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## Research Question:

How does sleep deprivation vary across the U.S.?

- Many U.S. adults sleep less than the recommended seven hours per night, and national data shows that about one-third experience insufficient sleep. (Archive App | CDC)
- Repeated patterns of insufficient sleep can lead to a variety of health issues such as stroke, obesity & high blood pressure (“Can Lack of Sleep Make You Sick?”).
- Research suggests that sleep deprivation isn’t evenly spread across the country—some regions consistently report worse sleep than others.
- A recent study by Pronk et al. (2024) found strong regional patterns, with the Deep South showing higher levels of insufficient sleep compared to areas like the Far West.
- These regional differences highlight how sleep health is shaped by social, environmental, and cultural factors, not just individual habits.
- Understanding these patterns can help inform targeted public health strategies to improve sleep across the U.S.

## Methods



- Downloaded datasheet from CDC website.
- Grouped counties by state.
- Calculated mean and standard deviation per state.
- Calculated confidence intervals.
- Made a histogram of sleep deprivation Prevalence vs number of counties to see overall patterns.
- Using the mean of sleep deprivation per state made a graph.
- Grouped states into regions to notice geographic distribution patterns nationwide, found minimum and maximum values, calculated standard deviation and mean and depicted them in a table.
- Analyzed our findings.

## Results

Regions	Mean Prevalence (%)	Lowest Value	Highest Value	Standard Deviation
South	36.46	DC (31.70)	WV (40.58)	2.35
Northeast	33.19	VT (30.18)	PA (36.11)	1.71
Midwest	32.42	MN (29.29)	OH (37.35)	2.52
West	32.17	CO (28.93)	NV (35.34)	1.84

