Emotional Perception of Vaping Affects Vascular Health of Electronic Cigarette Users

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INTRODUCTION

- Electronic cigarettes (e-cigarettes) have gained popularity in recent years due to being marketed as a safer alternative to traditional cigarettes. However, the long-term effects of vaping are largely unknown.
- Studies suggest that e-cigarettes may lead to increased risk of cardiovascular disease (CVD).
- Individuals with anxiety/depression may also have increased CVD risk. Thus, users with heavy reliance on vaping for emotional regulation may exhibit worse vascular health overall and be at risk for CVD.

Purpose. This study was conducted to investigate whether using e-cigarettes as a coping mechanism for anxiety, worry, and/or depression affects the cardiovascular health of e-cigarette users.

METHODS

Vaping helps me deal with depression (0-10) + **E-cigarettes help me deal with anxiety or worry (0-10)** = ***Combined Emotional Perception Score (0-20)***

Emotional Perception. E-cigarette users were asked to rate from a scale of 0-10 whether vaping helps them with anxiety, worry, and/or depression. A score above 0 indicated self-diagnosis. Scores were combined to express the patient's emotional perception of vaping. The macrovascular health of patients with above-average combined scores was compared to patients with below-average combined scores. The health of patients self-diagnosed with anxiety were also compared with patients who were not self-diagnosed with anxiety.

Macrovascular Health. Flow-mediated dilation (FMD) was used to assess the macrovascular health and endothelial function of participants. The diameter of the brachial artery was measured with an ultrasound before, after, and during blood flow was occluded.

Statistical Analysis. Independent t-tests were used to determine statistical significance between the groups. Results were considered significant at $p < 0.05$ (*).

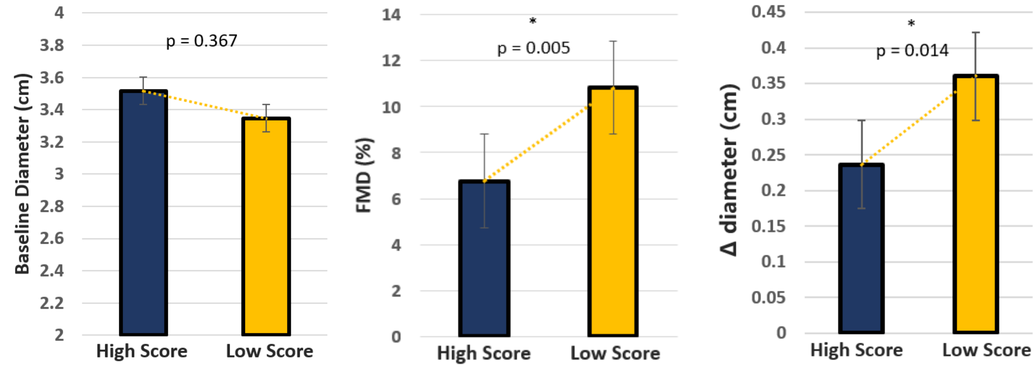
RESULTS

Subject Characteristics

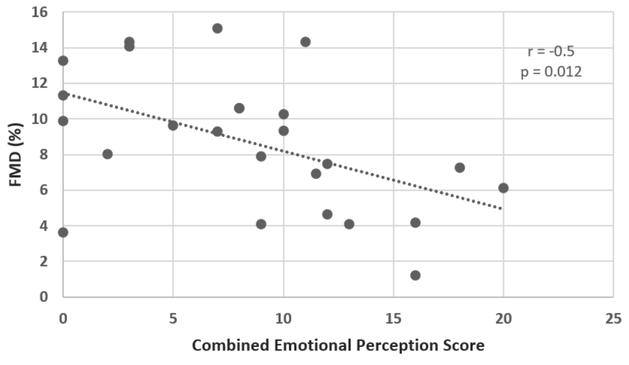
Variable	High score	Low score	*p* value
N	13	12	-
Sex (M/F)	6/7	7/5	-
Race (C/AA/O)	4/2/7	7/1/4	0.189
Age (yrs)	22.8±3	23.2±2	0.721
Height (cm)	171±10	174±9	0.445
Weight (kg)	67±12	74±20	0.350
BMI (kg/m²)	23±4	24±5	0.597
SBP(mmHg)	113±10	117±9	0.350
DBP (mmHg)	74±6	74±5	0.974
HR (BPM)	65±7	65±8	0.917
SpO2 (%)	98.8±0.8	98.1±0.6	0.030

Values are mean ± SD. M = Males; F = Females; C = Caucasian; AA = African American; O = Other; SBP/DBP = Systolic/Diastolic blood pressure; HR = Heart rate; SpO2 = Oxygen saturation

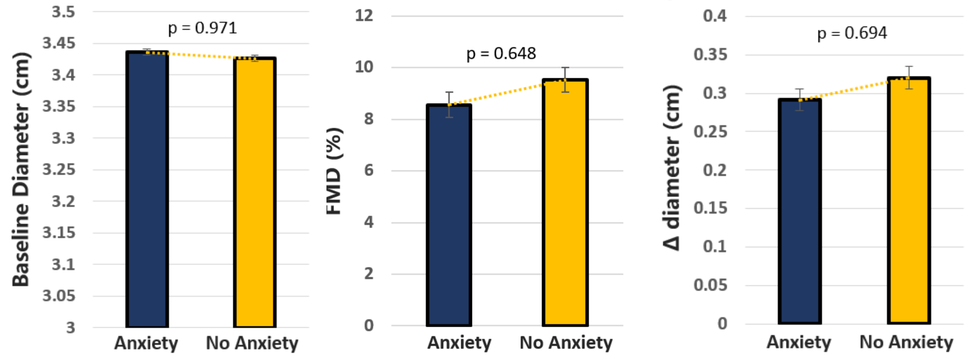
E-Cigarette Users Who Use Vaping as an Emotional Coping Mechanism Exhibit Worse Vascular Health



Emotional Perception & Vascular Health in Chronic E-Cigarette Users



No Significant Difference in FMD Between Subjects With & Without Anxiety



CONCLUSION

We have identified that while e-cigarette users with anxiety overall do not exhibit worse FMD than users with no anxiety, in e-cigarette users who use vaping as an emotional coping mechanism have significantly worse vascular health compared to users who do not feel a similar benefit. As impaired vasodilation and lower FMD is a predictor of future cardiovascular disease, more investigation needs to be conducted on the specific physiological effects on emotional dependency of vaping.

ACKNOWLEDGEMENTS

Supported in part by a Rapid Response Project FDA/NIDA (PRM) and AHA 23PRE1018396 (TS).

VCU Center for the Study of Tobacco Products · National Institute on Drug Abuse · The VIP Lab