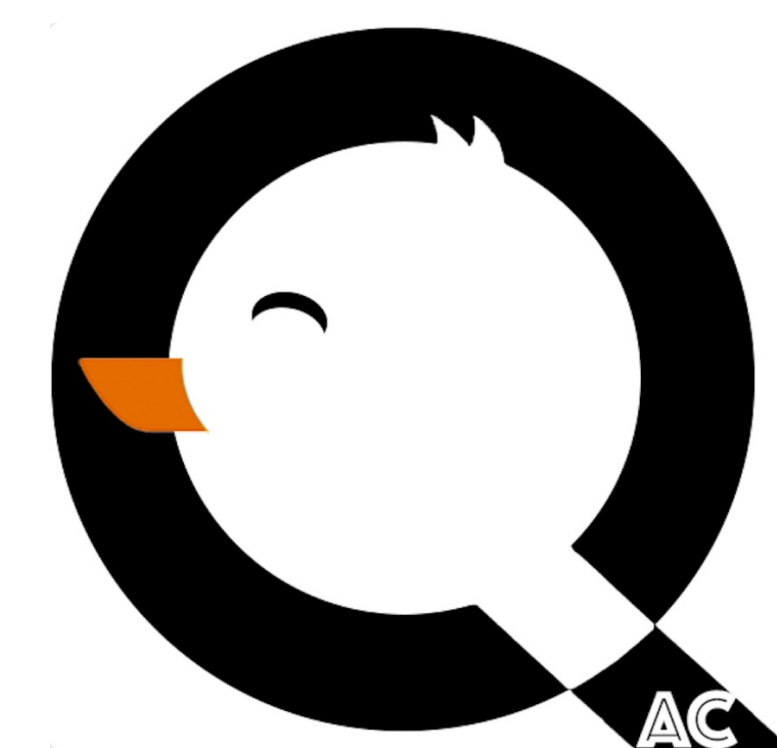




The Association between Age Group and Daily Nicotine Vaping Device Use among Lifetime Vaping Device Users



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Introduction

- Vaping devices have become widely used, especially among younger populations, raising concerns about nicotine dependence (Bluestein et al., 2022).
- Research shows that vaping prevalence is highest among youth and young adults, while some evidence suggests that frequency of use may increase with age since older vaper are more addicted to general nicotine use (Dahal et al., 2022).
- However, most current studies focus on prevalence rather than dependence, and analyze the general population. Their failure to recognize differences in e-cigarette use across age groups obscured meaningful age-related patterns. (Dahal et al., 2022; McCauley et al., 2022; Erhabor et al., 2023).

Methods

Sample

- Data were drawn from the 2024 National Survey on Drug Use and Health (NSDUH), a nationally representative survey of 58433 U.S. residents aged 12 and older.
- A subsample of lifetime vapers was drawn for the comparative study regarding vape addiction.

Measures

- Age Group Measured using recoded age categories: 12–17 (youth), 18–25 (young adults), 26–34 (adults), 35+ (older adults)
- Lifetime E-Cigarette Use Measured with: “Have you ever, even once, vaped nicotine with an e-cigarette or other vaping device?”
- Daily Nicotine Vaping (Outcome) Measured using past 30-day frequency: Respondents who reported vaping on all 30 days were coded as daily users (1), others as non-daily users (0)
- Nicotine Dependence Syndrome Measured using the NSDUH nicotine dependence indicator: dependent (1), non-dependent (0)

Research Questions

- Is age associated with vape addiction?
- How does the relationship between age and vape use differ between lifetime experimentation and daily use?
- Does age group independently predict daily vape use among lifetime vapers after controlling for nicotine dependence syndrome?

