

# No Rest for the Depressed: A 2016 BRFSS Analysis

Andrew Broadway<sup>1</sup>, Maggie McCarter<sup>1</sup>, John Dickey<sup>2</sup>

<sup>1</sup>. Department of Epidemiology and Biostatistics, University of South Carolina(USC), 2. School of Nursing, Eastern Michigan University

## Background

- A few studies have suggested that deviation from normal hours of sleep, both in deficiency and in excess, is associated with poor health outcomes, including depression.
- However, excess sleep as an outcome of depression has been rarely assessed.

## Research Question

- Is depression associated with bidirectional deviation from normal sleep hours among adults in South Carolina (SC)?



UNIVERSITY OF  
**SOUTH CAROLINA**

## Methods

- The 2016 Behavioral Risk Factor Surveillance System (BRFSS):
  - Telephone-based health behavior survey of adults 18 + years of age.
- Depression status was determined by the response to the question, **Has a doctor, nurse, or other health professional ever told... you that you have a depressive disorder, including depression, major depression, dysthymia, or minor depression?**
- Hours of sleep were determined by the response to the question, **On average, how many hours of sleep do you get in a 24-hour period?**
  - **Inadequate sleep:** <7 hours of sleep
  - **Excess sleep:** 10+ hours of sleep
  - **Adequate sleep:** 7-9 hours
- **Adjusted model controlled for:**
  - Age
  - Race
  - Sex
  - BMI category
  - Exercise in the past month
- **Survey logistic regression** was used to obtain crude odds ratios (OR) and adjusted odds ratios (aOR) and their associated 95% confidence intervals (CI).

## Results

**Table 1. Inadequate Sleep by Depression Status: 2016 BRFSS**

Undersleeping		Oversleeping	
Crude Model	OR: 1.88 (95% CI: 1.63-2.16)	Crude Model	OR: 2.0 (95% CI: 1.51-2.65)
Adjusted Model*	aOR: 1.87 (95% CI: 1.61-2.17)	Adjusted Model*	aOR: 1.97 (95% CI: 1.45-2.68)

\*adjusted for age, race, sex, BMI category, and exercise in the past month

- People who reported having a diagnosis of depression had nearly twice the odds of sleeping below 7 hours.
- And had twice the odds of sleeping above 10 hours, as compared to people not diagnosed.

## Discussion

- Consistent with existing literature, we found depression to be associated with both excess sleep and inadequate sleep in SC adults.
- Depression appears to be associated with bidirectional deviation from normal sleep hours.

## Limitations

- The physiological mechanisms behind sleep are not well understood and inadequate sleep may plausibly contribute to depression, resulting in reverse causality.
- Temporal associations are limited due to the nature of the BRFSS dataset.
- Categorizing hours of sleep is a limited metric for inferring overall sleep quality.

## Possible Public Health Implications

- While sleep hygiene, and healthy sleep behaviors are important for obtaining adequate sleep, hypersomnia and insomnia are common symptoms of depressive disorders. It is not clear how the sleep wake cycle specifically impacts, or is impacted by depression. However, given the associated physiological risks of poor sleep, emphasizing better care of patient mental health, in this case, depression, may be an effective means for patients to improve on physical health.
- Future BRFSS studies on inadequate sleep may benefit from differentiating between normal and excessive sleep, as excess and inadequate sleep had similar risk, which could result in bias.

## References

Franzen PL, Buysse DJ. Sleep disturbances and depression: risk relationships for subsequent depression and therapeutic implications. *Dialogues in Clinical Neuroscience*. 2008;10(4):473-481.

Dauvilliers Y, Lopez R, Ohayon M, Bayard S. Hypersomnia and depressive symptoms: methodological and clinical aspects. *BMC Medicine*. 2013;11:78. doi:10.1186/1741-7015-11-78.

Qaseem A, Snow V, Denberg TD, Forciea MA, Owens DK. Clinical Efficacy Assessment Subcommittee of American College of Physicians. Using second-generation antidepressants to treat depressive disorders: a clinical practice guideline from the American College of Physicians [published correction appears in Ann Intern Med. 2009;150(2):148]. *Ann Intern Med*. 2008;149(10):725–733.