



The Association between the Age Started Cigarette Smoking and the Age Started Marijuana Use

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Introduction

- The administration has put a lot of efforts in controlling the manufacture, distribution, and marketing of tobacco products. (FDA, 2009) However, the rate of cigarette smoking for adults remained high in 2019. (CDC, 2019)
- Evidence shows that cigarette smokers are more likely to use marijuana later and People who start smoking at a young age are more likely to become marijuana dependence later, just as Hindocha et al. suggest that cigarette smoking is a “partial driver” for young cannabis users. (Hindocha et al., 2015)
- The gateway drug effect (substances that may lead to the use of other addictive drugs) is more effective for the youngsters. According to Lai et al., young cigarette smokers (age 18-25) are 10 times more likely to use marijuana. (Lai et al., 2000)
- To better control the drug use, it is important to analyze the association between the age started smoking cigarettes and the age of first using marijuana.

Research Questions

- Is there an association between the age of smoking cigarettes and the age of using marijuana?
- Does association between the age of smoking cigarettes and the age of using marijuana vary for men and women?

Methods

Sample

- Respondents (n=5637) who used both substances were drawn from National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), which was a survey of 43,093 adult participants who were randomly chosen from both households and unintentional units across the country and interviewed face-to-face with the help of computer.

Measures

- The status of substance use were assessed by two questions in the questionnaire which represented the cigarette use status and marijuana use status.
- To determine the age of participants who became smokers, the age of smoking the first full cigarette was measured. Responses ranged from 5 to 54. The age of first using marijuana was assessed similarly.
- The sex of the respondents was recorded in the survey.

Results

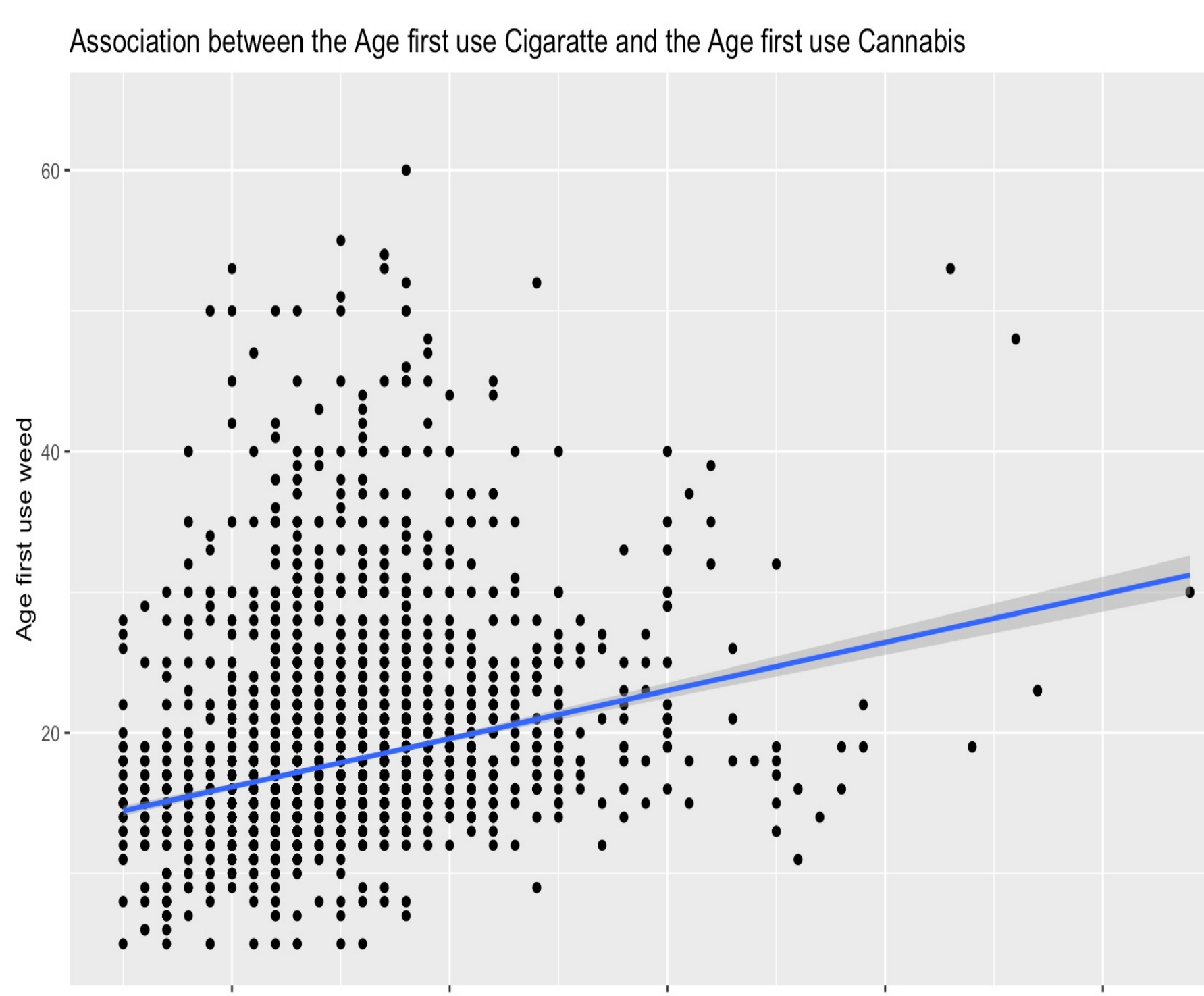
Univariate

- 79.5% of respondents who used both substances finished their first cigarette before 18 and 60.5% started to use marijuana before 18.
- 56.8% of respondents who used both substances were males and 43.2% were females.

