



VCU

Nicotine and Other Substance Vaping and Mental Health Indicators Among Youth Adults

Rabia Imran,¹ Mary Carrico,² Elizabeth Ogunleye,² Darren Farmer,³
Sama Monjazeab,² Norhan Botrous,² & Caroline O. Cobb²

1 Department of Health Policy; Virginia Commonwealth University, 2 Department of Psychology; Virginia Commonwealth University, & 3 School of Medicine; Yale University

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Background

- Electronic delivery systems (i.e., vapes) can be used to consume multiple substances like nicotine, cannabis, and others.
- Vaping is particularly prevalent among younger populations:
 - In 2023, 10.3% of young adults reported exclusive nicotine vaping.¹
 - In 2020, the lifetime prevalence of cannabis vaping among young adults was reported to be 34.6%.²

Background

- Vaping nicotine is associated with negative mental health.³
- Those with greater depression and anxiety symptoms have higher dependance on nicotine-containing vaping products.⁴
- Evidence linking cannabhis and other substance vaping to mental health is lacking.

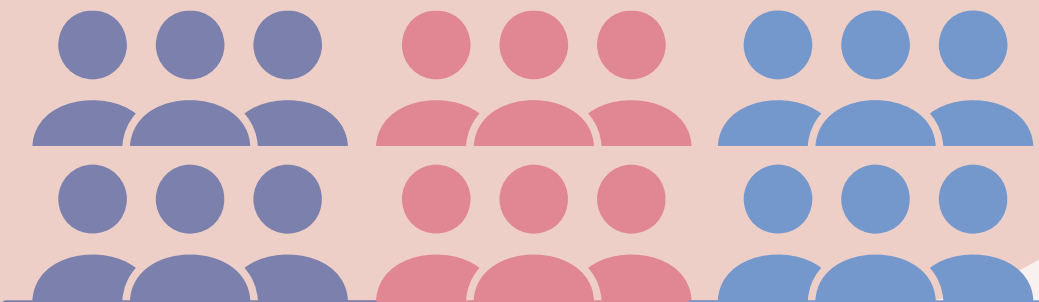
Study Aim

The aim of this study was to identify associations between vaping nicotine, cannabis, and other substances and mental health symptoms including depression, anxiety, and stress.

Methods

Data Collection:

- Participants were undergraduate students from Virginia Commonwealth University (VCU), recruited via an online research platform called SONA.
- Data was collected between March and June 2025 using REDCap.



Methods

Eligibility Criteria:

- Must be 18 years of age or older
- Able to read and write in English
- Comfortable answering questions about illicit substance use

Methods

Measures:

- Demographics
- Tobacco/Nicotine Use
- Other Substance Vaping Behavior
- Depression, Anxiety, And Stress Scale - 21 (DASS-21)

Analysis:

- IBM SPSS V31 was used to conduct ANOVA and independent samples t-tests



Methods

Participants were grouped into four categories based on past 30-day vaping:

Nicotine vaping only

Nicotine and cannabis/other substance
vaping

Cannabis and/or other substance vaping
only

No vaping

Vaping Categories

- Nicotine vaping products - nicotine or nicotine free liquids
- Cannabis vaping products - Delta-9 THC, CBD, Delta-8, or other
- Other substance vaping products - Amphetamines, caffeine, essential oils, ethanol, non-medical use of prescription opioids, herbal supplements, street opioids, hallucinogens, kratom, sexual stimulants, steroids, synthetic cathinones, other drug or substance

