

# Examining Nicotine Dependence in Adults using E-Cigarettes with and without Attention Deficit Hyperactivity Disorder

Clariashli Docena-Guerrero BS, Rachel L. Tomko PhD<sup>1</sup>, Jesse Vanacore MD<sup>2</sup>, Maham Dilawar MD<sup>1</sup>, Erin A. McClure PhD<sup>1</sup>

1)Medical University of South Carolina Department of Psychiatry and Behavioral sciences, 2)University of California San Francisco

Medical University of South Carolina

## Introduction

- Tobacco claims about 0.48 million American lives annually
- E-cigarettes (nicotine vaping) may have potential for harm reduction among those smoking cigarettes
- E-cigarettes also pose risks including nicotine dependence, etc.
- ADHD (Attention Deficit Hyperactivity Disorder) is a neurological disorder that is often diagnosed in childhood. Along with Hyperactivity it can also cause Impulsivity
- Children with ADHD are 2.5 times more likely to develop substance use disorders (SUD) with nicotine being the common substance used
- Up to date studies are needed to determine if nicotine use through vaping is more severe in adults with ADHD

## Study Aims

Compare nicotine dependence levels in adults who vaped nicotine (using e-cigarettes), with and without ADHD to assess if ADHD is associated with higher nicotine dependence.

## Methods

- A questionnaire was distributed via Prolific to adults in the southeastern United states
- To be eligible, adults (Ages 18+) had to report vaping any substance 10+ days out of the past 30
- The study aimed to analyze vaping behavior and used the Penn State Electronic Cigarette Dependence Index (10 items; Range=0-20) to assess nicotine dependence levels
- An Independent One-sided t-test was conducted to compare severity of e-cigarette dependence comparing adults with ADHD vs. those without ADHD

## Results

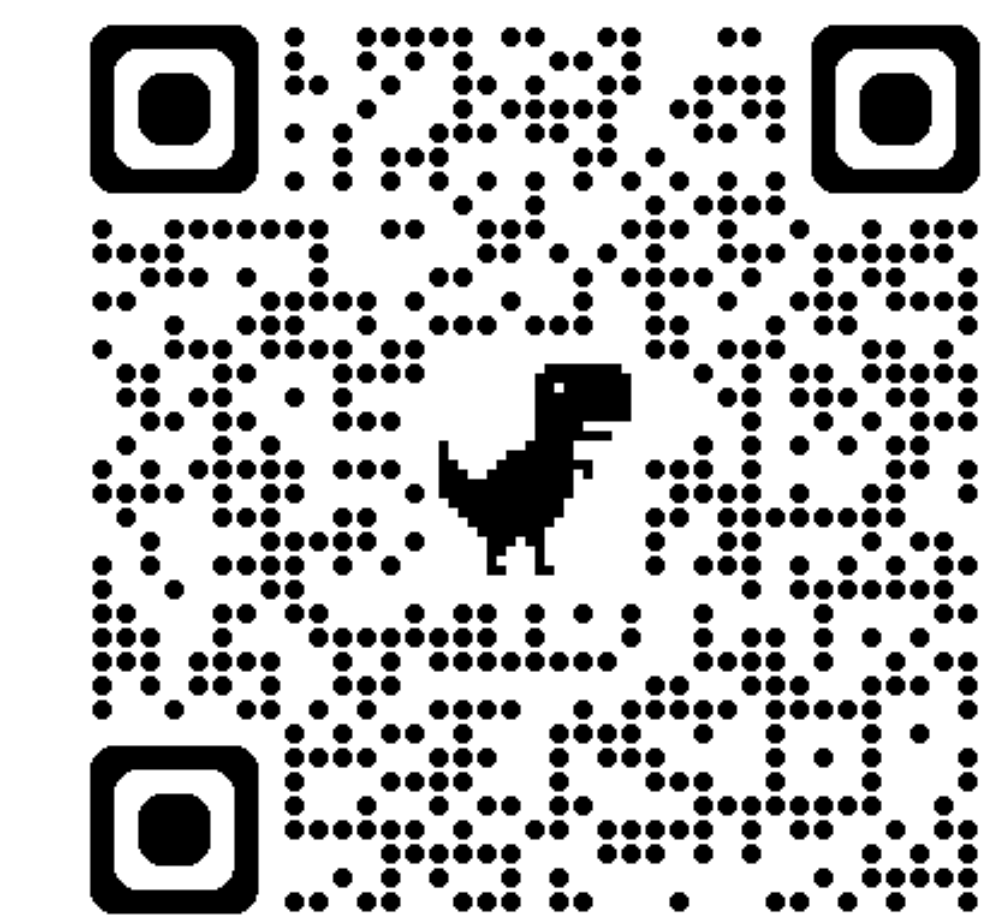
Categories	TOTAL % or Mean Within ADHD
<b>Racial Background(Percent)</b>	
Asian	2.3%
Black or African American	7.0%
White	82.6%
Some other race	1.2%
More than one race	7.0%
<b>Gender ( Percent)</b>	
Male	39.5%
Female	58.1%
Other	2.3%
Age (Mean)	30(19-69 Range)
Vaping(Mean) During the past 30 days, how many days was a vape of any kind used?	24.93 days

- Out of 376 total survey completers, 291 (77.5%) endorsed vaping nicotine.
- Of adults who vaped nicotine (Male: 41.2%. Female:56.1% Gender minority: 2.7%), 45.7% vaped nicotine exclusively and 31.6% vaped nicotine and cannabis.
- The mean e-cigarette dependence scores for the participants were 10.0 (SD=4.7) for adults with ADHD and 9.9 (SD=4.7) for adults without ADHD.
- The results from the Independent sample-t test showed that there was no difference in nicotine dependence in adults with ADHD vs. those without ADHD (t=.102, df=289, p=.459).
- Both groups had moderate nicotine dependence (Index score between 9-12).

## Conclusions

- Results suggest that in this sample, there is no significant difference in nicotine dependence between adults with ADHD and those without.
- The sample had a high e-cigarette dependence overall (Scores: 9.9-10), irrespective of ADHD status.
- The mean age of participants in the study is 30 with the youngest being 19. Examining dependence levels on e-cigarettes among younger populations with and without ADHD is particularly pertinent, especially given the current rise in e-cigarette use.
- Previous research has demonstrated that some individuals use nicotine to alleviate symptoms of ADHD. Future studies should investigate this relationship and whether vaping nicotine has perceived therapeutic effects.

## References



## Acknowledgements

This work was supported by NIH grant R25 DA020537 (DART; PI Back). This work was also supported by internal funds from Dr. McClure and Dr. Hartwell. Data collection was supported through SCTR and REDCap (UL1 TR001450).