

A watercolor illustration in shades of blue and white. It depicts a person lying in bed, looking wide-eyed and awake at night. The person's head is propped up, and their eyes are large and staring. A smartphone is on the bedside table next to the bed. The background is dark, suggesting a night scene.

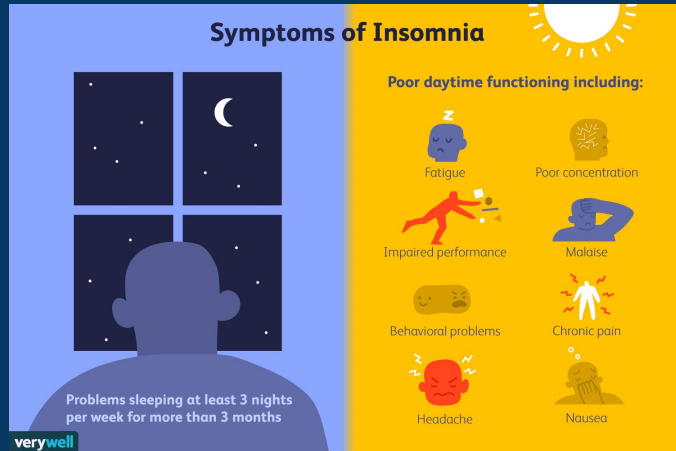
Insomnia

David Schenker

What is Insomnia ?

Insomnia can mean that you are not sleeping enough, not sleeping well and/or having trouble falling/staying asleep.

Chronic Insomnia affects individuals 3 times per week and lasts for 3 months



Effects of Insomnia



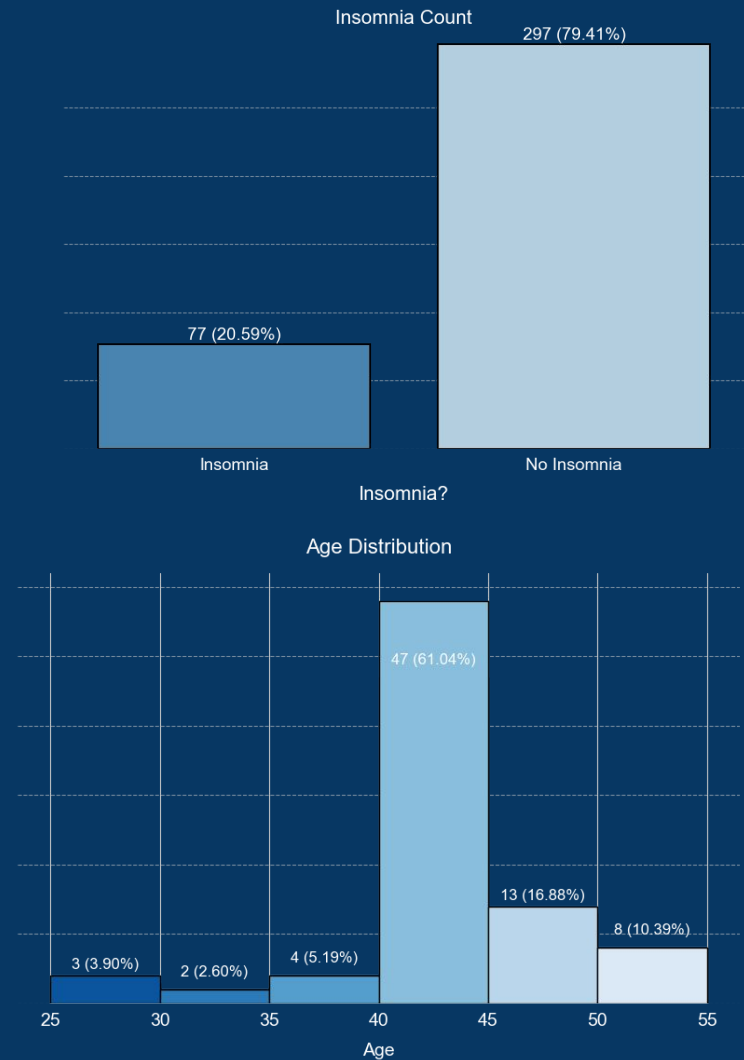
Who has Insomnia ?

