08	2.63	0.009	0.005
Fatigue	0.15	0.06	0.13	2.41	0.016	0.008
Duration	-0.19	0.09	-0.1	-2.29	0.023	0.005
Nocturia	3.61	1.61	0.09	2.24	0.025	0.004

## Methods

**Study Population:** A community dwelling sample of individuals with MS (N=473) from Washington State (USA) involved in an ongoing longitudinal survey study.

**Survey:** A mailed self-report survey which included the medical outcomes study sleep measure, the PHQ-9 (depression), the MFIS (fatigue), and other common symptom measures. Questions about medication use were generated by study authors.

**Analyses:** Multiple linear regression was used to identify factors associated with sleep and after a final model was identified individuals predictors were entered in consecutive t-score order to identify relative R<sup>2</sup> contributions.

Depression explained substantially more variance in sleep problems than any other variable in the model, including fatigue.

Modifiable factors that may contribute to sleep problems in MS include depression, leg cramps, pain, fatigue, and frequent urination.

## Discussion

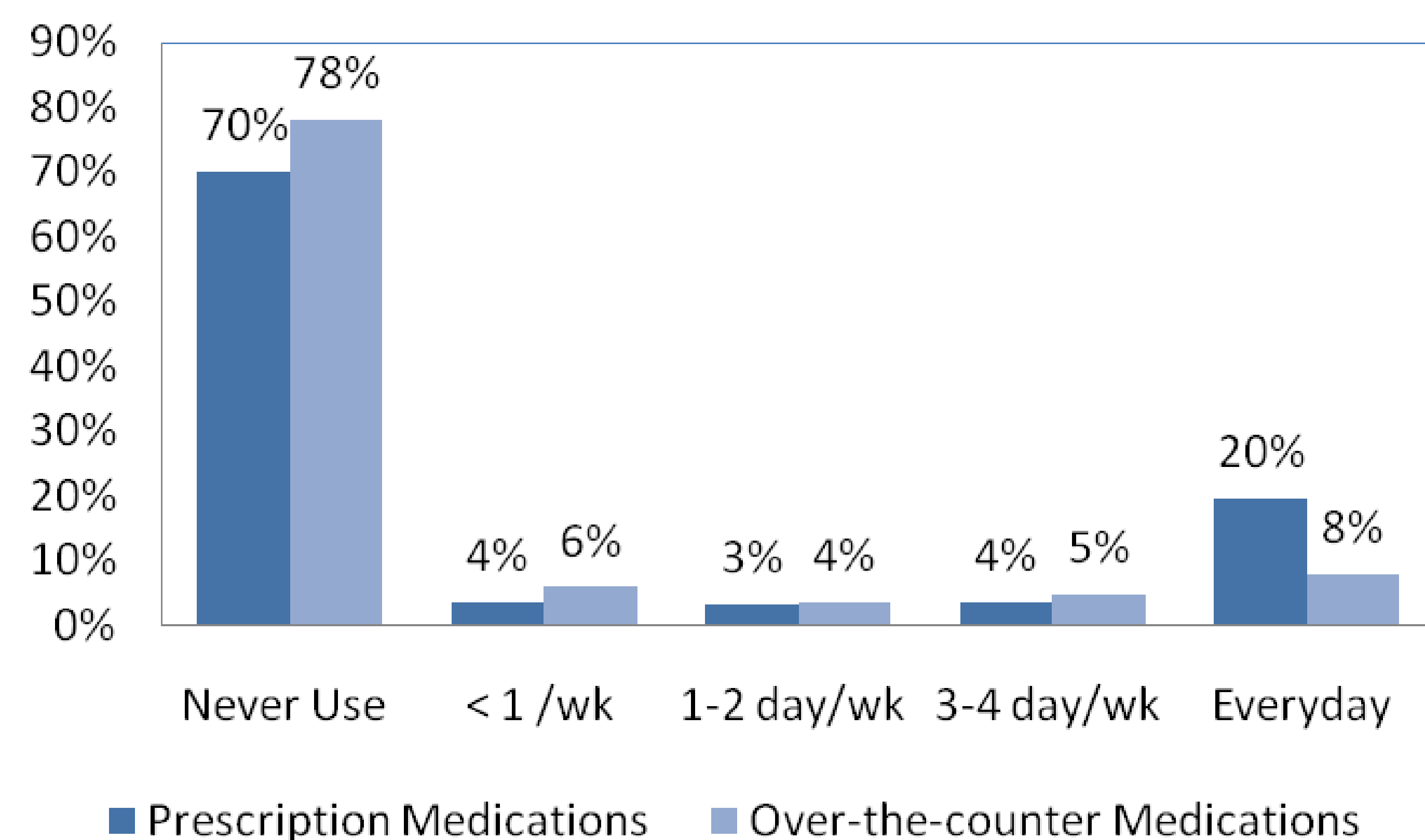
This paper is a first step toward examining factors that can mitigate the impact of poor sleep on quality of life in MS.

In this study 36% of individuals reported using prescription or over the counter sleep medications at least 1–2 times a week. This is a considerably larger percentage than the level reported in the general population.

This study also suggests that, as is the case in the general population, treatment of sleep problems should be considered in concert with treatment for depression, and that individuals with MS and depression should be assessed for sleep disorders by their treating physician.

*Note: These results have been published in the journal Clinical Epidemiology. See Bamer AM, Johnson KL, Amtmann DA, Kraft GH. Clin Epidemiol. 2010 May 1;2010(2):99-106, or contact Mrs. Bamer at adigiaco@u.washington.edu.*

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### Medication Use Summary

The majority of participants did not use OTC (78%) or prescription (70%) sleep medications.

Individuals who used prescription medications tended to use them every day with 19.5% of the sample reporting everyday use and only 10.6% reporting intermittent use