**Name**: Insufficient Sleep

**Short Description**: Percent of adults reporting sleeping less than 7 hours on average (calculated as a crude prevalence).

**Data Source(s)**:

* Name: The Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS), accessed via the PLACES Project Data Portal

Link to Source: <https://chronicdata.cdc.gov/browse?category=500+Cities+%26+Places&sortBy=newest&utf8>

**Year(s):** 2018

**Source Geographic Level**: Zip Code Tabulation Area (ZCTA)

**Stratification**: Not available

**Selection Rationale:** Chronic sleep deficiency has been linked to various mental health conditions. This measure also contributes to measuring neighborhood level social determinants of health linked to mental wellness such as neighborhood safety and environment.

**Strengths and Limitations**

* **Strengths**:
  + [*Importance*] Short sleep duration has been found to be associated with increased incidence of mental disorders and with a chronic trajectory of mental health symptoms.[[1]](#footnote-2),[[2]](#footnote-3) Additionally, the prevalence of short sleep duration among working American adults is increasing over time.[[3]](#footnote-4)
  + [*Relevance and Usability*] An adverse and unsafe neighborhood environment within a community has been linked with short sleep and low sleep efficiency, suggesting that environmental factors in a community can impact ability to achieve sufficient sleep.[[4]](#footnote-5)
  + [*Equity*] Various studies have found that rates of short sleep are higher among Black Americans than among other racial groups, emphasizing the importance of measuring insufficient sleep for this population.[[5]](#footnote-6)
  + [*Feasibility*]BRFSS data is collected every year, and PLACES integrates the new data yearly. The data is easily downloadable.
  + [*Scientific Soundness*]The methods used by the CDC to generate these small area estimates accounts for the associations between individual health outcomes, individual characteristics, and spatial contexts. CDC’s internal and external validation studies confirm strong consistency between small area estimates and direct BRFSS survey estimates at state and county levels. [[6]](#footnote-7)
* **Limitations**:
  + [*Relevance and Usability*] This measure only provides information about prevalence of short sleep duration and does not measure other sleep related issues such as insomnia symptoms, poor sleep quality, or long sleep duration (which can also be linked to mental health illnesses such as depression[[7]](#footnote-8)).
  + [*Relevance and Usability*]This measure is a model-based estimate[[8]](#footnote-9), so it may be difficult to interpret on its own.
  + [*Scientific Soundness*]This measure is self-reported and depends on the accuracy of the person surveyed.
  + [*Scientific Soundness*]Age adjusted prevalence is not available at the census tract level, so this data is reported as a crude prevalence.

**Default Weight**:2.5% (*see Weighting Documentation for details on how default weights were assigned*)

**Calculation**:

\*Where insufficient sleep is defined as less than seven hours, on average, during a 24-hour period.

\*\* Denominator excludes those who refused to answer, had a missing answer, or answered “don’t know/not sure”.[[9]](#footnote-10)

**Methods**:

BRFSS estimates the crude prevalence based on self-reports using small area estimation (SAE) and multilevel regression and poststratification (MRP) which links geocoded health surveys and high spatial resolution population demographic and socioeconomic data.[[10]](#footnote-11)

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2. Biddle, D. J., Hermens, D. F., Lallukka, T., Aji, M., & Glozier, N. (2019). Insomnia symptoms and short sleep duration predict trajectory of mental health symptoms. *Sleep medicine*, 54, 53–61. <https://doi.org/10.1016/j.sleep.2018.10.008> [↑](#footnote-ref-3)
3. Khubchandani, J., Price, J.H. (2020) Short Sleep Duration in Working American Adults, 2010–2018. *J Community Health* 45, 219–227. <https://doi.org/10.1007/s10900-019-00731-9> [↑](#footnote-ref-4)
4. Simonelli, G., Dudley, K. A., Weng, J., Gallo, L. C., Perreira, K., Shah, N. A., Alcantara, C., Zee, P. C., Ramos, A. R., Llabre, M. M., Sotres-Alvarez, D., Wang, R., & Patel, S. R. (2017). Neighborhood Factors as Predictors of Poor Sleep in the Sueño Ancillary Study of the Hispanic Community Health Study/Study of Latinos. *Sleep*, 40(1), zsw025. <https://doi.org/10.1093/sleep/zsw025> [↑](#footnote-ref-5)
5. Kingsbury, J. H., Buxton, O. M., & Emmons, K. M. (2013). Sleep and its Relationship to Racial and Ethnic Disparities in Cardiovascular Disease. *Current cardiovascular risk reports*, *7*(5), 10.1007/s12170-013-0330-0. <https://doi.org/10.1007/s12170-013-0330-0> [↑](#footnote-ref-6)
6. Centers for Disease Control and Prevention. (2020, December 8). *PLACES* *Methodology*. <https://www.cdc.gov/places/methodology/> [↑](#footnote-ref-7)
7. Patel, S. R., Malhotra, A., Gottlieb, D. J., White, D. P., & Hu, F. B. (2006). Correlates of long sleep duration. *Sleep*, 29(7), 881–889. <https://doi.org/10.1093/sleep/29.7.881> [↑](#footnote-ref-8)
8. Centers for Disease Control and Prevention. (2020, December 8). *PLACES* *Methodology*. <https://www.cdc.gov/places/methodology/> [↑](#footnote-ref-9)
9. Centers for Disease Control and Prevention. (2020, December 8). *PLACES Measure Definitions*. <https://www.cdc.gov/places/measure-definitions> [↑](#footnote-ref-10)
10. Centers for Disease Control and Prevention. (2020, December 8). *PLACES Methodology*. <https://www.cdc.gov/places/methodology/> [↑](#footnote-ref-11)