Table 1. Regional Differences in Sleep Deprivation Patterns

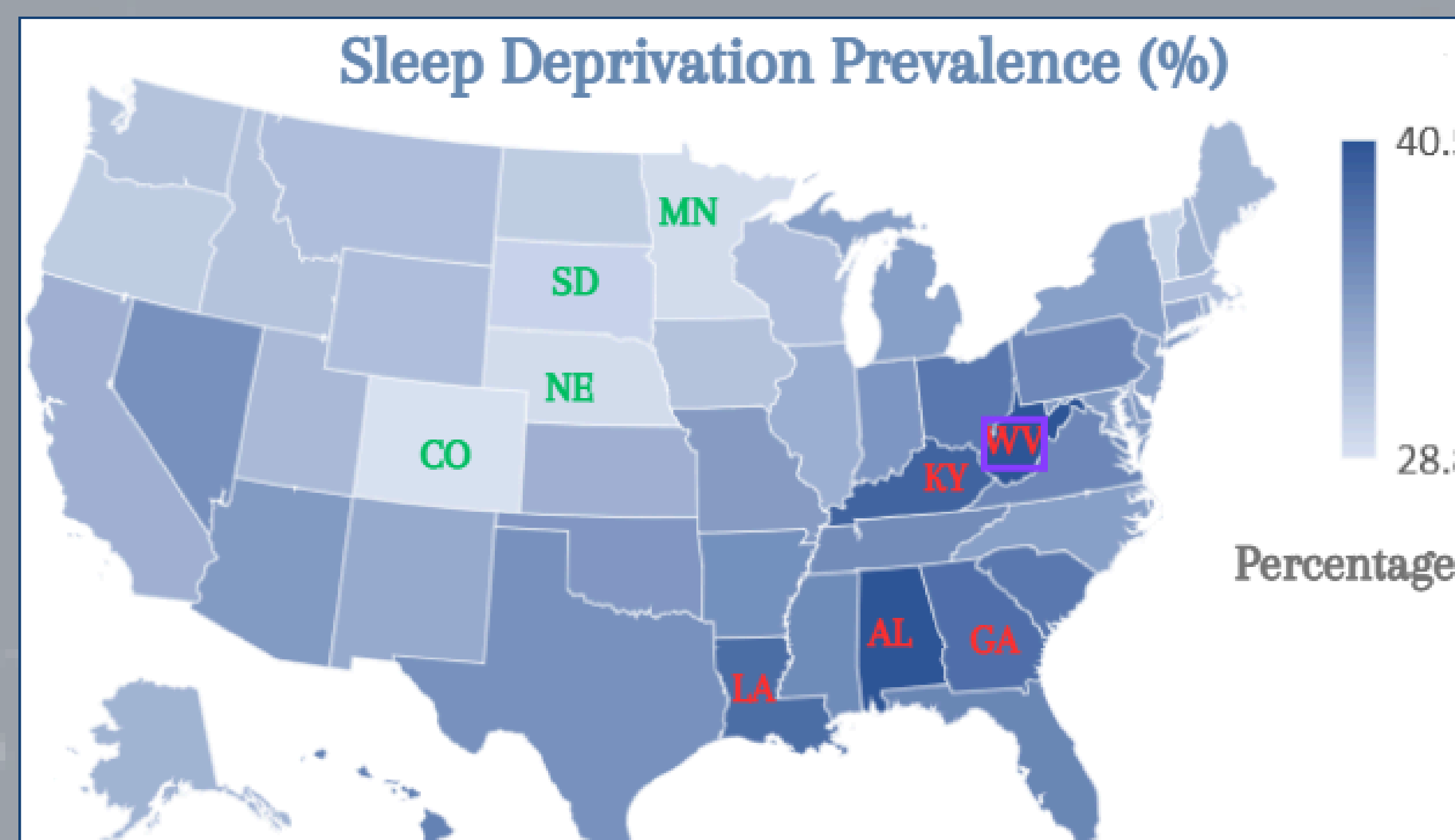


Figure 1. Map depicting Geographic Distribution of Sleep Deprivation Prevalence (%) in the United States

