

Longitudinal Analysis of Sustained Cigarette Smoking Abstinence and Relapse Behaviors

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Background

Observations regarding smoking cessation and relapse patterns among adults who smoke cigarettes (AS) are dated and mostly rely on cross-sectional surveys

Longitudinal assessments are needed to better understand the complex cessation and relapse behaviors

We present longitudinal analysis using the Population Assessment of Tobacco and Health (PATH) Study to investigate cigarette smoking abstinence and relapse among adults who smoke cigarettes



Data

- Population Assessment of Tobacco and Health (PATH) Study, sponsored by NIH and FDA
- On-going nationally representative, longitudinal cohort study of US youth ($n \approx 13,000$) and adults ($n \approx 30,000$), which generates epidemiologic data on tobacco use behaviors, including patterns of use, attitudes, beliefs, exposures, and health consequences associated with the use of tobacco products.
- Launched in 2011, seven waves have been implemented through 2023

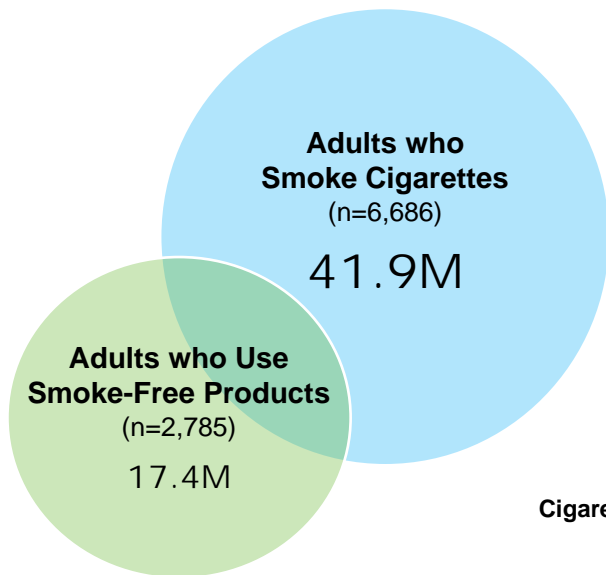
Method

- Adults who smoke cigarettes ($n=6,686$) in Wave 3 (October 2015 to October 2016) were followed up in Wave 4 (December 2016 to January 2018) and Wave 5 (December 2018 to November 2019)
- Measures of interest:
 1. Past 30-day (P30D) cigarette smoking abstinence rate in Wave 4
 2. Sustained cigarette cessation rates and relapse rates in Wave 5
- We further studied various factors that might be associated with past 30-day abstinence and subsequent relapse through logistic regression models

