



Substance Abuse and Smoking Choices: A Comparison Between Electronic- Cigarettes Users and Tobacco Smokers

Abdullah M. Alanazi, MSc, RRT-NPS and Eric W. Ford, Ph.D., MPH

Introduction



Smokers are more likely than non-smokers to be engaged in other risky behaviors such as illicit substances and other drugs (Marijuana, Heroin, cocaine, Amphetamine).

Electronic Nicotine Delivery Systems (ENDS; aka, e-cigarettes) are a new smoking alternative that may prove to be a new ‘gateway’ to other risky behaviors. In particular, ENDS are growing in popularity among younger populations that typically initiate new smoking behaviors.

Different Proposed Questions



- How clear is the relationship between ENDS use and substance abuse?
- Is the availability of ENDS increasing the risk for other forms of substance abuse?
- Can effective ENDS documentation serve as a risk factor for other negative health behaviors?
- How informative if we compare the ENDS and traditional tobacco use to substance abuse rates?
- Are there significant differences in substance abuse proportions between cigarette and ENDS users?

Purpose and Design



- **Study Question:** What is the proportion of current and former substance abuse with individuals who self-report use of electronic cigarettes or tobacco smoking.
- **Study Design:** The i2b2 system was used to generate smoking, ENDS use, current substance abuse, and former substance abuse rates.

Method



- **Study sample:** The University of Alabama Birmingham Health System's EMR entries from Sept 1st 2017 to Feb 21st 2018 were analyzed. In all, there were 227 ENDS users and 3729 smokers identified in the sample.
- **Statistical analysis:** Two-Sample Z-Test proportion analysis was performed for ENDS and tobacco cigarettes to the rates of current and former substance abuses.

Findings

Sample demographics

	E-Cigarettes users (n=227)	Tobacco Smokers (n=3729)	Current substance abuse (n=2459)	Former Substance abuse (n=2018)
Gender				
Male	115	2018	1515	1226
Female	112	1711	943	792
Others	0	0	1	0
Ethnicity				
White	166	2107	1145	1060
Black	51	1369	1164	893
Hispanic	0	19	24	15
Asian	1	18	11	5
Others	9	216	115	45

Findings

Two sample z scores of substances abuse with smoking and vaping choices

	Percentage	Z-Score	P-value
E-Cigarettes and Current substance abuse	22.03%	2.36	0.05
Smoking and Current substance abuse	16.06%		
E-Cigarettes and Former substance abuse	17.62%	5.45	0.0001
Smoking and Former substance abuse	7.48%		
E-Cigarettes and Any substance abuse	39.65%	5.48	0.0001
Smoking and Any substance abuse	23.55%		

Conclusion

- Our findings from the University of Alabama Birmingham Health System concludes that the proportion of electronic cigarettes and other substance abuse is greater than the proportion of tobacco smoking and substance abuse.
- The study's cross-sectional design makes causal inferences impossible. One possibility is that substance abusers are using the ENDS as a cessation tool. Alternatively, E-cigarettes are serving as a 'gateway' mechanism to other riskier substance.
- Understanding the temporal initiation patterns among these products is critical to designing effective interventions.

Future Research



Collecting longitudinal data to identify substance abuse pathways in terms of both initiation and cessation.

Questions include:

- Are E-cigarettes increasing smoking initiation?
- Are E-cigarettes an effective tool in promoting cessation of other substances – both legal and illegal?
- Are there systematic demographic or socio-economic disparities associated with E-cigarettes initiation?

Thank You and Questions