Vaping Products

Nicotine Vapes



Cannabis Vapes



Other Substance Vapes



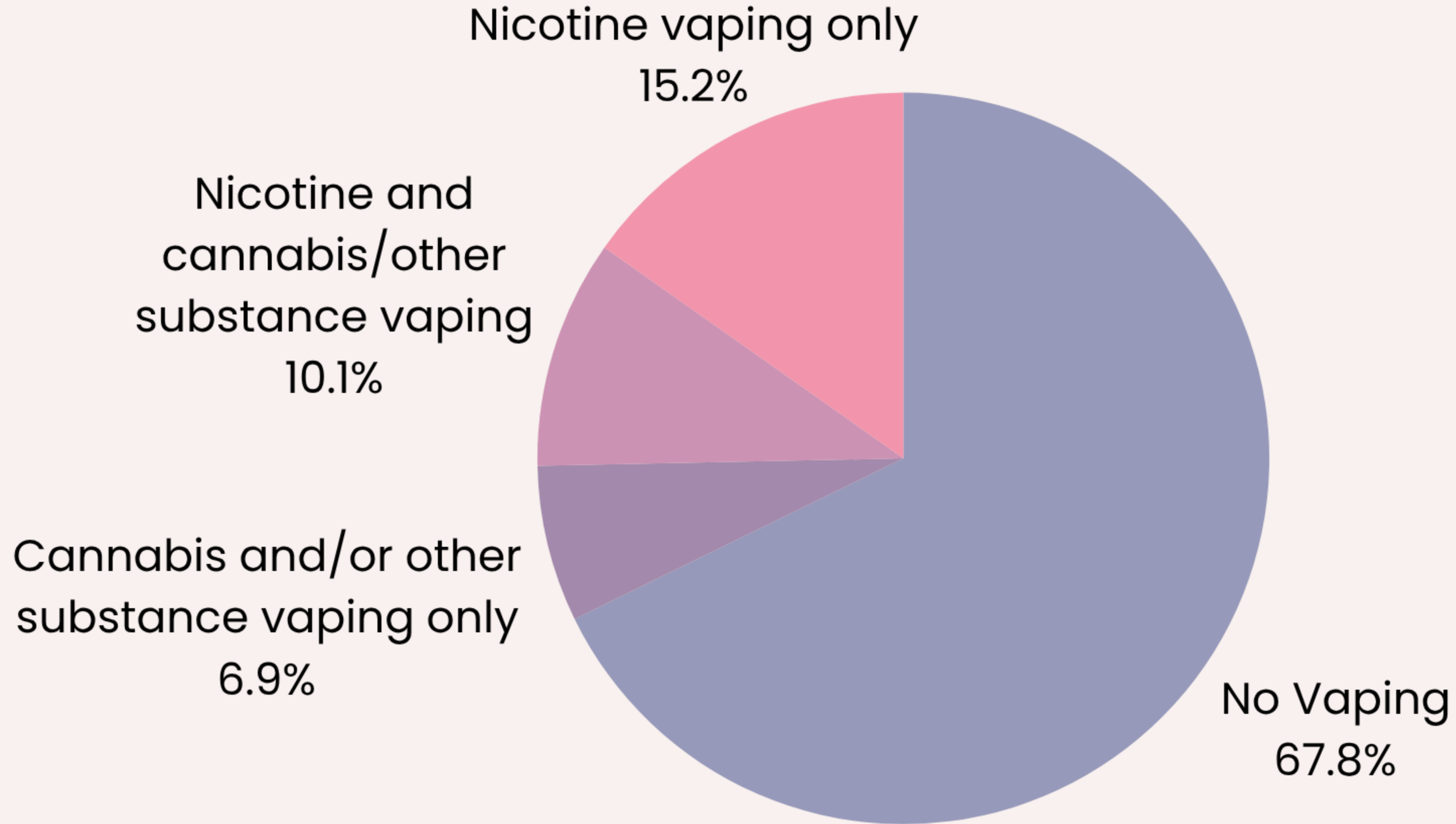
Participant Characteristics (N=375)

Female (sex at birth), %	82.6%
Age, M (SD)	20.2 (3.9)
RACE	
White, %	30.2%
African American/Black,%	24.0%
More than 1 race, %	18.1%
Asian, %	13.7%
ETHNICITY	
Hispanic (any race), %	8.4%