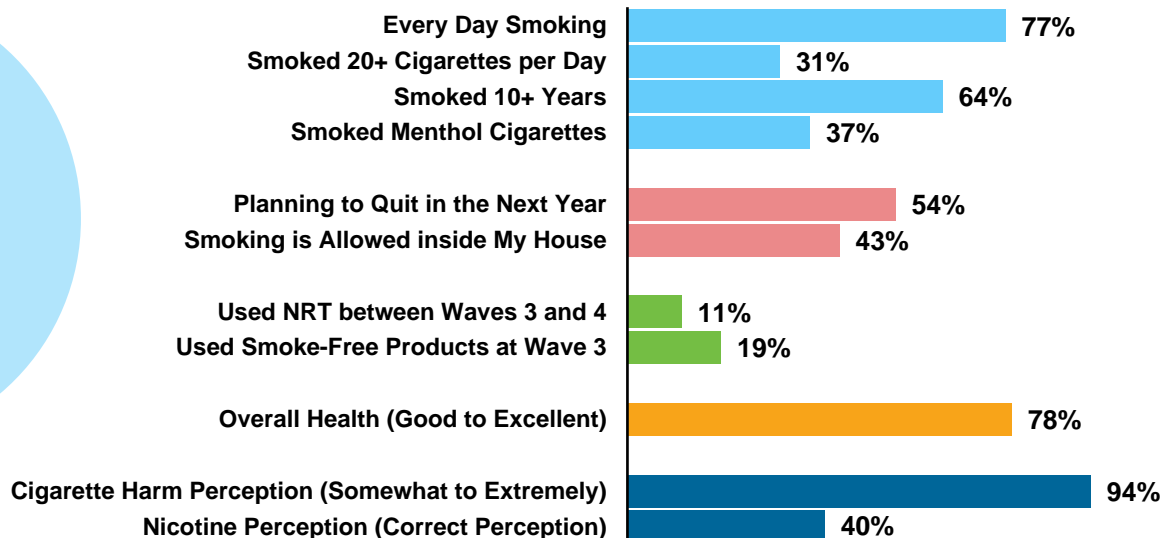


PATH Wave 3 AS Characteristics

Tobacco Product Usage among Wave 3 Adult Participants



Wave 3 Adults who Smoke Cigarettes Characteristics (n=6,686)



ALCS Analysis of PATH Wave 3 (Oct 2015-Oct 2016) to Wave 5 (Dec 2018-Nov 2019) Longitudinal Data.

AS is defined as smoking every day or some days and having smoked 100+ cigarettes in entire life.

Used Smoke-Free Products at Wave 3 is defined as using ENDS, smokeless tobacco or snus products every day or some days.

Used NRT (nicotine replacement therapy) between Waves 3 and 4 is defined as selecting 'Yes' to the Wave 4 question 'In the past 12 months, have you used a nicotine patch, gum, inhaler, nasal spray, lozenge or pill?'

Correct Nicotine Perception is defined as selecting 'Probably Not' and 'Definitely Not' to the question 'Do you believe nicotine is the chemical that causes most of the cancer caused by smoking cigarettes?'

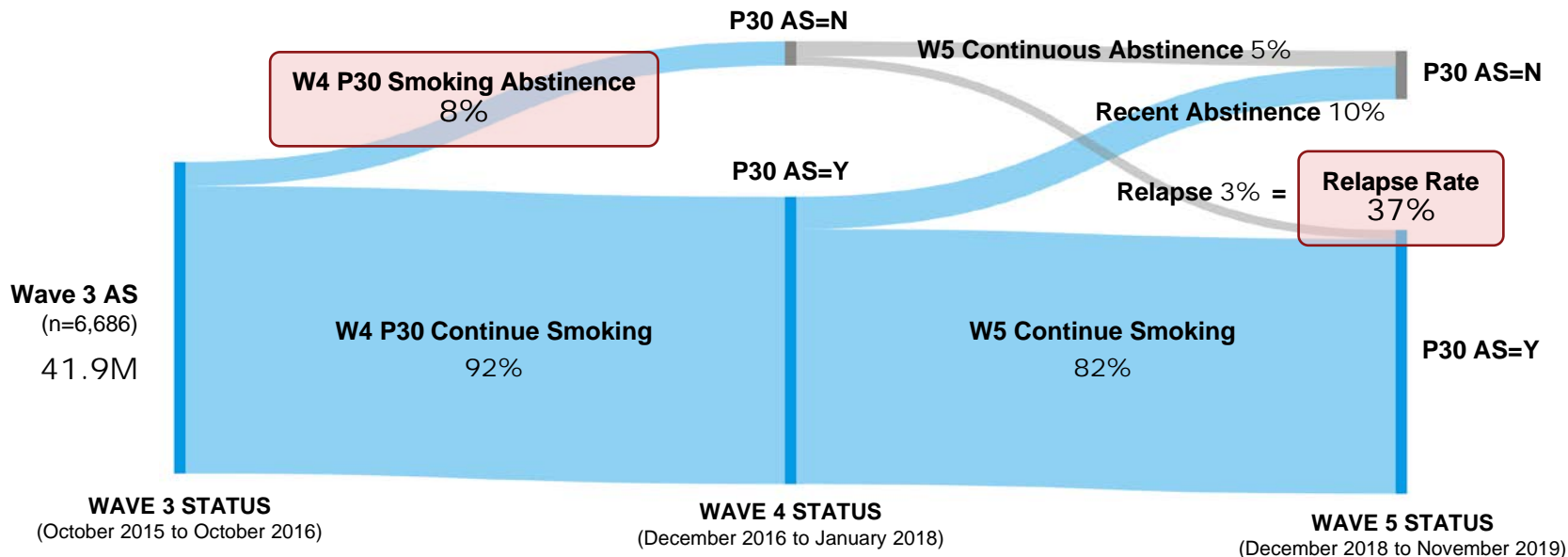


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Wave 3 AS P30D Smoking Abstinence at Wave 4 and Relapse at Wave 5