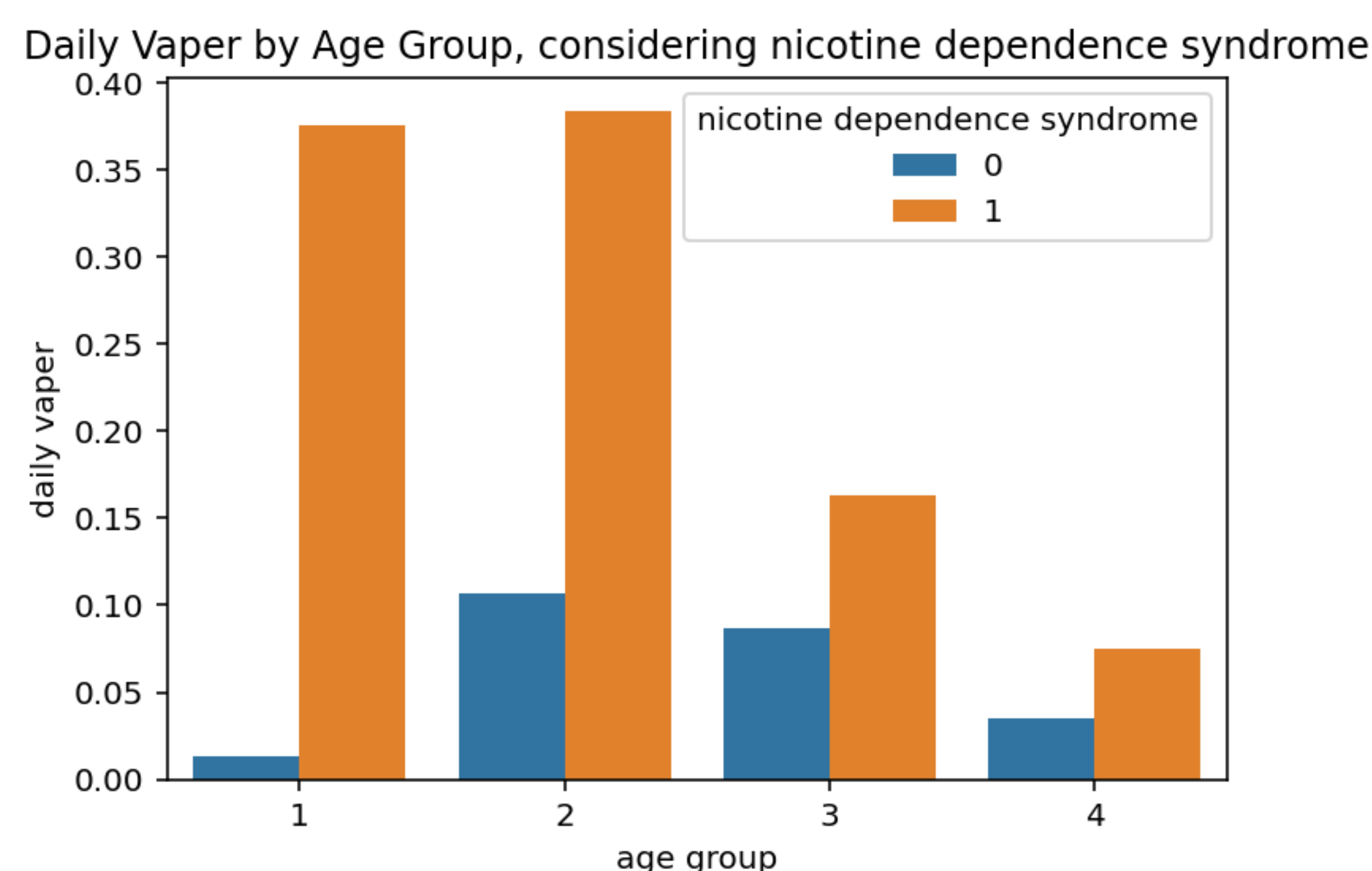
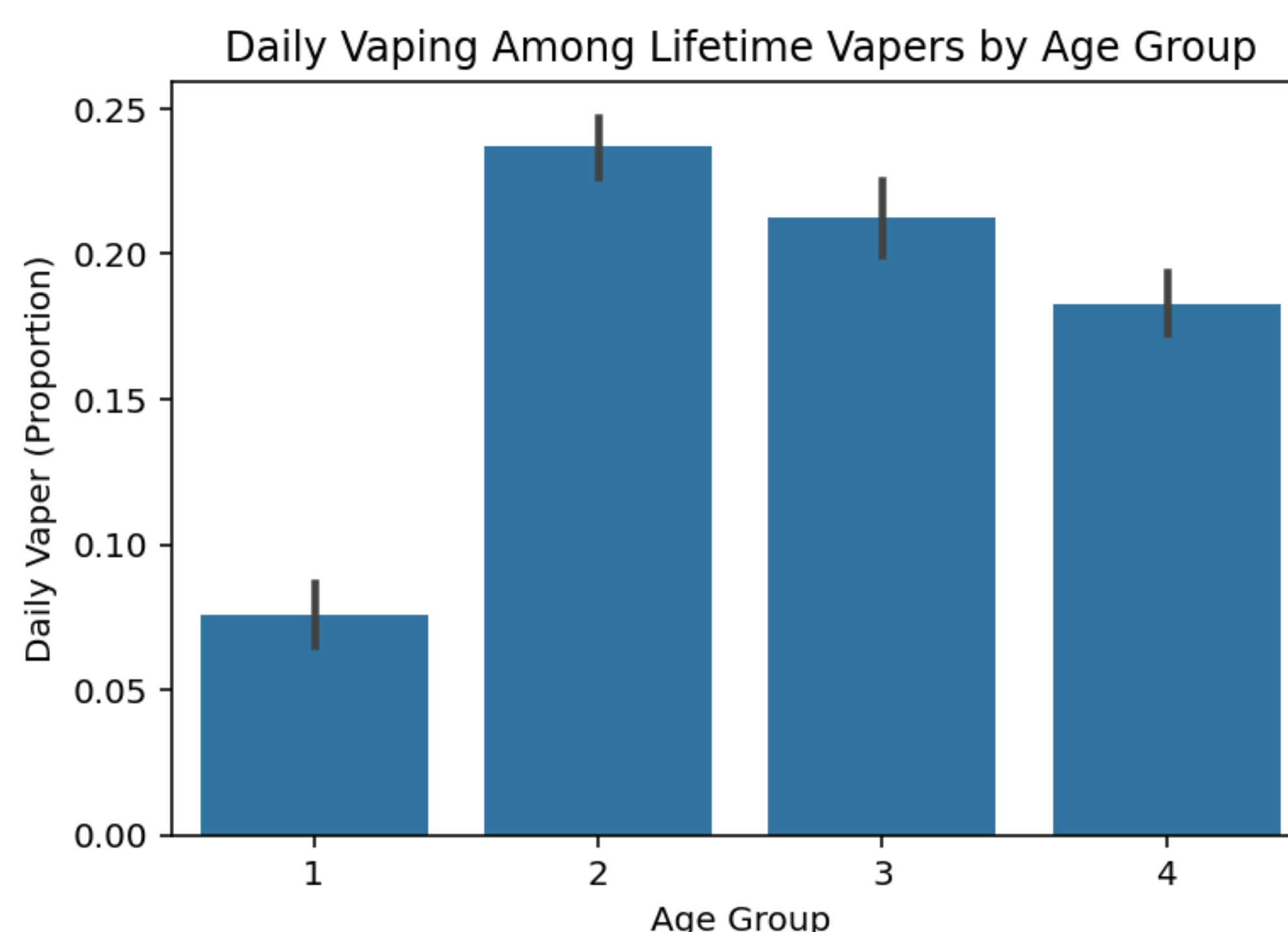