According to a study done by the National Center for Biotechnology Information (NCBI) 1 in every 3 adults have chronic insomnia

27% of these patients are unaware that they have Insomnia



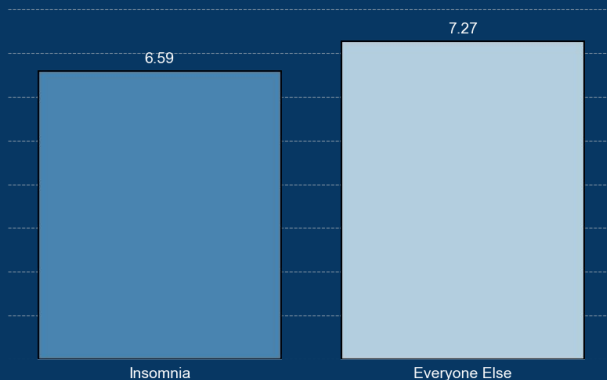
Who has Insomnia in my sample? →



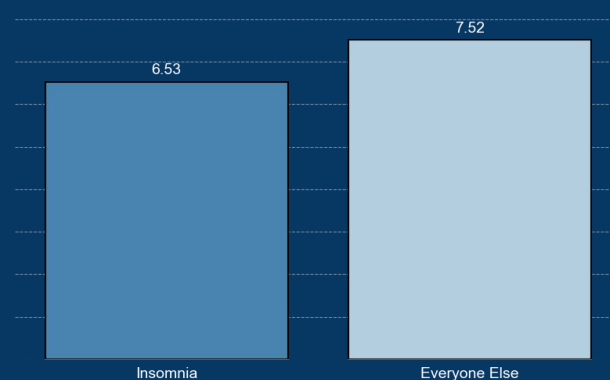
Insomniacs Against the World

Insomniacs' daily lives are significantly different* than everyone else

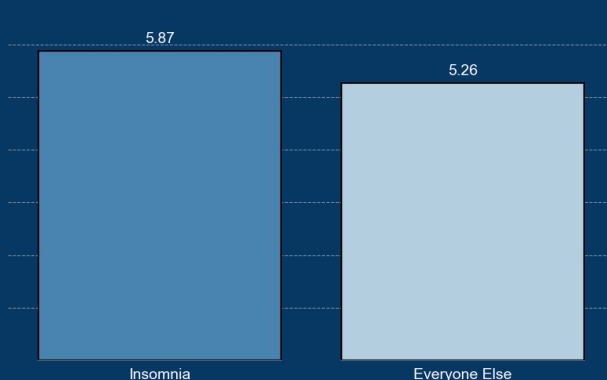
Average Sleep Duration



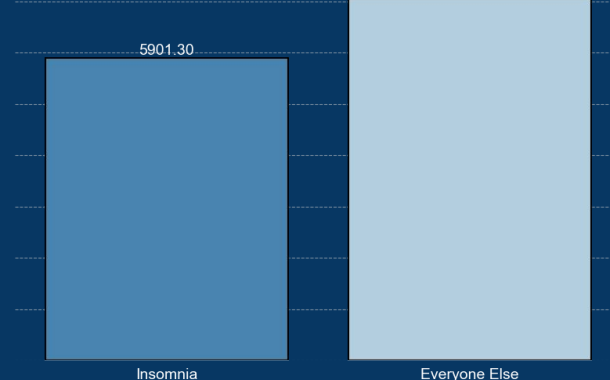
Average Quality of Sleep



Average Stress Level



Average Daily Steps



*Confidence level of 95%

Diagnosing Insomnia

Diagnosing Insomnia can be tedious at times as it can take days to rule out other conditions and perform physical and neurological exams.

One possible test involves an 'overnight sleep study in a sleep lab' (polysomnography)

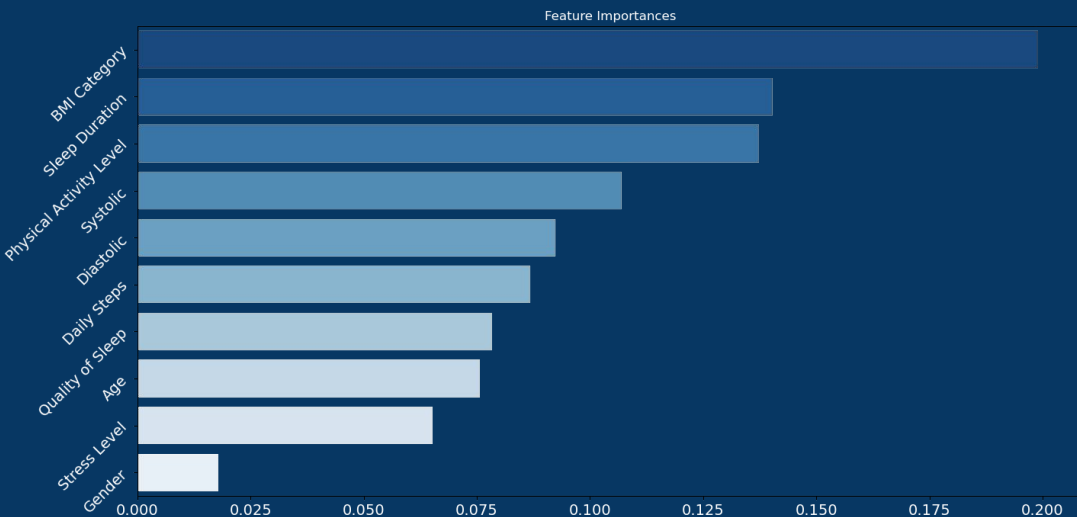
Can we diagnose Insomnia quicker and easier?