About 8% has P30D smoking abstinence in Wave 4, and about 5% successfully sustained cessation by Wave 5
Among those who did not smoke in Wave 4, about 37% relapsed back to cigarette smoking in Wave 5



ALCS Analysis of PATH Wave 3 (Oct 2015-Oct 2016) to Wave 5 (Dec 2018-Nov 2019) Longitudinal Data.

Wave 4 and Wave 5 smoking status ('P30AS=N' or 'P30AS=Y') are based on the response to the question 'In the past 30 days, have you smoked a cigarette, even one or two puffs?'.



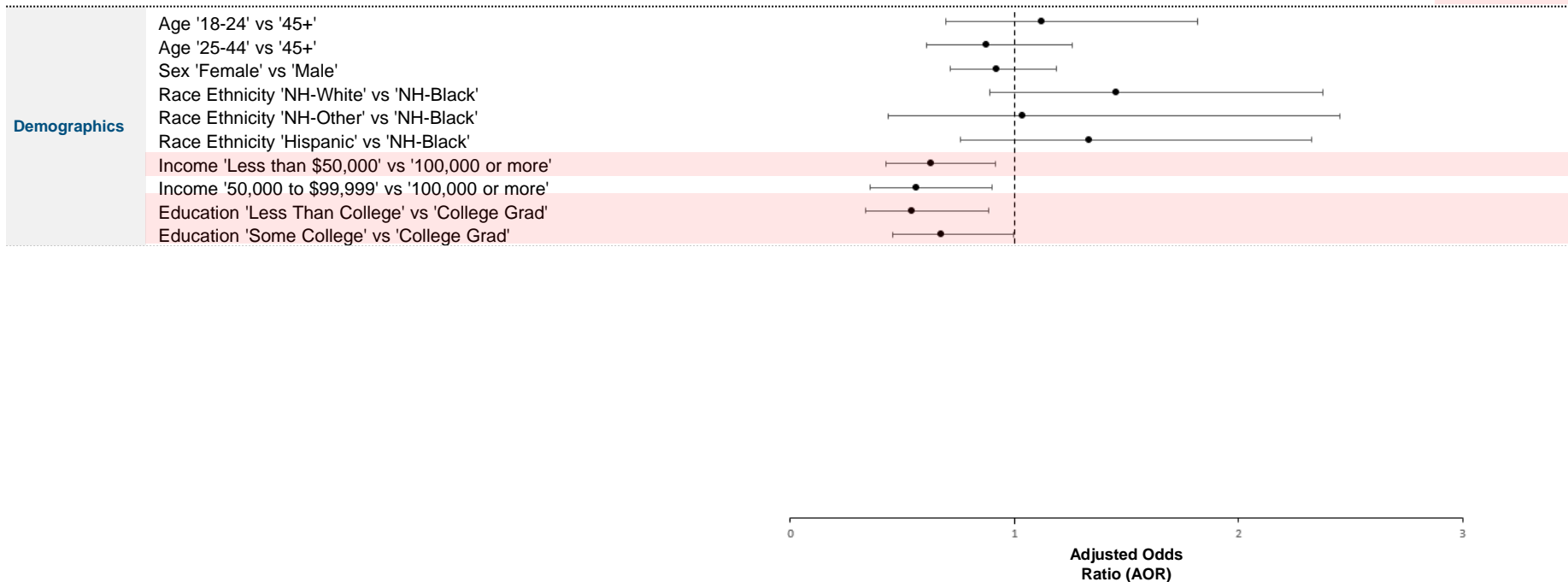
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Factors Associated with Wave 4 Past 30-Day Smoking Abstinence

Income, education, everyday/someday smoking, years smoked, intention to quit, smoking allowed in the house, and NRT use are significantly associated with past 30-day smoking abstinence in one-year interval

p-value<0.05



ALCS Analysis of PATH Wave 3 (Oct 2015-Oct 2016) to Wave 5 (Dec 2018-Nov 2019) Longitudinal Data.
Wave 4 P30D cigarette smoking abstinence is defined as having not smoked in the past 30 days in Wave 4 among Wave 3 AS.