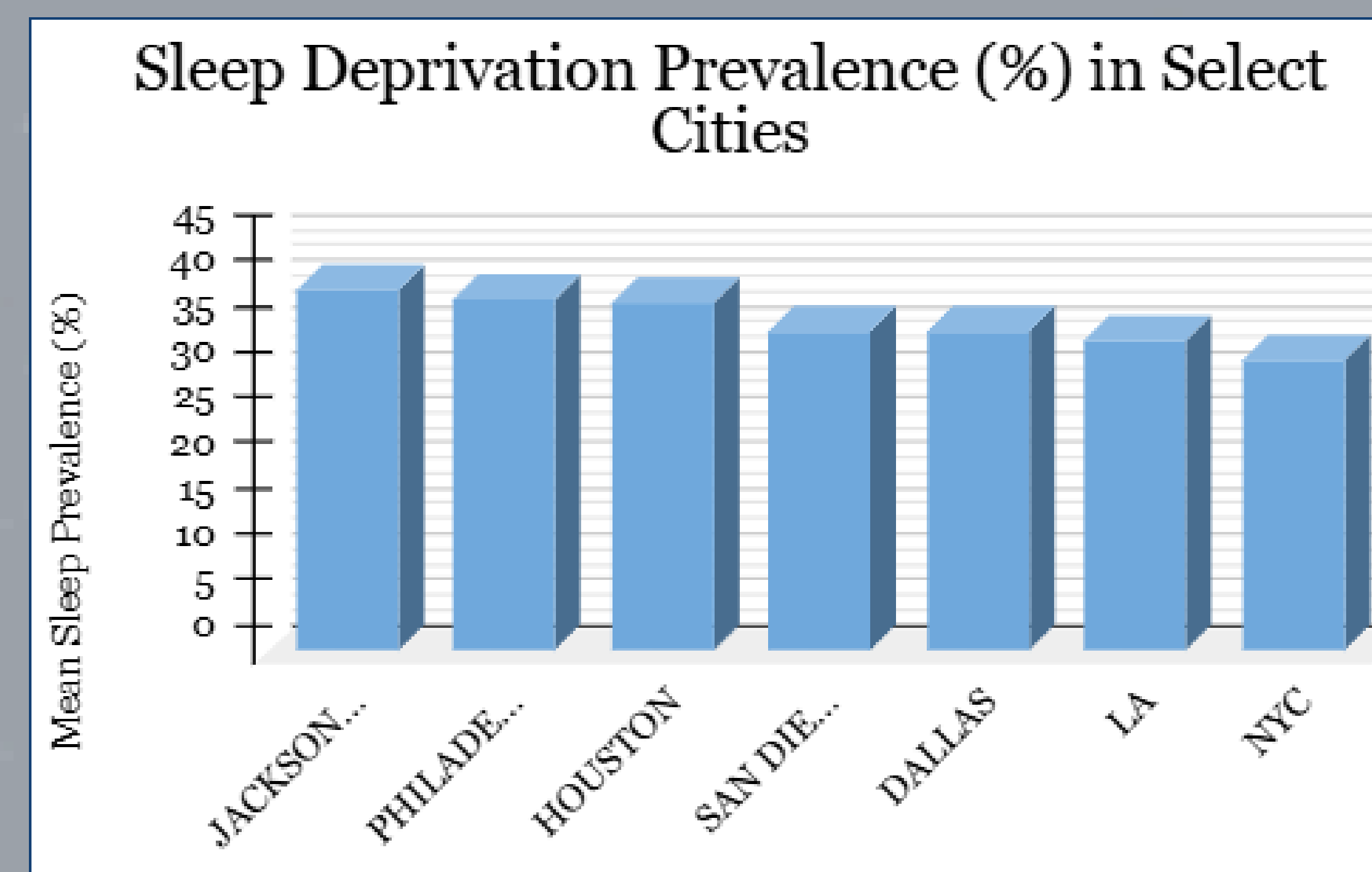


Figure 2. Mean Sleep Deprivation Prevalence of Select Cities in the U.S.

