

University of Arkansas, Fayetteville

ScholarWorks@UARK

Health, Human Performance and Recreation
Undergraduate Honors Theses

Health, Human Performance and Recreation

5-2024

Examining Young Adult E-Cigarette Users by Device Type: A Latent Class Analysis

Mufazzela Tabassum

University of Arkansas, Fayetteville

Follow this and additional works at: <https://scholarworks.uark.edu/hhpruht>



Part of the [Public Health Commons](#), and the [Social and Behavioral Sciences Commons](#)

Citation

Tabassum, M. (2024). Examining Young Adult E-Cigarette Users by Device Type: A Latent Class Analysis. *Health, Human Performance and Recreation Undergraduate Honors Theses* Retrieved from <https://scholarworks.uark.edu/hhpruht/111>

This Thesis is brought to you for free and open access by the Health, Human Performance and Recreation at ScholarWorks@UARK. It has been accepted for inclusion in Health, Human Performance and Recreation Undergraduate Honors Theses by an authorized administrator of ScholarWorks@UARK. For more information, please contact scholar@uark.edu, uarepos@uark.edu.

Introduction

- E-cigarette users are often treated as a homogenous group, with user states often grouped by current or previous use.
- Some research has explored reasons for use and use by device type and flavor preferences^{1,2}; however, with an evolving landscape of e-cigarette devices, it is important to explore young adult e-cigarette users’ profiles/characteristics based on the type of devices they use.



Purpose

- The purpose of this study was to explore if there are heterogenous groups of young adult e-cigarette users when examining their use by device type and to understand what influences users to choose specific devices.

Methods

Participants (n=595)

- Young adults, 18-30 years of age
- Had used an e-cigarette in the past 30 days
- Used e-cigarettes every day or somedays
- Used e-cigarettes > 1 day per week

Study Design and Protocol

- Explanatory Mixed Methods Design Using Pre-Collected Data From:
 - Cross-sectional, online survey
 - Zoom Interviews with 25 survey participants

Measures

- In the survey, participants selected all e-cigarette devices they had used in the past 30 days with pictures of each device.
- Interviews transcripts coded using NVivo.

Results

Data Analysis

- A latent class analysis (LCA) was used to identify groups of e-cigarette users into classes based on their past 30-day use of different device types.

Table 1. Item-response Probabilities Given 5 Class Membership (n=595)					
	Non-JUUL Pod-based Users	All Device Users	JUUL Pod and Puff Bar Disposable Users	Non-Puff Bar disposable Users	Box Mod Users
	21.6%	6.1%	31.2%	18.9%	22.3%
Vape pen	.23	.74	.38	.16	.43
Mod & Mech Mod			.04	.00	.33
Box Mod	.05	.77			
JUUL	.10	.41	.03	.00	.51
Other pod	.00	.89	.71	.17	.12
Puff Bar	1.00	.69	.15	.00	.02
Other disposable	.14	.69	.49	.17	.15
	.22	.66	.19	1.00	.20
Note. Boldface numbers represent moderate to high probabilities.					

Conclusions

- There were distinct classes of e-cigarette users based on the type of device and brand loyalty to highly marketed devices.
- Young adult e-cigarette users are not a homogenous group and should not be classified as such in tobacco research.
- Overall, understanding the themes common within each class of e-cigarette users can aid in tailoring cessation and intervention strategies that are unique and personalized for each class of e-cigarette users.





Acknowledgements

Funding for this project was provided by the University of Arkansas Provost’s Collaboration Grant though the Office of the Provost and Vice Chancellor for Academic Affairs and the University of Arkansas Honors College.

References

1. Lanza, H.I., Leventhal, A.M., Cho, J., Braymiller, J.L., Krueger, E.A., McConnell, R. and Barrington-Trimis, J.L., 2020. Young adult e-cigarette use: a latent class analysis of device and flavor use, 2018-2019. *Drug and alcohol dependence*, 216, p.108258.

2. Alqahtani MM, Massey ZB, Fairman RT, Churchill V, Ashley DL, Popova L. General and Device-Specific Reasons for ENDS Use: A Qualitative Study with Adult ENDS Users. *International Journal of Environmental Research and Public Health*. 2022; 19(11):6822. <https://doi.org/10.3390/ijerph19116822>

Table 2. Joint Display of E-Cigarette User Types by Latent Classes		
Latent Classes	Themes/Subthemes	Participant Quotes
Non-JUUL Pod-based Users (21.6%) 	non-JUUL pod users , reported the following reasons for their preference:	I. “I use non-JUUL pods because JUUL would always end up breaking or I would lose them.”
	I. The pod/design was more reliable than JUUL.	II. “I like that I don't have to fool with the batteries and the different modifications. It's simple and there's lots of flavor options.”
	II. More fruity flavors (this was lacking in JUUL) and easy to use	III. “I use non-JUUL pods because JUULs hit less hard. Non-JUUL pods are a little bit more abrasive”.
	III. More abrasive/stronger pulls	IV. “Only reason I use it is because I live like a five-minute walk from a gas station. It’s just super quick and easy to go there to buy a pack of pods and then go home.”
	IV. Ease of access	V. “I prefer cartridges (pods) over disposables because it's a lot cheaper.”
JUUL and Puff Bar Users (31.2%) 	V. Cheaper Price	
	JUUL users reported the following similarities:	I. “JUUL is the most memorable for me because it was the first device I used. I have a little soft spot for the brand.”
	I. It was the first device that they used and had a level of brand loyalty.	II. “The ability to be able to stop into any gas station and get JUUL pods instead of having to go to a vape shop was a huge draw for me.”
	II. Ease of access, portability	I. “I love the different flavors, and I want to be able to not vape constantly. With disposables I have to go out and get it. This makes a barrier to entry, which prevents me from smoking.”
	Users preferred Puff Bar Disposables for the following reasons:	
Non-Puff Bar Disposables Users (18.9%) 	I. Flavors and desire to quit/decrease use	II. “Puff Bar users usually have little idea of what is going on. They are more likely to be just teenagers.”
	II. Popular among the younger young adults	I. “I use disposable vapes mostly because I don't want to commit to buying a device. I want to try to quit, but that has not been successful”
	Non-Puff Bar Disposables Users:	II. “I use non-Puff Bar disposables because they are not as expensive as Puff Bar disposables.”
	I. Desire to quit/decrease use	
	II. Cheaper than Puff Bar disposables	I. “You can customize it and set it up however you like. You can have custom wattages, coils, and it is rechargeable.”
Box Mod Users (22.3%) 	Box mod users:	II. “Box mods are kind of reserved for like the enthusiasts and the hobbyists. You have people who like to do smoke tricks.”
	I. Enjoyed the customizability of the device	III. “I think that early 20s/teenagers are more likely to be using the disposable or the rechargeable as opposed to like the box mods. I think the box mods are like an older generation of vaping technology.”
	II. Considered their e-cigarette use to be a hobby	
	III. Described as being much older than users of other devices.	
All Devices (6.1%)	Themes for all devices can be a collection of the themes in each class.	