

# Urban and Rural Differences in Smoking Behavior Among Vulnerable Populations during the COVID-19 Pandemic

## BACKGROUND

- Rurality is a risk factor for cigarette smoking among adults<sup>1</sup>
- Cigarette smokers might be at an increased risk of death from COVID-19<sup>2,3</sup>
- It is unclear how differences in healthcare access and COVID-19 prevalence between urban and rural areas might influence individual behavior in response to the COVID-19 pandemic

## AIM

To examine potential differences in smoking related behavior among urban and rural adults during the COVID-19 pandemic

## METHODS

- Participants of a previous trial conducted at UVM investigating effects of VLNC cigarettes in vulnerable populations were surveyed in June and July of 2020 about their smoking related behaviors during the ongoing COVID-19 pandemic
- Survey respondents (n=227, 49.7% response rate) were categorized as rural or urban in accordance with Federal Office of Rural Health Policy methodology<sup>4</sup> using home address and zip code information
- Rural and urban respondents were compared on their survey responses using parametric and non-parametric tests

## RESULTS

Table 1: Participant characteristics

| Variable                         | Rural | N=89 | Urban | N=138 | p    |
|----------------------------------|-------|------|-------|-------|------|
|                                  | n     | %    | n     | %     |      |
| Primary menthol smoker           | 33    | 37.1 | 31    | 23.5  | 0.03 |
| Current smokers                  | 69    | 77.5 | 117   | 84.8  | 0.17 |
| Non-Hispanic White race          | 83    | 93.3 | 120   | 87.0  | 0.59 |
|                                  | M     | SD   | M     | SD    | p    |
| Age                              | 36.4  | 10.0 | 35.8  | 10.3  | 0.45 |
| Cigarettes per Day (CPD)         | 16.5  | 8.0  | 15.3  | 8.8   | 0.28 |
| Heaviness of Smoking Index (HSI) | 2.9   | 1.4  | 2.9   | 1.6   | 0.94 |

\*CPD and HSI data do not include individuals who were no longer smoking at the time of the survey

Table 2: Number and valid % of respondents endorsing survey responses

| Survey Question  | Rural     | N=89        | Urban     | N=138       | p               |
|--|-----------|-------------|-----------|-------------|-----------------|
|  | n         | %           | n         | %           |                 |
| When did you quit smoking?                                     |           |             |           |             | 0.37            |
| Before the COVID-19 pandemic                                   | 16        | 80.0        | 14        | 66.7        |                 |
| During the COVID-19 pandemic                                   | 4         | 20.0        | 4         | 19.1        |                 |
| Since the COVID-19 pandemic, are you...                        |           |             |           |             |                 |
| <b>leaving your house specifically to buy cigarettes?</b>      | <b>36</b> | <b>52.2</b> | <b>79</b> | <b>67.5</b> | <b>0.04</b>     |
| buying more packs per visit?                                   | 44        | 63.8        | 65        | 55.6        | 0.27            |
| buying cartons instead of packs?                               | 28        | 40.6        | 36        | 30.8        | 0.17            |
| buying cheaper cigarette brands?                               | 21        | 30.4        | 30        | 25.6        | 0.48            |
| <b>buying cigarettes from an Indian Reservation?</b>           | <b>23</b> | <b>33.3</b> | <b>21</b> | <b>18.0</b> | <b>0.02</b>     |
| buying fewer cigarettes than normal?                           | 6         | 8.7         | 9         | 7.7         | 0.79            |
| buying other tobacco products instead of cigarettes?           | 5         | 7.3         | 9         | 7.7         | 1.00            |
| <b>changing the way you smoke to avoid touching your face?</b> | <b>4</b>  | <b>6.2</b>  | <b>23</b> | <b>24.0</b> | <b>&lt;0.01</b> |
| avoiding wearing a mask in order to smoke?                     | 24        | 40.7        | 46        | 45.5        | 0.55            |

## DISCUSSION

- Urban and rural smokers largely did not differ in their smoking rate or smoking related behavior changes during the current COVID-19 public health crisis.
- Rural respondents were more likely to have bought cigarettes from an Indian reservation but less likely to have left their house specifically to buy cigarettes or to have changed smoking behavior to avoid touching their face
- Rural respondents were more likely to be primary menthol smokers. This contrasts with prior research indicating similar rates of menthol prevalence between urban and rural residents in the Northeast region.<sup>5</sup>
- Future research into the implications of the COVID-19 pandemic for urban and rural smokers should examine samples from wider geographical regions.

## REFERENCES

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