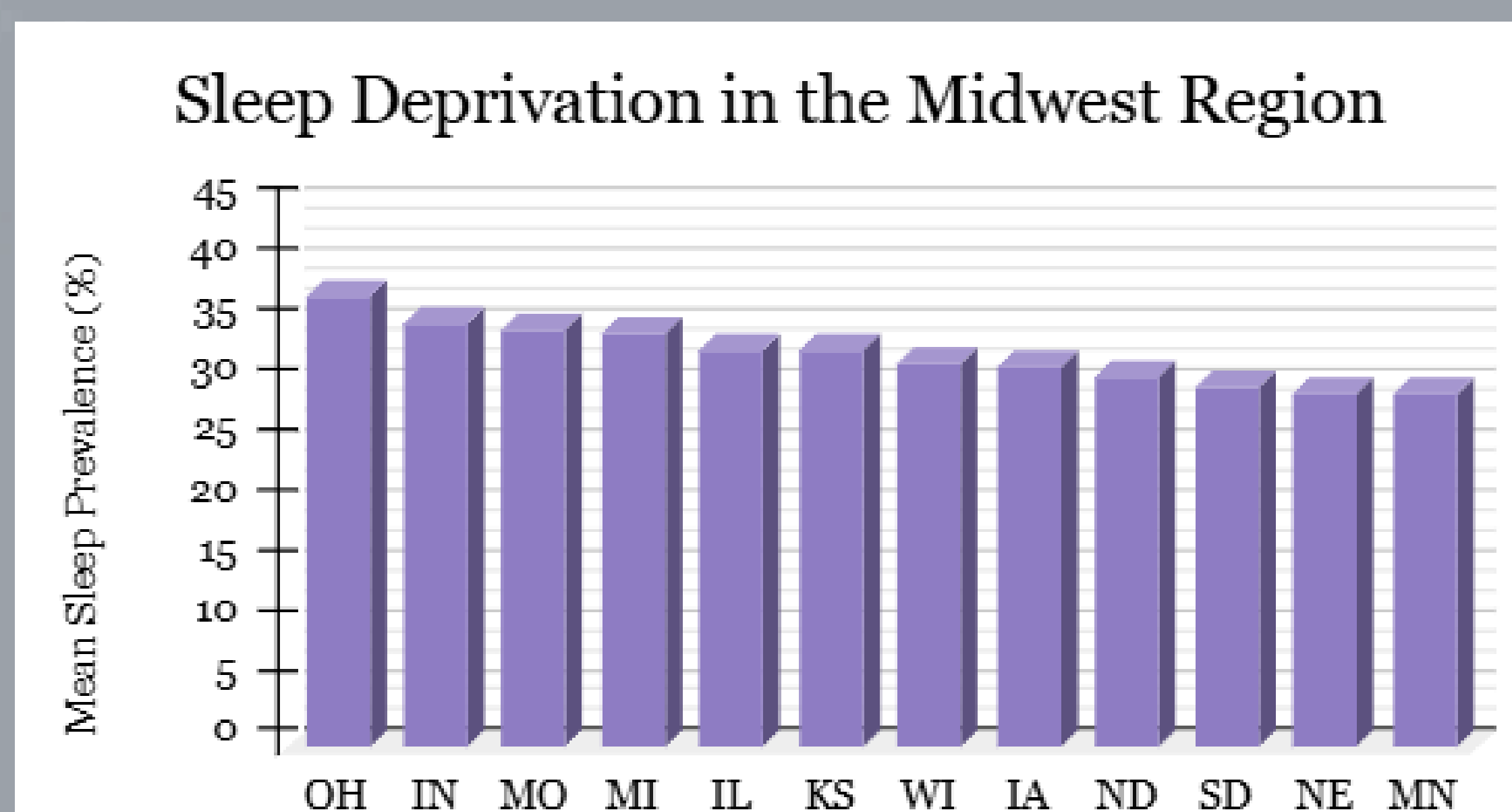


Figure 3. Mean Sleep Deprivation Prevalence per State in the Midwest Region

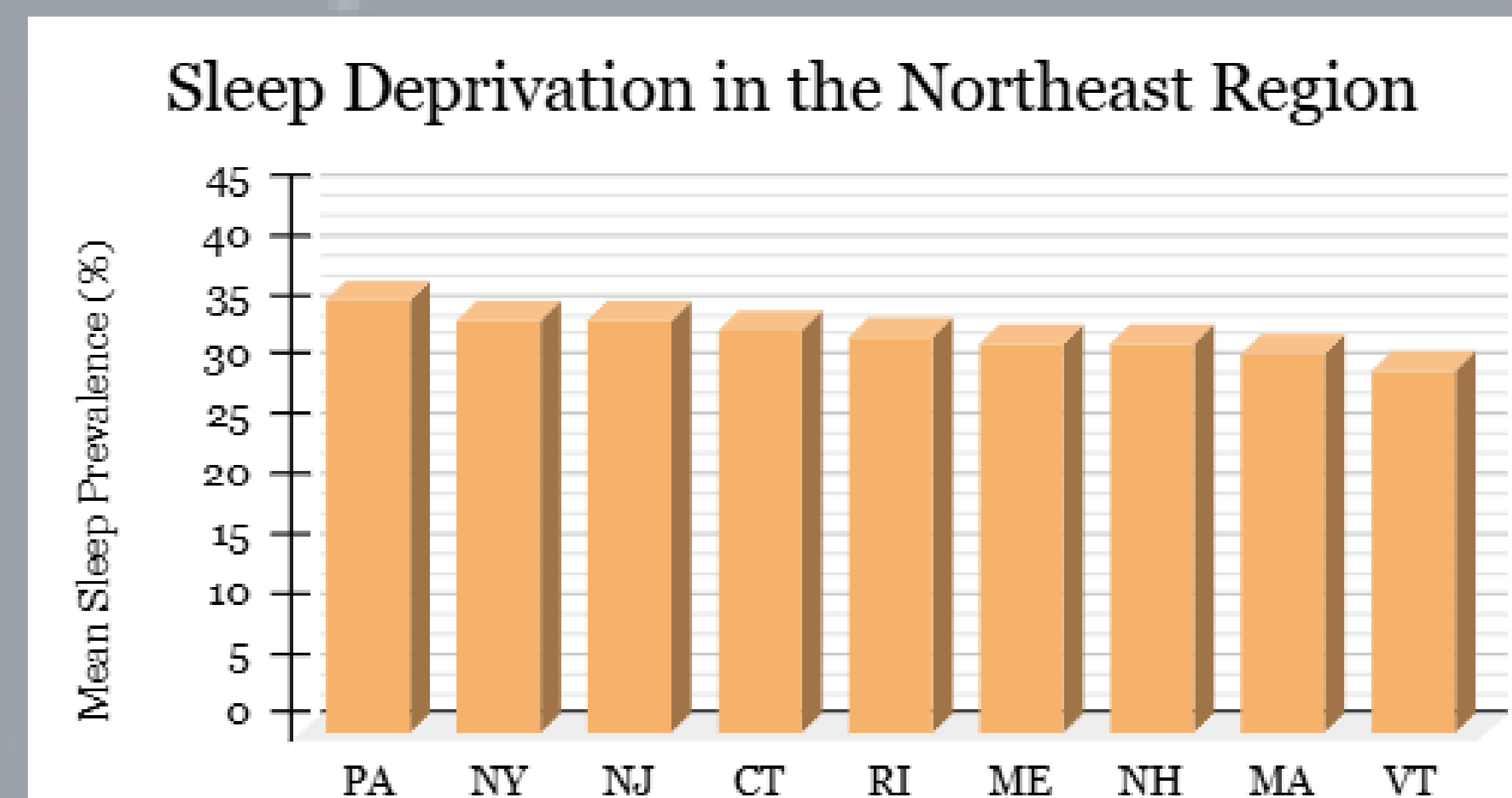


Figure 4. Mean Sleep Deprivation Prevalence per State in the Northeast Region

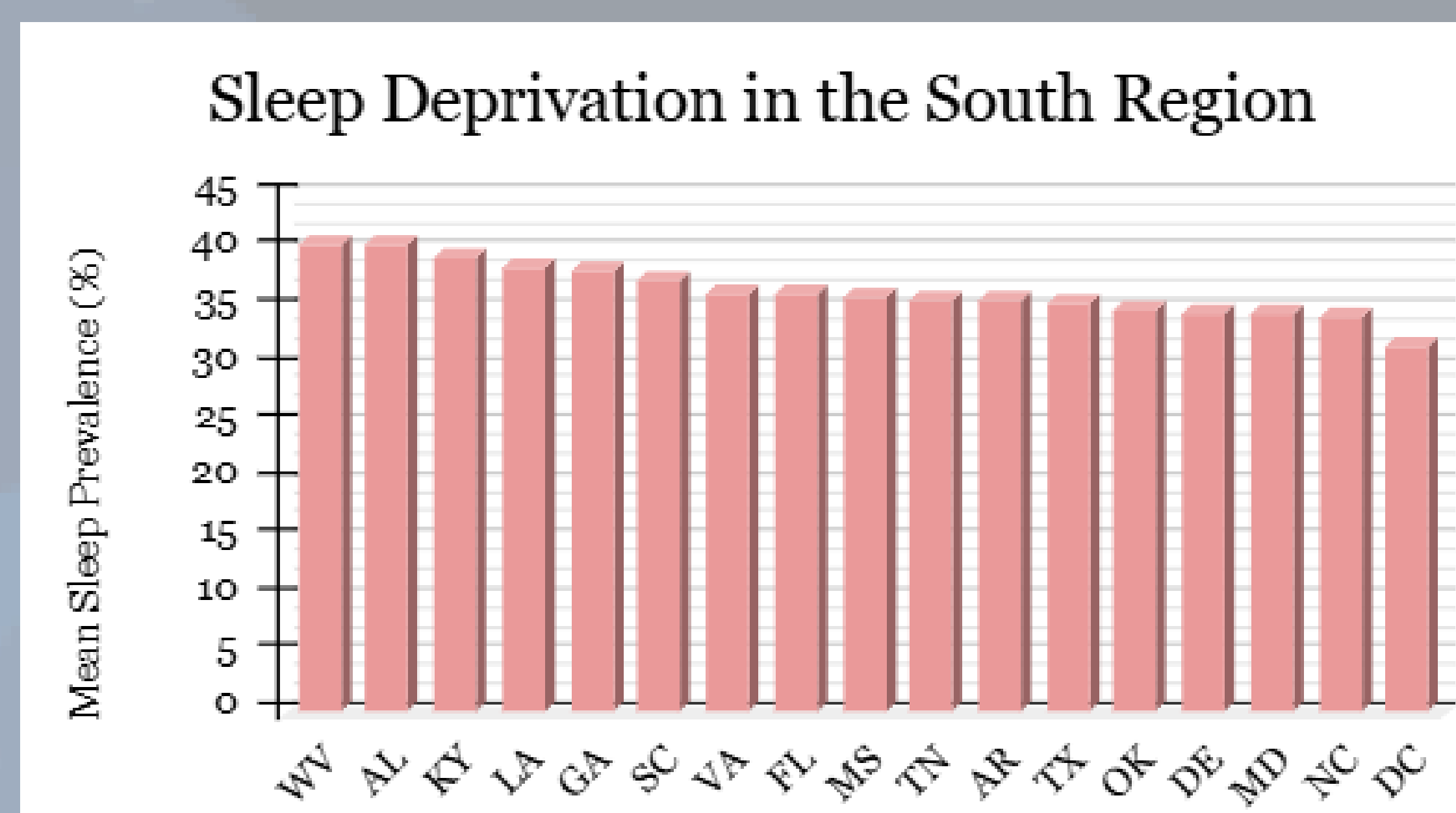


Figure 5. Mean Sleep Deprivation Prevalence per State in the South Region

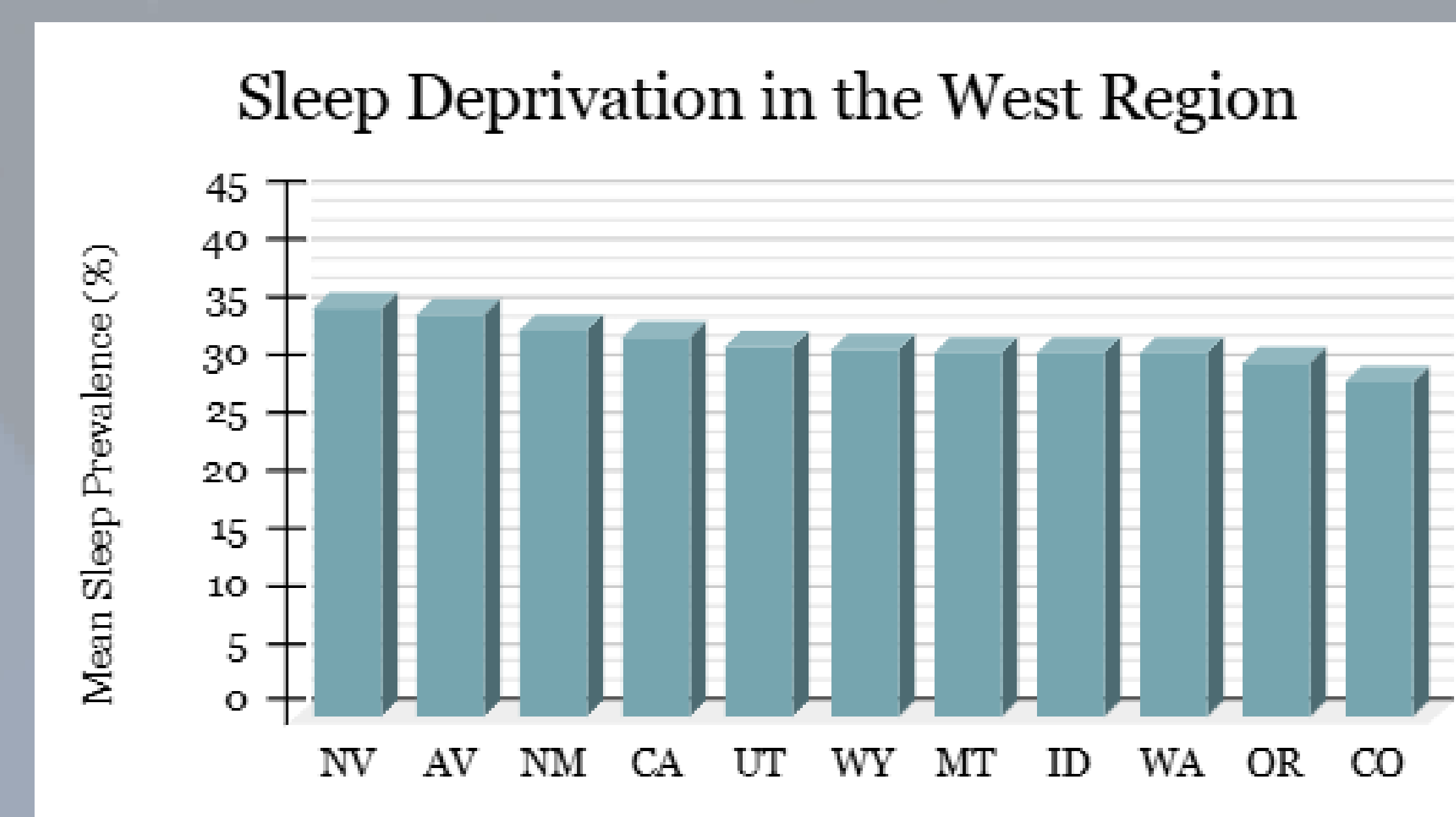


Figure 6. Mean Sleep Deprivation Prevalence per State in the West Region

## Conclusions

- States like West Virginia, Alabama, Louisiana, Georgia, and Kentucky report some of the highest levels of insufficient sleep.