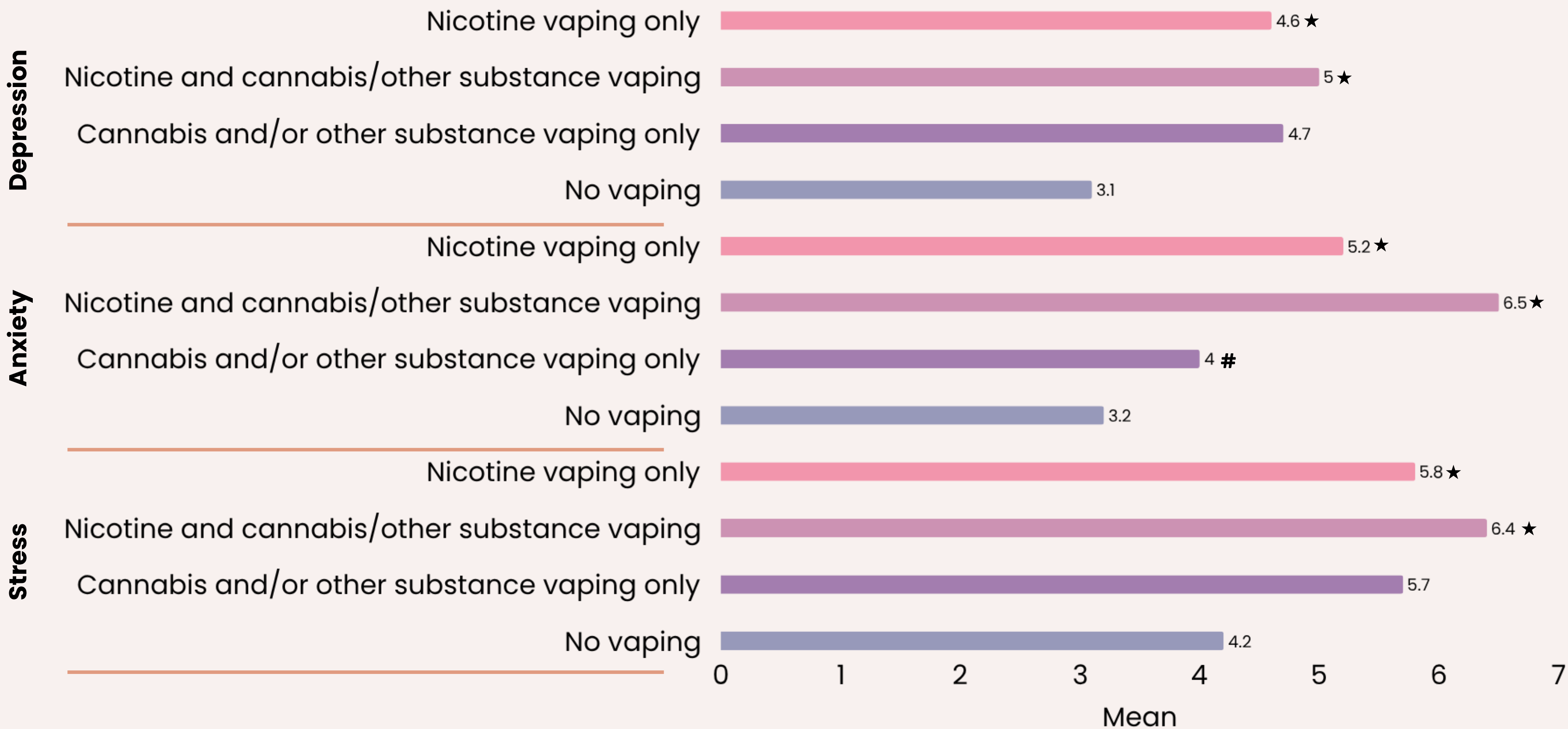
Vaping Frequency by Substance

SUBSTANCE	PAST 30-DAY VAPING FREQUENCY, M (SD)	N
Nicotine vapes	18.1 (12.0)	88
Nicotine-free vapes	5.5 (9.1)	10
Delta-9 THC vapes	12.4 (11.2)	29
CBD vapes	5.1 (4.4)	10
Delta-8 THC vapes	10.4 (9.3)	7
Caffeine vapes	10.7 (12.1)	10
Other vapes	5.6 (4.7)	7
Essential oil vapes	2.8 (1.7)	4

Past 30-Day Vaping Prevalence



Mental Health Symptoms in Relation to Vaping Behaviors



Note: ★ = significant difference relative to no vaping; # = significant difference relative to nicotine and cannabis/other substance vaping; $p < 0.05$.

Discussion

- Individuals who vape nicotine and cannabis/other substances endorsed the greatest depression, anxiety, and stress symptoms.
- Findings are consistent with associations observed for nicotine vaping,³ but this work also highlights potential risks associated with polysubstance vaping.

Discussion

- Use of multiple vaping products may have other health risks as observed for polysubstance use more broadly.⁵
- Future work should focus on incorporating educational resources to raise awareness and prevent youth and young adults from vaping nicotine and/or cannabis/other substances.

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Thank You!

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