

The Additive Effect of Cigarette, E-cigarette, and Alcohol Use on Heart Disease Risk Among College Students



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Introduction

- Heart disease is the leading cause of death for people of all genders and races in the U.S.¹
- Cigarette use, e-cigarette use, and alcohol consumption are modifiable lifestyle factors associated with heart disease risk.
- Co-usage of different substances on heart disease risk among young adults is an area that warrants further research.

Objective

To characterize the current prevalence and pattern of co-usage of cigarettes, e-cigarettes, and alcohol among college students ages 18-24, and investigate the relationship of these substances on heart disease risk.

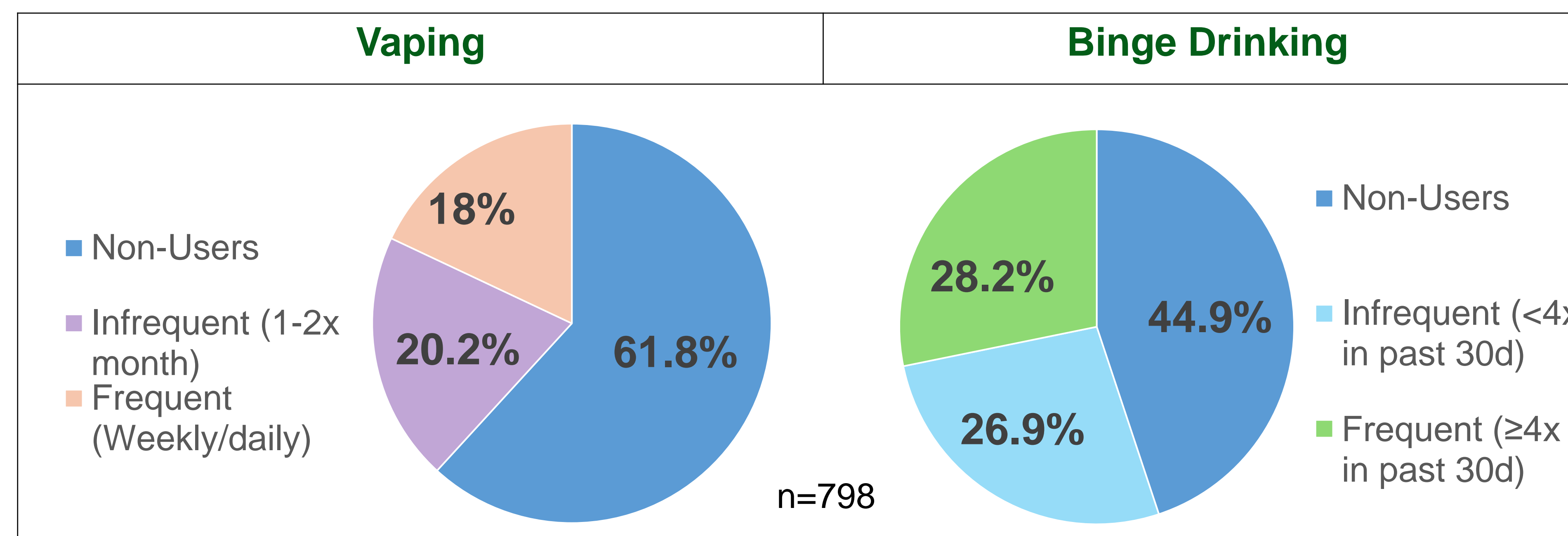
Methods

- Data were collected between 2021-2023 through the College Health and Nutrition Assessment Study, an ongoing cross-sectional study at a northeastern, public land-grant university in the U.S. that aims to understand factors affecting young adult health (UNH IRB #5524).
- Participants were grouped by the number of substance use from zero (non-users) to three (use of three substances).
- Participants with missing data or reported use of hypertension medication were excluded (n=138).
- The use of cigarettes, e-cigarettes, and alcohol of the participants was self-reported through an online survey. Binge drinking was defined as consumed ≥ 5 drinks for men & ≥ 4 drinks for women on one occasion.²
- Fasting HDL, triglycerides (TRG), and blood pressure levels were collected during an in-person assessment and evaluated for group differences using ANCOVA with adjustments for BMI and gender (SPSS V29).