The Insomnia Model

Accuracy → **90%**

Recall → **96%**



Confusion Matrix

| | | | |
|------|---|-------------|-------------|
| True | 0 | 83 | 15 |
| 1 | 3 | 78 | |
| | | Predicted 0 | Predicted 1 |

Only 3 underdiagnosed patients

Conclusion

If the model isn't perfect, why use it?

Currently 27% of the world's insomniacs are unaware that they have insomnia and therefore go untreated.

Should we just treat all insomniacs?

No, Treat the symptoms, not the diagnosis. If they aren't displaying symptoms of insomnia, there is no reason to test or treat for insomnia.

What is the use case for the model?

The model should be used as a way to confirm suspicions, if a patient is displaying symptoms they should be tested.

Thank you!

Appendix

Links

<https://www.newyorker.com/humor/daily-shouts/reasons-i-cant-sleep>

<https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings>

<https://www.heart.org/en/health-topics/high-blood-pressure/the-facts-about-high-blood-pressure/low-blood-pressure-when-blood-pressure-is-too-low>

<https://www.mayoclinic.org/diseases-conditions/sleep-apnea/diagnosis-treatment/drc-20377636>

<https://health.clevelandclinic.org/sleep-apnea-its-waaaay-more-common-than-you-think>

<https://my.clevelandclinic.org/health/diseases/12119-insomnia>

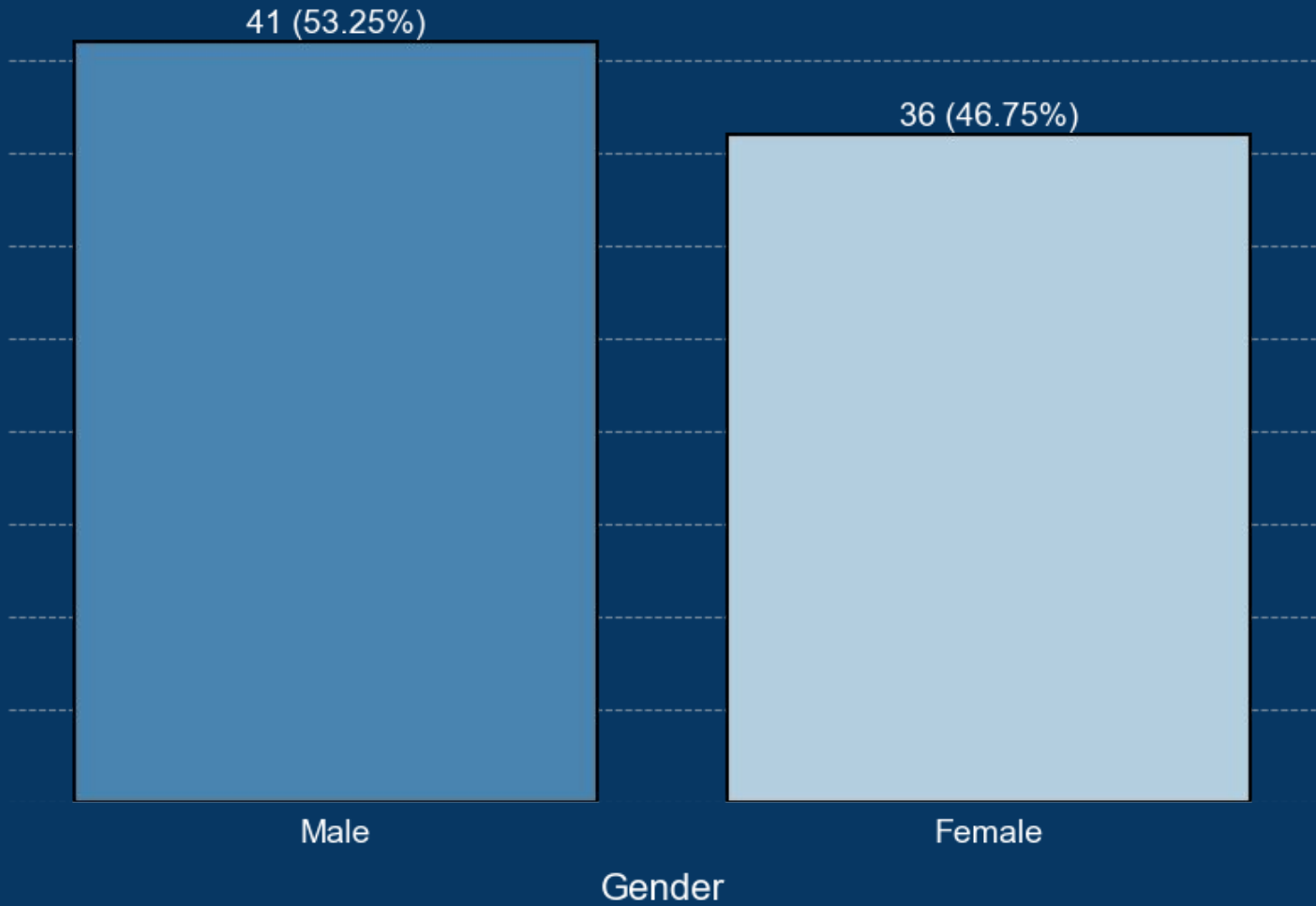
<https://www.hopkinsmedicine.org/health/conditions-and-diseases/insomnia-what-you-need-to-know-as-you-age#:~:text=Overview,considered%20a%20full%2Dfledged%20disorder>

