**Sleepless in America (2003 - 2017)**

**Introduction:**

Right now, everyone is in quarantine because of the Invisible Enemy (Coronavirus Pandemic). So, during that time, I wanted to see what people are doing during this time. Most of us are either doing office work or are attending online lectures like me. Also, most of the time of people is gone in SLEEPING as some people want to rest from their busy life’s. So, while thinking about it, I wanted to see what average sleep durations people in USA have and how it has changed for over the years. While searching for it, I came across dataset on data.world website where Time Americans Spend on Sleeping was shared. It has average hours of different age groups of Americans from 2003 to 2017.

The motivation for this visualization was explore the sleep pattern of different age groups according to gender, type of day, average hours of sleep. Also, it will be useful to see the trend in sleep pattern of Americans over the years from 2003 to 2017.

**Data Dictionary:**

The Dataset has 8 variables and 945 rows. The 8 variables are year, period, Avg hrs per day sleeping, Standard Error, Type of Days, Age Group, Activity, Sex. Here, the variables, which I plan to explore are year, Avg hrs per day sleeping, Standard Error, Types of days, Age Group and Sex.

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| --- | --- | --- | --- | --- |
| Variable | Description | Data Type | Value | From Dataset/Created Field? |
| Year | Distinct Year values | Numerical | 2003 to 2017 | From Dataset |
| Period | Type of measurement | Text | Annual | From Dataset |
| Avg hrs per day sleeping | Average of hours per day of sleeping | Numerical | Values from 7.72 to 10.65 | From Dataset |
| Standard Error | Standard Error in calculation of average sleeping hours | Numerical | Values from 0.018 to 0.228 | From Dataset |
| Type of Days | What kind of day it is? | Text | All days, Nonholiday Weekdays, Weekend days and holidays | From Dataset |
| Age Group | Age-group of people | Text | Different age brackets from 15 to 65 years | From Dataset |
| Activity | Type of sleep | Text | Sleeping | From Dataset |
| Sex | Gender | Text | Both, Male, Female | From Dataset |
| Bandwidth | Difference between upper and lower | Numerical | Values from 0.02 to 0.45 | Created Field |
| Lower | Average sleeping hours + standard Error | Numerical | Values from 7.55 to 10.37 | Created Field |
| Upper | Average sleeping hours - standard Error | Numerical | Values from 7.76 to 10.77 | Created Field |

**Data Cleaning and Wrangling:**

Here, the dataset was obtained from data.world, also the dataset didn’t have any null/missing values. So, Data Cleaning was not performed over here.

Here, by using the Standard deviation and Average sleeping hours, I have created three new fields. They are Bandwidth, Lower, Upper. Lower and Upper are used to get the lower and upper deviation from the mean sleeping hours respectively. Bandwidth column is the addition of values of upper and lower columns which will be used to plot variation from the average sleeping hours.

There are three question which I will try to visualize and answer through my visualizations. I have finally created three stories for the same, to depict my findings.

**Data Visualization:**

**1) How Average Sleep hours of different Age groups have varied over the years (2003-2017)?**

A screenshot of a cell phone

Description automatically generated

The above visualization depicts the average hours per day sleep over the years for different Age group. I have shown it for 25-34 age group. I have created a interactive dashboard to show this visualization. The age-group at the top is a navigator sheet to navigate different age-groups by clicking on it once. When we click on the specific age group, the graph changes to show the values for that specific group. The pink line is the average sleeping hours per day for age group 25-34 from 2003 – 2017. The green band is the bandwidth of change in average sleep for the same.

When I click on all the age-groups, I come to know that the average sleep of Americans aged 55-64 is the least among all of them. So, this interactive dashboard helps us to know about the average sleep hours of American over the years.

**2) How the average sleep for all age-groups have changed from the average of all Americans?**

A screenshot of a map

Description automatically generated

The second visualization is used to show the average sleeping hours of different age groups according to their Gender. Here, I have checked the average sleep hours of different gender and age-groups against the overall average of Americans for all days (Type of day column). The overall average of Americans is 8.681 hours of sleep. Americans among 15-24 age group have the most sleep among all the age-groups for all genders.

From the visualization, I came to a conclusion that Men of 45-54 age group have the least average sleep of 8.227 hours. Most of the population have average sleep hours less than the overall average.

**3) How much is average sleep of Men and Women on Non-holiday weekdays and Weekend days and holidays for all age-groups?**

A close up of text on a white surface

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Here, I tried to visualize how the average sleep of Americans has changed for weekdays and holiday days. The average line is 8.869 hrs which is the average of all Men, Women for Nonholiday weekdays and Weekend and holidays. From the visualization I saw that, the sleep of both Men and Women between 25-34, 35-44 age group is less than the overall average of 8.869 hrs on Non-holiday weekdays.

Tableau Link: - <https://tabsoft.co/2Wb73dB>