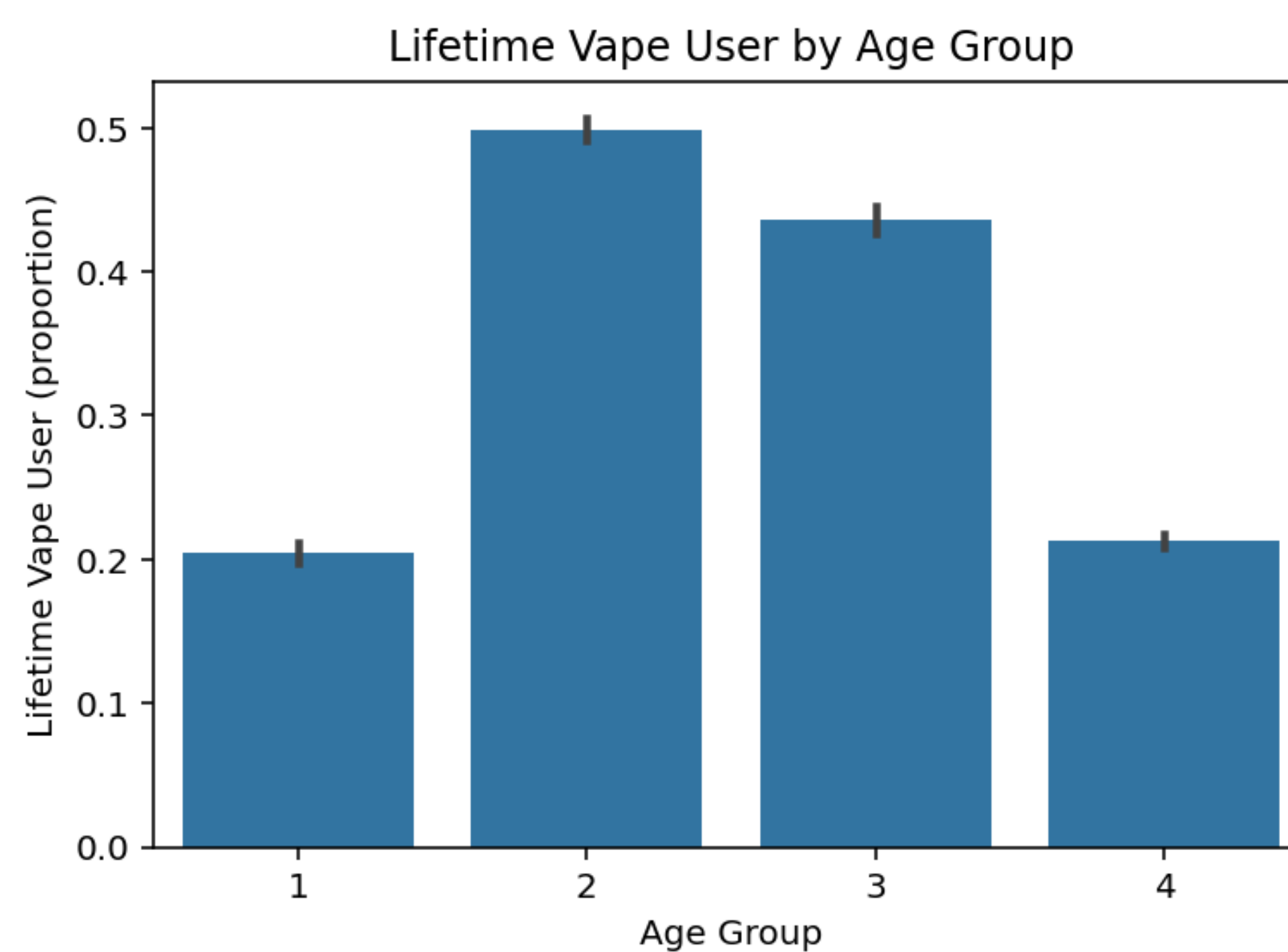
Results