- In contrast, states like Colorado, Minnesota, Nebraska, South Dakota, and Vermont show much lower averages.
- These high-prevalence areas are mostly clustered in the Southeastern U.S., which lines up with regional patterns in healthcare access, chronic illness, and socioeconomic stress.
- Most counties fall in the moderate sleep-deprivation range, around 28–35%, but a smaller group of counties shows much higher levels.
- The consistent clustering of high-prevalence states suggests that sleep deprivation is not an individual-level issue alone, but a systemic public health problem concentrated in specific regions.
- The data from major cities shows that sleep deprivation varies even within states and regions, reinforcing that geographic patterns appear at multiple levels—city, state, and region.

## Sources

- Archive App | CDC. [archive.cdc.gov/#/details?url=https://www.cdc.gov/media/releases/2016/p0215-enough-sleep.html](https://archive.cdc.gov/#/details?url=https://www.cdc.gov/media/releases/2016/p0215-enough-sleep.html).
- Pronk, Nicolaas P., et al. “Regional Cultures and Insufficient Sleep in the United States.” *Journal of Activity Sedentary and Sleep Behaviors*, vol. 3, no. 1, Jan. 2024, p. 4. <https://doi.org/10.1186/s44167-023-00043-3>.
- “FastStats: Sleep in Adults.” Sleep, 15 May 2024, [www.cdc.gov/sleep/data-research/facts-stats/adults-sleep-facts-and-stats.html#cdc\\_facts\\_stats\\_high-quick-stats](https://www.cdc.gov/sleep/data-research/facts-stats/adults-sleep-facts-and-stats.html#cdc_facts_stats_high-quick-stats).
- “Can Lack of Sleep Make You Sick?” Mayo Clinic, [www.mayoclinic.org/diseases-conditions/insomnia/expert-answers/lack-of-sleep/faq-20057757#:~:text=Long%2Dterm%20lack%20of%20sleep,of%20good%20sleep%20each%20night](https://www.mayoclinic.org/diseases-conditions/insomnia/expert-answers/lack-of-sleep/faq-20057757#:~:text=Long%2Dterm%20lack%20of%20sleep,of%20good%20sleep%20each%20night).