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E-Cigarette Use in Southern California during the COVID-19 Pandemic

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Background

- There has been an increase in use of electronic cigarette, or nicotine vapes, in recent years leading to the E-Cigarette or Vaping Product-Associated Lung Injury epidemic in the United States.
- Injuries present as respiratory issues, including shortness of breath, wheezing, increased phlegm production, aggravation of asthma and chronic cough (Braymiller et al., 2020).
- As COVID-19 emerged, attention shifted towards the pandemic and away from e-cigarette use. There is reason to believe that stressors due to COVID-19 may impact e-cigarette use.
- Studies have shown that there is an association between nicotine use and being in a state of stress or negative emotional state (Ornell et al., 2020).
- In our study, the smoking related stressors we are addressing are pandemic related restrictions including mask mandates, social and physical distancing, stay-at-home orders, remote school and work, and isolation periods due to sickness.

Objective

To determine whether COVID-19 pandemic restrictions influenced electronic cigarette use among adults in Southern California (Los Angeles, Orange County, San Diego counties).

Methods

- Cross-sectional study examining perceived stress associated with COVID-19 restrictions that influenced smoking habits among adults living in Southern California with demographic questions to research disproportionately affected populations.
- Participants were asked to take an anonymous, online survey distributed via text messaging and social media platforms including Reddit, Facebook, and Instagram
- Questions on smoking habit perceptions were ranked on a Likert scale with one open-ended question on other potential stressors.

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Results

Table 1. Sociodemographic Characteristics by Smoking History

Table 1 is representative of the number of smokers and non smokers (previous or never smoked).

The final sample size of 97 participants consisted of 32 current smokers and 65 non-smokers (N=97).

Smoking history for non-smokers is defined as former smokers or those who have never smoked for the purpose of this data set.

For bivariable testing purposes, all pairings of demographic questions and perception-based questions about smoking habits led to insignificant results and showed no differences between sociodemographic groups.

The results we received from a chi-square test to show if there was any significance between county and smoking history was p=0.222.

Participant Demographics	Total	Current Smoker	Non-Smoker
N	97	32 (33.0)	65 (67.0)
Age			
18-24	41	15 (36.6)	26 (63.4)
25-34	45	15 (33.3)	30 (66.7)
35-44	9	2 (22.2)	7 (77.8)
45-54	1	0 (0.0)	1 (100.0)
55-60	1	0 (0.0)	1 (100.0)
Gender Identification			
Male	42	19 (45.2)	23 (54.8)
Female	53	13 (24.5)	40 (75.5)
Non-Binary	2	0 (0.0)	2 (100.0)
Education Level			
High School Diploma	8	3 (37.5)	5 (62.5)
Some College, No Degree	28	11 (39.2)	17 (60.8)
Associate's Degree	10	5 (50)	5 (50)
Bachelor's Degree	45	11 (24.4)	34 (75.6)
Graduate Degree	3	1 (33.3)	3 (66.7)
Postdoctoral Degree	2	1 (50.0)	1 (50.0)
County of Residence			
Orange	29	6 (20.7)	23 (79.3)
Los Angeles	27	10 (37.0)	17 (63.0)
San Diego	41	16 (39.0)	25 (61.0)
Race			
Black or African American	4	2 (33.3)	2 (66.7)
Asian	38	12 (31.5)	26 (68.5)
White/Caucasian	54	20 (37.0)	34 (63.0)
American Indian or Alaskan Native	3	0 (0.0)	3 (100.0)
Hawaiian Native Or Other Pacific Islander	3	0 (0.0)	3 (100.0)
Ethnicity			
Hispanic/Latino	21	5 (23.8)	18 (85.7)
Not Hispanic/Latino	70	26 (37.1)	47 (67.1)

Figure 1. Perceived Effects of Pandemic Related Restrictions

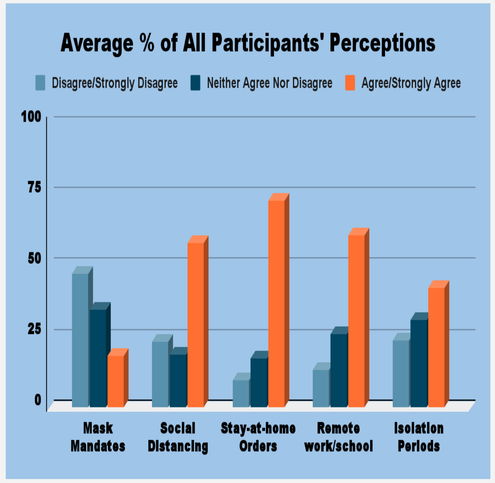

Figure 1 data from questions 14-16 are based on pandemic related restrictions' effects on smoking habits including current, former, and new users as well as increased use.

Most participants agree or strongly agree that **stay-at-home orders had the most impact** (73.2%) followed by remote work and school (60.8%), social distancing (58.1%), COVID-19 isolation periods (42.3%), and mask mandates (18.2%).

Conclusions

- Adults in Southern California believe that stay-at-home orders, remote work and school, and social distancing may be the most influential factors on e-cigarette use during the pandemic.
- Along with stress related to COVID-19 restrictions, many Southern Californians also attributed unemployment, increased social media use and influence, and losing loved ones as stressors related to smoking in an open ended question.
- There is not enough statistical evidence to prove that pandemic related restrictions are linked to smoking habits.

Limitations

- In order to achieve an accurate representation of adults in Southern California, a larger sample size would yield more accurate results. There are certain demographics that do not express diversity properly with a sample size of 97 participants.
- A sample of individuals who are predominantly white, have a Bachelor's degree, live in San Diego, or any other demographic that had higher responses, does not give proper representation for identifying disparities in various social groups.
- There was also a missed opportunity to include sexual orentiation in the demographic questions to see if there were any differences in perceived smoking among the LGBTQ community.

Implications

- More research is needed to produce results that are representative of Southern California's population.
- Policies could be introduced to combat potential disparities among different socioeconomic groups.
- Data on increased/novel substance use due to perceived stress may suggest more public health campaigns against e-cigarettes.
- Are there differences in perceptions of smoking due to pandemic related restrictions among different racial groups or gender identities?
- Do age, education level, ethnicity, and location influence perceptions of smoking due to pandemic related restrictions?

References

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