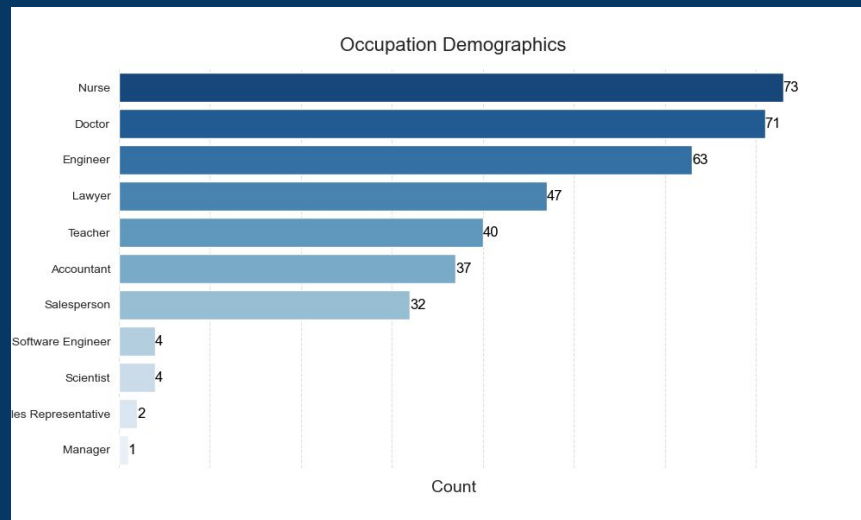
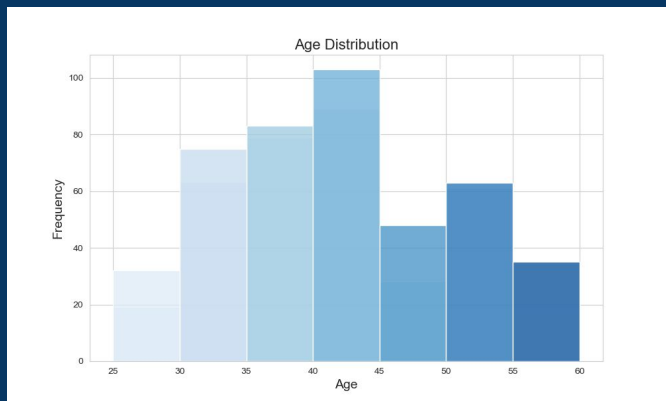
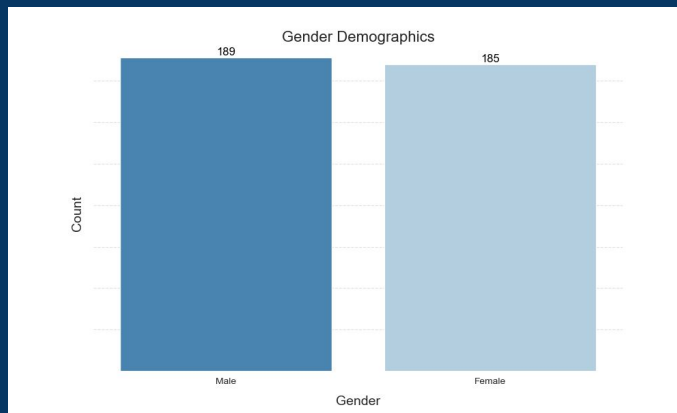
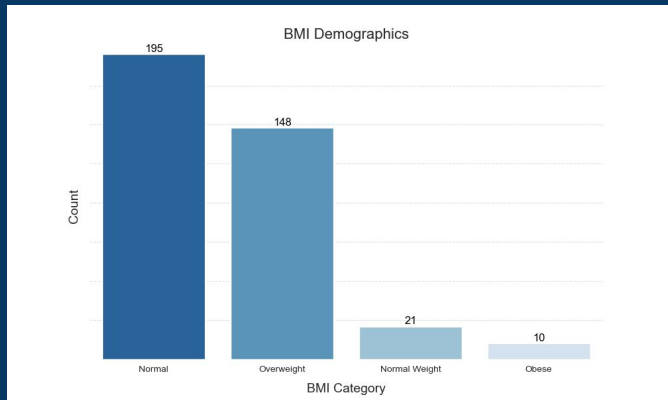
<https://my.clevelandclinic.org/services/insomnia-treatment#diagnosis>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5353813/#:~:text=Data%20was%20analyzed%20for%20the.physician%20until/unless%20asked%20for>