Bivariate

- Chi-square test showed a significant association between age group and lifetime e-cigarette use ($\chi^2 = 4634.10, p < .001$). Lifetime vaping was highest among ages 18–25 (49.9%) and 26–34 (43.6%), while adolescents ages 12–17 (20.5%) and adults older than 35 (21.3%) reported much lower rates. This suggests lifetime e-cigarette use is most common in young adulthood.
- Among lifetime users, age group was also significantly associated with daily vaping ($\chi^2 = 300.25, p < .001$). Daily vaping was highest among ages 18–25 (23.7%), followed by 26–34 (21.3%) and 35+ (18.3%), while adolescents had the lowest rate (7.6%). Suggesting that while adolescents are most likely to try e-cigarettes, sustained daily nicotine use remains substantial among adult users who ever experience vaping.

Multivariate

- After controlling for nicotine dependence syndrome, age remained negatively associated with daily vaping (OR=0.89, $p < .001$). This indicates that with each increase in age group, the odds of daily vaping decreased by about 11%, suggesting that younger lifetime users are more likely to vape daily than older users.
- Nicotine dependence syndrome was a particularly strong predictor of daily vaping (OR=3.07, $p < .001$). Lifetime e-cigarette users who reported nicotine dependence had about three times greater odds of vaping daily compared with those without dependence symptoms. As shown in Figure 3, daily vaping prevalence was consistently much higher among dependent users across all age groups, especially among younger users.



Discussion

- Age has a strong relationship with both becoming a life-time vaper and becoming addicted to vape. Young adulthood from 18 to 25 year old is the key high-risk stage for both.
- Experimentation and addiction don't follow the same age pattern. While life time use drops sharply after young adulthood, daily use drops more gradually, implying that older adults are less likely to ever try vaping but are relatively more likely to become addicted.
- However, this study doesn't support Dahal's research results. As nicotine dependency syndrome is controlled in the multivariate model, logical regression shows that each step up in age group lowers the odds of daily vaping by about 11%. It means that even among equally nicotine-dependent users, younger people are still more likely to vape daily.
- The association between nicotine dependence and daily vaping is strongest in younger age groups, suggesting younger dependent nicotine users may be more likely to concentrate their nicotine use in e-cigarettes, whereas dependence among older adults may be distributed across a broader range of nicotine products.

Bluestein, M. A., Harrell, M. B., Hébert, E. T., Chen, B., Kuk, A. E., Spells, C. E., & Pérez, A. (2022b). Associations Between Perceptions of e-Cigarette Harmfulness and Addictiveness and the Age of E-Cigarette Initiation Among the Population Assessment of Tobacco and Health (PATH) Youth. *Tobacco Use Insights*, 15, 1179173X2211336. <https://doi.org/10.1177/1179173X221133645>

Dahal, R., Bhattarai, A., & Adhikari, K. (2022). Age and sex-related patterns of electronic cigarette use in the general population: Supporting a de novo substance use pattern. *Population Medicine*, 4(December), 1–10. <https://doi.org/10.18332/popmed/157270>

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McCauley, D. M., Gaiha, S. M., Lempert, L. K., & Halpern-Felsher, B. (2022). Adolescents, Young Adults, and Adults Continue to Use E-Cigarette Devices and Flavors Two Years after FDA Discretionary Enforcement. *International Journal of Environmental Research and Public Health*, 19(14). <https://doi.org/10.3390/ijerph19148747>