/\* DATA STATISTICS \*/

--Quantitative data

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | age | sleep\_  duration | sleep\_  quality | physical\_  activity\_level | stress\_  level | heart\_  rate | daily\_  steps | systolic | diastolic |
| mean | 42,14 | 7,13 | 7,31 | 59,13 | 5,39 | 70,17 | 6816,35 | 128,52 | 84,62 |
| median | 43 | 7,2 | 7 | 60 | 5 | 70 | 7000 | 130 | 85 |
| mode | 43 | 7,2 | 8 | 60 | 3 | 68 | 8000 | 130 | 80 |
| sd | 8,64 | 0,8 | 1,2 | 20,84 | 1,77 | 4,14 | 1620,06 | 7,74 | 6,15 |
| variance | 74,66 | 0,63 | 1,43 | 434,41 | 3,14 | 17,14 | 2624597,42 | 59,84 | 37,79 |
| min | 27 | 5,8 | 4 | 30 | 3 | 65 | 3000 | 115 | 75 |
| max | 59 | 8,5 | 9 | 90 | 8 | 86 | 10000 | 142 | 95 |
| range | 32 | 2,7 | 5 | 60 | 5 | 21 | 7000 | 27 | 20 |
| IQR | 15 | 1,4 | 2 | 30 | 3 | 4 | 2400 | 128,52 | 84,62 |

--Qualitative data

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | gender | age\_category | occupation | bmi\_category  (fixed) | sleep\_disorder |
| number of levels | 2 | 6 | 11 | 3 | 3 |
| levels | Female,  Male | < 35,  35 – 39,  40 – 44,  45 – 49,  50 - 54,  55 + | Accountant,  Doctor,  Engineer,  Lawyer,  Manager,  Nurse,  Sales Representative,  Salesperson,  Scientist,  Software Engineer,  Teacher | Normal,  Obese,  Overweight | Insomnia,  None,  Sleep Apnea |
| mode | Male | 40 - 44 | Nurse | Normal | None |

/\* Q1: WHO SLEEPS BETTER CONSIDERING AGE, GENDER AND OCCUPATION? \*/

--Relationship between sleep length and quality

**Correlation 0,88**

-- Age

Age vs sleep duration: **correlation 0,34**

Age vs sleep quality: **correlation 0,47**

|  |  |  |  |
| --- | --- | --- | --- |
| age\_category | count | **mean\_sleep\_length** | **mean\_sleep\_quality** |
| < 35 | 82 | **6,80** | **6,32** |
| 35 - 39 | 79 | **7,20** | **7,82** |
| 40 - 44 | 89 | **7,01** | **7,02** |
| 45 - 49 | 28 | **6,59** | **6,79** |
| 50 - 54 | 61 | **7,36** | **7,69** |
| 55 + | 34 | **8,10** | **9,00** |

--Gender

|  |  |  |  |
| --- | --- | --- | --- |
| gender | count | **mean\_sleep\_length** | **mean\_sleep\_quality** |
| Female | 184 | **7,23** | **7,66** |
| Male | 189 | **7,04** | **6,97** |

--Age and gender

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| age\_category | gender | count | **mean\_sleep\_length** | **mean\_sleep\_quality** |
| < 35 | Female | 9 | **6,41** | **5,33** |
| Male | 73 | **6,85** | **6,44** |
| 35 - 39 | Female | 38 | **7,19** | **7,95** |
| Male | 41 | **7,21** | **7,71** |
| 40 - 44 | Female | 18 | **6,68** | **7,00** |
| Male | 71 | **7,09** | **7,03** |
| 45 - 49 | Female | 24 | **6,41** | **6,58** |
| Male | 4 | **7,70** | **8,00** |
| 50 - 54 | Female | 61 | **7,36** | **7,69** |
| 55 + | Female | 34 | **8,10** | **9,00** |

--Occupation

|  |  |  |  |
| --- | --- | --- | --- |
| occupation | count | **mean\_sleep\_length** | **mean\_sleep\_quality** |
| Sales Representative | 2 | **5,90** | **4,00** |
| Engineer | 63 | **7,99** | **8,41** |
| Doctor | 71 | **6,97** | **6,65** |
| Salesperson | 32 | **6,40** | **6,00** |
| Manager | 1 | **6,90** | **7,00** |
| Teacher | 40 | **6,69** | **6,98** |
| Software Engineer | 4 | **6,75** | **6,50** |
| Accountant | 37 | **7,11** | **7,89** |
| Lawyer | 47 | **7,41** | **7,89** |
| Nurse | 72 | **7,05** | **7,35** |
| Scientist | 4 | **6,00** | **5,00** |

/\* Q2: HOW STRESS, PHYSICAL ACTIVITY AND BASIC HEALTH INDICATORS ASSOCIATE WITH SLEEP PARAMETERS? \*/

|  |  |  |
| --- | --- | --- |
| **correlation** | sleep\_duration | sleep\_quality |
| stress\_level | **-0,81** | **-0,90** |
| physical\_activity\_level | **0,21** | **0,19** |
| daily\_steps | **-0,04** | **0,02** |
| systolic | **-0,19** | **-0,13** |
| diastolic | **-0,17** | **-0,12** |
| heart\_rate | **-0,52** | **-0,66** |

/\* Q3: WHAT ARE THE DIFFERENCES BETWEEN HEALTHY INDIVIDUALS AND THOSE WITH SLEEPING DISORDER? \*/

--Sleep disorder prevalence

|  |  |  |
| --- | --- | --- |
| sleep\_disorder | **count** | **sleep\_disorder\_percentage** |
| Insomnia | **77** | **20,64%** |
| Sleep Apnea | **77** | **20,64%** |
| None | **219** | **58,71%** |

--Measurable parameters in healthy indviduals and those with sleeping disorder

|  |  |  |  |
| --- | --- | --- | --- |
|  | None | Insomnia | Sleep Apnea |
| **mean\_sleep\_length** | **7,36** | **6,59** | **7,02** |
| **mean\_sleep\_quality** | **7,63** | **6,53** | **7,18** |
| **mean\_age** | **39,04** | **43,52** | **49,58** |
| **mean\_activity\_level** | **57,95** | **46,82** | **74,79** |
| **mean\_daily\_steps** | **6852,97** | **5901,30** | **7627,27** |
| **mean\_systolic\_bp** | **124,05** | **132,04** | **137,74** |
| **mean\_diastolic\_bp** | **81,00** | **86,86** | **92,69** |
| **mean\_heart\_rate** | **69,02** | **70,47** | **73,16** |

--Association of sleep disorder with weight

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | None | Insomnia | Sleep Apnea | Sum of bmi\_category |
| Normal | **200** | **9** | **7** | **216** |
| Overweight | **19** | **64** | **64** | **147** |
| Obese | **0** | **4** | **6** | **10** |
| Sum of sleep\_disorder | **219** | **77** | **77** | **373** |