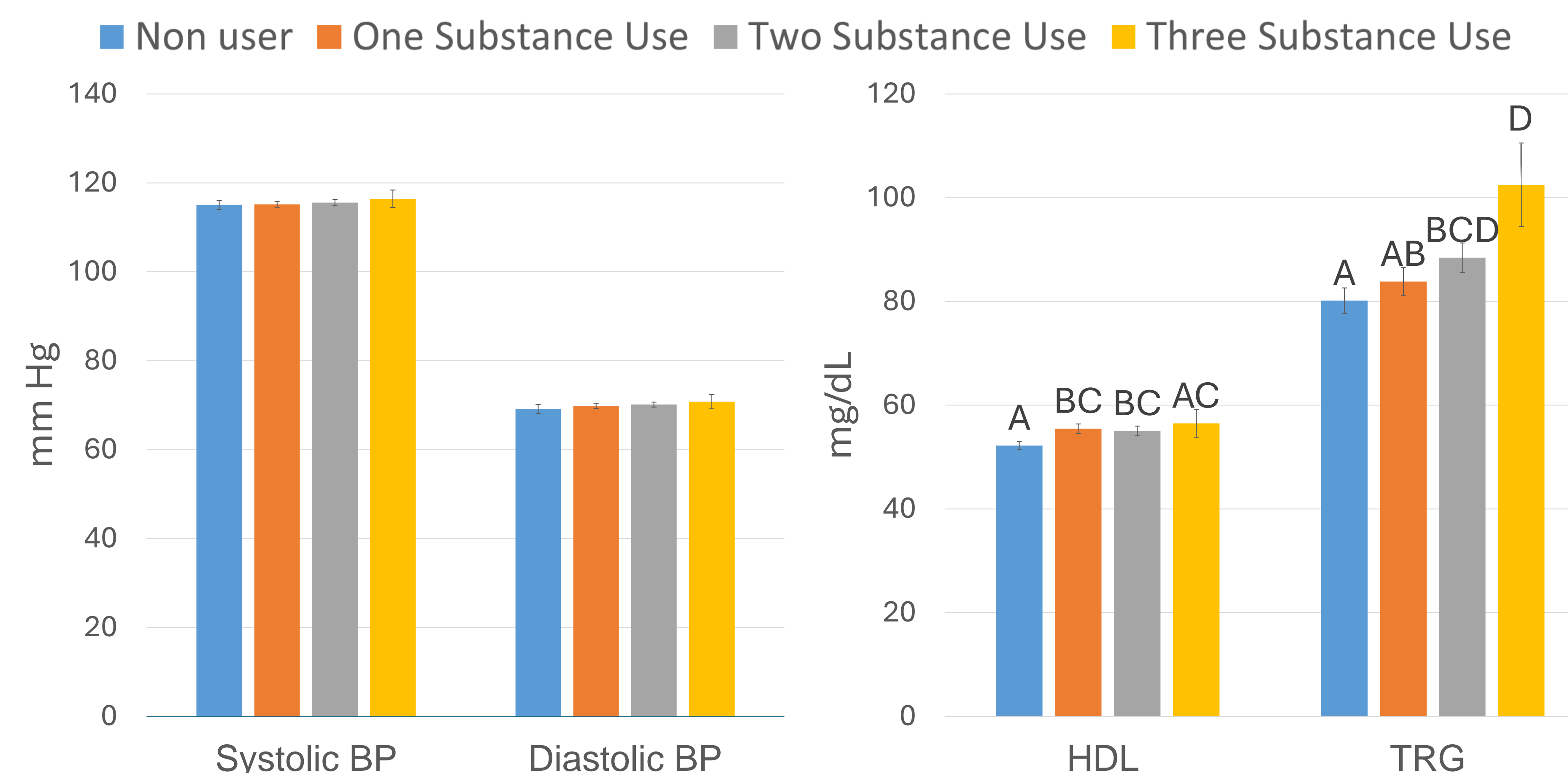
Study Population Demographics

	Non-users	One Substance Use	Two Substance Use	Three Substance Use
N (%)	303 (38.0)	243 (30.5)	224 (28.1)	28 (3.5)
Age	18.9 \pm 1.0	19.1 \pm 1.1	19.0 \pm 0.9	19.6 \pm 1.0
% White	90	93.7	97.8	96.4
% Male	32.7	38.7	33.9	67.9
% Non-Health Major	70.3	66.7	75.0	85.7
BMI (kg/m ²)	23.5 \pm 4.2	23.8 \pm 3.7	23.5 \pm 3.6	24.5 \pm 4.3

Frequency of Vaping and Binge Drinking



The Effect of Substance Use on Heart Disease Risk



Bar with different letters indicate mean differences (p<.05)

Results

- The final sample (n=798) was 36% male; 3.8% of participants reported current cigarette use, 38.3% reported current e-cigarette use, and 55.1% reported binge drinking in the past 30 days.
- Mean HDL and TRG levels were 54.4 \pm 15.1 and 84.4 \pm 43.5 mg/dL, respectively. The mean SBP and DBP values were 115.23 \pm 11.8 and 69.71 \pm 8.6 mm Hg, respectively.
- 17.7% of the participants had elevated blood pressure, 16.5% had stage 1 hypertension (HTN), and 3.4% had stage 2 HTN. 8.8% of the participants had borderline high or high TRG, 37.5% had at-risk HDL, and 28.1% had low HDL.

Conclusions

The increase in number of substance use is associated with significant increases in HDL and triglycerides. No group differences were observed for blood pressure.

Implications

These findings support the need for further research on the additive effect of substance use on heart disease. Efforts to incorporate substance use management into health interventions will reduce the burden of future disease for young adults.

References

- CDC. Heart Disease Facts. Centers for Disease Control and Prevention. Published May 15, 2023.
- Drinking Levels Defined | National Institute on Alcohol Abuse and Alcoholism (NIAAA).

Acknowledgements

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