Bivariate

- A Pearson correlation test showed that **the age first used cannabis** was significantly and positively associated with **the age first smoked cigarettes** ($r=0.25$, $p<0.001$).
- Regression analysis showed that there is a significant positive association between the age of starting smoking marijuana and the age of starting smoking cigarettes ($\text{Beta}=0.34$, $p<0.001$).

Figure 1. Association between the Age First Use Cigarette and the Age First Use Cannabis

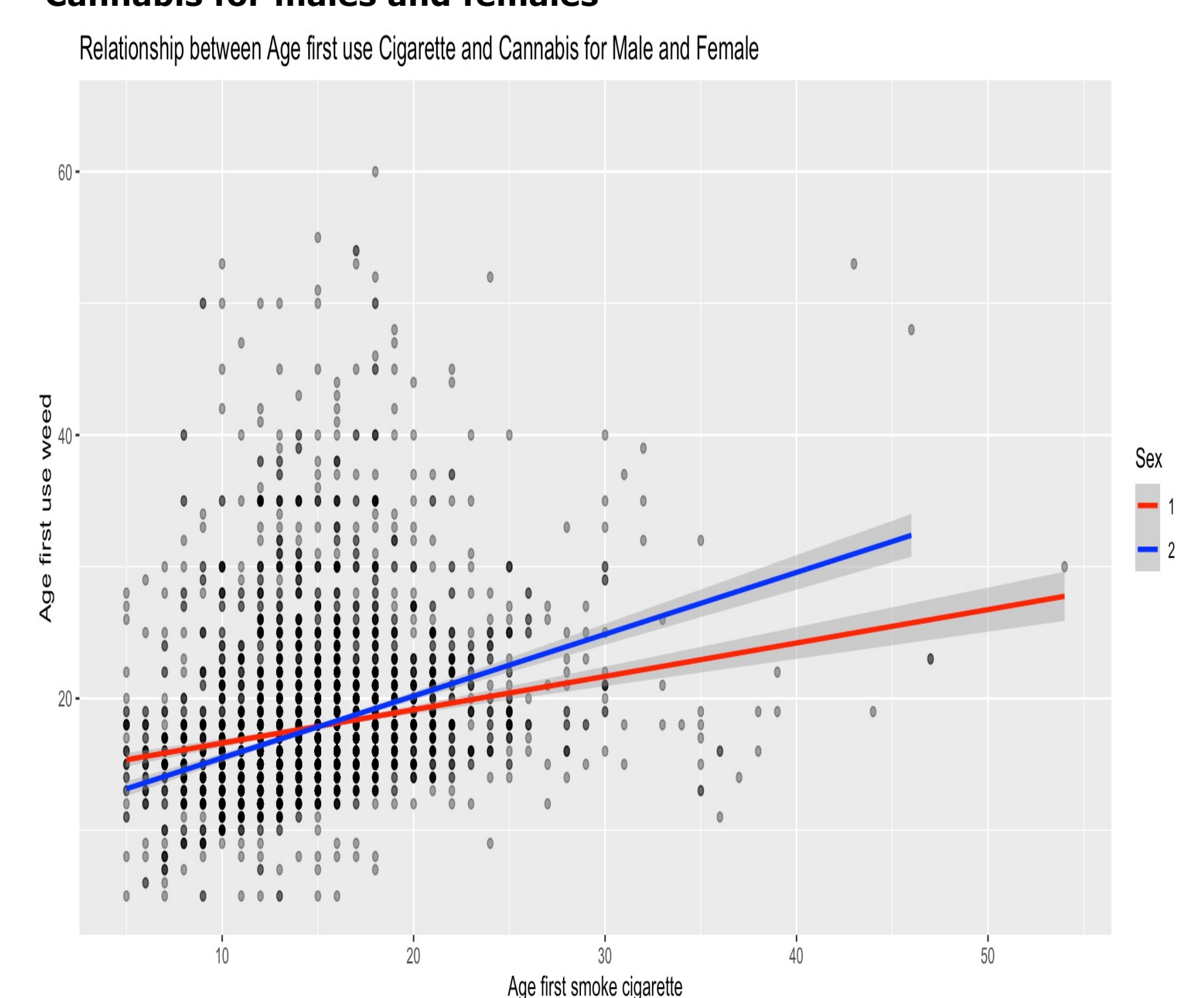


- Additionally, the full regression equation can be written as $y=0.34*x+12.74$, where y stands for the age smoking marijuana and x stands for the age first smoking cigarettes, suggesting that on average, a one-year delay in smoking cigarettes will result in a 0.34-year delay in smoking marijuana.

Multivariate

- Sex appears to moderate the relationship between the age first smoking cigarettes and the age first used cannabis; moreover, males are predicted to have a stronger gateway drug effect (Figure 2).
- When sex is incorporated as the interaction term, the regression analysis confirms that there is a stronger gateway drug effect for males than females. (Beta for the interaction term= 0.22 , $p<0.001$)

Figure 2. The Age First Use Cigarette and the Age First Use Cannabis for males and females



Discussion

- The age first using marijuana is positively associated with the age started smoking cigarettes, which partially confirms the hypothesis of gateway drug effect.
- Sex moderates the association between the age first smoking cigarettes and the age first used cannabis, suggesting that the gateway drug effect is stronger for males.
- To control the use of drugs, administrative may need to put more efforts in controlling the use of cigarettes.
- Further research is needed to eliminate the outliers in the research, and test whether the gateway drug effect still holds for other types of “hard drugs” (cocaine, heroin, etc.).