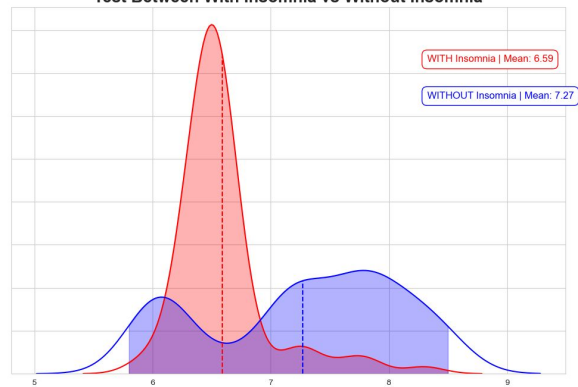
<https://www.verywellhealth.com/what-is-insomnia-the-features-symptoms-and-causes-3014805>

Gender Demographics

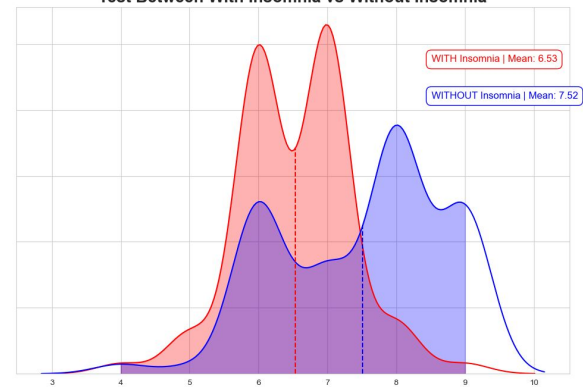




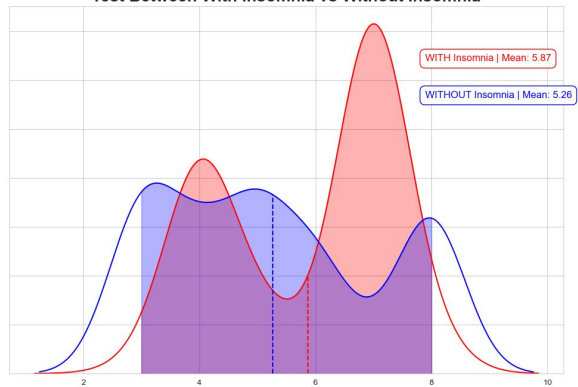
Test Between With Insomnia vs Without Insomnia



Test Between With Insomnia vs Without Insomnia



Test Between With Insomnia vs Without Insomnia



Test Between With Insomnia vs Without Insomnia

