



METHODS

Our hypothesis is that lack of physical activity in adolescents leads to other unhealthy, risky, or delinquent behaviors. For our research, we will focus on physical activity and smoking because of the high prevalence of tobacco in adolescence.

Data was analyzed using the R program through Chi-Square Tests for Independence.

Figure 1 consists of four plots arranged in a 2x2 grid, showing the relationship between age and various health metrics.

- Top Left Plot:** A bar chart titled "Age People Started Smoking Regularly". The x-axis is "Age" (0 to 18) and the y-axis is "Frequency" (0 to 250). The frequency of people starting smoking regularly increases with age, peaking around age 14-15, and then decreases.
- Top Right Plot:** A line graph titled "Age of Smoking and Weekly Exercise Activity". The x-axis is "Age Started Smoking Regularly" (0 to 15) and the y-axis is "Cigarettes per Week" (0.0 to 2.5). The line shows a negative correlation, indicating that as the age at which one starts smoking regularly increases, the number of cigarettes smoked per week decreases.
- Bottom Left Plot:** A line graph titled "Days a Week in PE vs Age of Smoking". The x-axis is "Age Started Smoking Regularly" (0 to 15) and the y-axis is "Days a Week in Activity (%)". The line shows a slight negative correlation, indicating that as the age at which one starts smoking regularly increases, the percentage of days spent in physical education slightly decreases.
- Bottom Right Plot:** A line graph titled "Age of Smoking and Weekly Sports Activity". The x-axis is "Age Started Smoking Regularly" (0 to 15) and the y-axis is "Days per Week in Activity" (0.0 to 2.0). The line shows a negative correlation, indicating that as the age at which one starts smoking regularly increases, the number of days per week spent in sports activity decreases.

Exercise and Smoking Age: $n=1279$, $p= -0.03032$

Age of Starting to Smoke Regularly and Days Playing Sports a Week tells a similar story. Anybody who started smoking at age 10 would spend exercise through sports 1.5 days out of the week. If you started at age 15, that drops to playing sports on about 1.15 days out of the week.

The amount of weekly exercise that is had by adolescents is related to the age at which they start smoking regularly (i.e. 1 cigarette per day for 30 days). The amount of physical activity had by the students in the survey was correlated negatively to them becoming regular smokers with respect to age. Higher amounts of physical activity increased the age at which participants started to smoke: whether it came from a physical education class, participating in sports, or other forms of exercise. This suggests that there are other potential health benefits to encouraging kids to stay active even when they get older besides just staying physically fit.

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