

## SIGNIFICANCE

- Smoking increases the risk of developing lung disease and other respiratory symptoms (e.g., wheezing).<sup>1</sup>
- Wheezing is characterized by a high-pitched whistling sound during expiration or inspiration due to the narrowing of airway walls, obstruction, or constriction.<sup>2</sup>
- Use of cigarettes (CC), and more recently e-cigarettes (EC), has been shown to be cross-sectionally associated with wheezing.<sup>3,4</sup>
- The purpose of this study is to assess longitudinal trends in self-reported wheezing symptoms in the past 12 months, how current use of CC and/or EC predicts self-reported wheezing symptoms, and examine the effect of former smoking on their relationships.

## METHODS

- Adults who self-reported on wheezing symptoms in the past 12 months and use of CC and/or EC in at least two waves of the PATH Study Waves 2-4 (W2-W4) were analyzed.
- Descriptive statistics and generalized estimating equation models were used for the analysis with adjustment for gender, age, race/ethnicity, BMI, childhood and current exposure to secondhand smoke, asthma diagnosed by the age of 18, and self-perception of health.
- Former smoking was taken into consideration.
- Estimates were weighted to represent the US adult population, and variances were estimated using balanced repeat replication with Fay's adjustment of 0.3 to increase estimate stability.

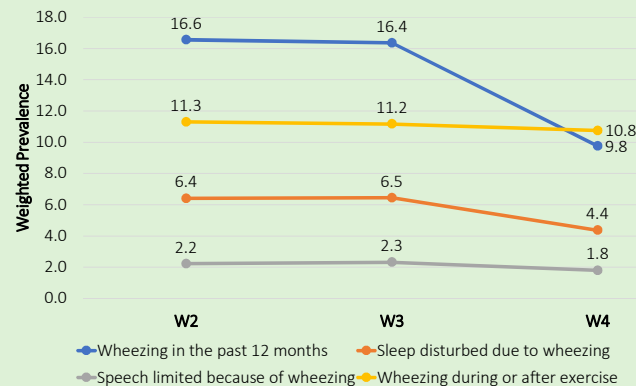
## ACKNOWLEDGMENTS

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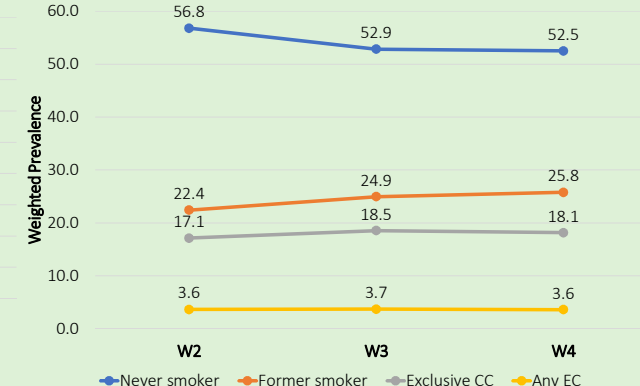
## RESULTS

- The proportion of self-reported wheezing symptoms in the past 12 months has decreased significantly ( $p < 0.001$ ), except for the proportion of those who had wheezing during or after exercise (see **Figure 1**).
- The prevalence of CC and EC use has changed significantly over time, and remained significant when former smoking was taken into consideration ( $p < 0.001$ ; see **Figure 2**).
- Current EC (aOR: 1.39; 95%CI: 1.14, 1.70), CC (aOR: 2.69; 95%CI: 2.46, 2.93), and dual users (aOR: 2.69; 95%CI: 2.34, 3.09) were more likely to self-report wheezing in the past 12 months, as well as other wheezing symptoms, relative to current non-users.
- Former smokers who were not currently vaping were more likely to report wheezing in the past 12 months (aOR: 1.55; 95%CI: 1.35, 1.78) when compared to never smokers, but did not differ when compared to current vapers who were former smokers.
- Current vaping without a history of smoking was not associated with self-reporting wheezing symptoms in the past 12 months when compared to never smokers, but this could be a function of a younger population who has not been vaping long enough to exhibit wheezing symptoms.

**Figure 1:** Changes in prevalence of self-reported wheezing symptoms



**Figure 2:** Changes in prevalence of current use of EC and CC



## CONCLUSIONS

- Use of EC, CC, or dual use could predict self-reported wheezing symptoms.
- Current vaping showed a lower risk of self-reporting wheezing symptoms than current CC users or dual users.
- It appears that the risk of wheezing symptoms among current vapers who were former smokers is primarily a result of their smoking history.
- Quitting tobacco completely is beneficial for respiratory health.

## REFERENCES

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