

Sleep Duration and Depressive Symptoms in U.S. Adults

NHANES 2017-2018 (Survey-Weighted Cross-Sectional Analysis)

1 Overview

This report examines the association between usual sleep duration on weekdays/workdays and clinically relevant depressive symptoms (PHQ-9 ≥ 10) among U.S. adults using NHANES 2017-2018.

Notes:

- Data files are downloaded from the official CDC NHANES Public DataFiles endpoint and cached under `data/raw/`.
- The analysis uses the NHANES complex survey design (SDMVPSU/SDMVSTRA) with interview weights (WTINT2YR).

2 Run analysis pipeline

```
.libPaths(unique(c(Sys.getenv("R_LIBS_USER"), .libPaths())))

study_dir <- normalizePath(file.path(getwd(), ".."), winslash = "/", mustWork = TRUE)
analysis_runner <- file.path(study_dir, "analysis", "run_analysis.R")

stopifnot(file.exists(analysis_runner))

system2("Rscript", args = analysis_runner)
```

3 Results summary

```
summary_path <- file.path(study_dir, "results-summary.md")
cat(readLines(summary_path), sep = "\n")
```

Results Summary

Cycle: 2017-2018

Analytic sample (unweighted): N = 2,944 adults (18+), non-pregnant, complete-case for model.

Outcome: clinically relevant depressive symptoms (PHQ-9 \geq 10).

Exposure: usual sleep duration on workdays/weekdays (hours) and categories (<6, 6-<7, 7-<9,

Weighted prevalence of PHQ-9 \geq 10 by sleep duration category:

- <6: 14.9% (95% CI 11.7%, 18.0%)
- 6-<7: 8.7% (95% CI 4.0%, 13.4%)
- 7-<9: 6.1% (95% CI 4.7%, 7.5%)
- \geq 9: 12.8% (95% CI 9.8%, 15.7%)

Adjusted model (sleep categories; ref 7-<9):

- relevel(sleep_cat, ref = "7-<9")<6: OR 2.51 (95% CI 1.65, 3.80)
- relevel(sleep_cat, ref = "7-<9")6-<7: OR 1.41 (95% CI 0.78, 2.53)
- relevel(sleep_cat, ref = "7-<9") \geq 9: OR 1.87 (95% CI 1.37, 2.55)

Figure: figures/sleep_hours_vs_dep10_curve.png

4 Figure

Adjusted association between sleep duration and depressive symptoms
Survey-weighted logistic regression; reference covariates set to weighted means/modes