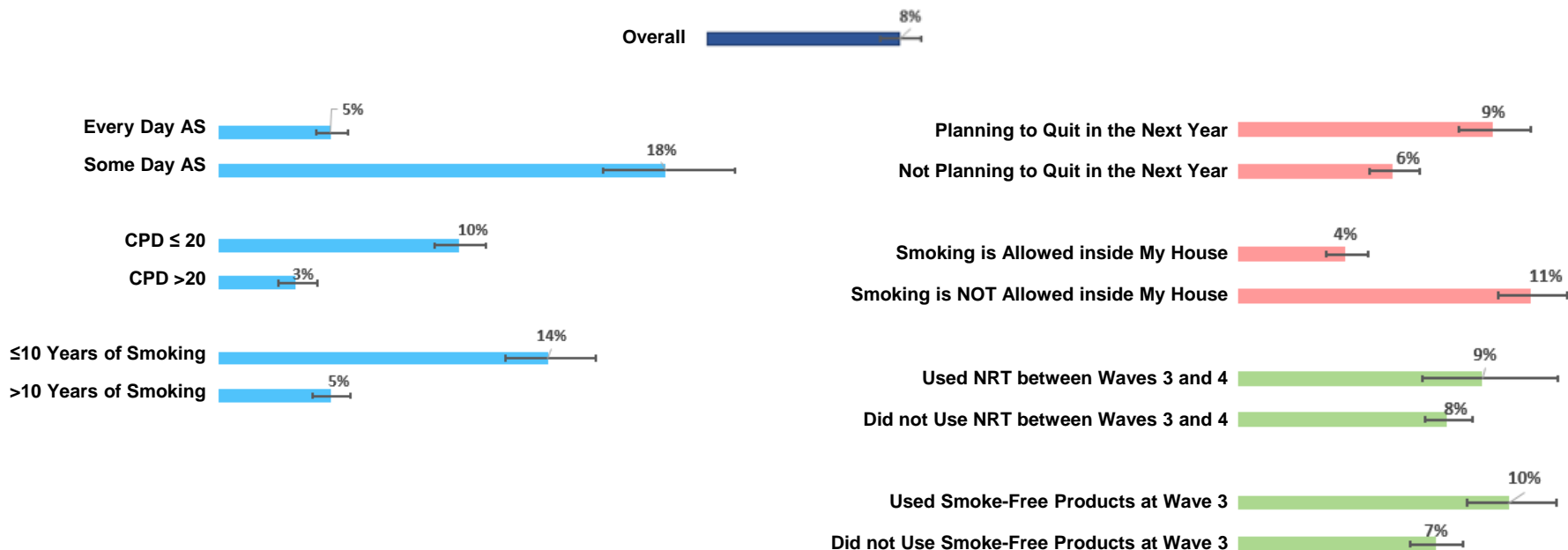


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Wave 4 P30D Smoking Abstinence Comparison by AS Subpopulations

Wave 4 P30D Smoking Abstinence Rate with 95% CI among Wave 3 AS Subpopulations



ALCS Analysis of PATH Wave 3 (Oct 2015-Oct 2016) to Wave 5 (Dec 2018-Nov 2019) Longitudinal Data.
Wave 4 P30D cigarette smoking abstinence is defined as having not smoked in the past 30 days in Wave 4 among Wave 3 established cigarette smokers.



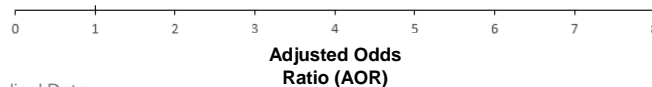
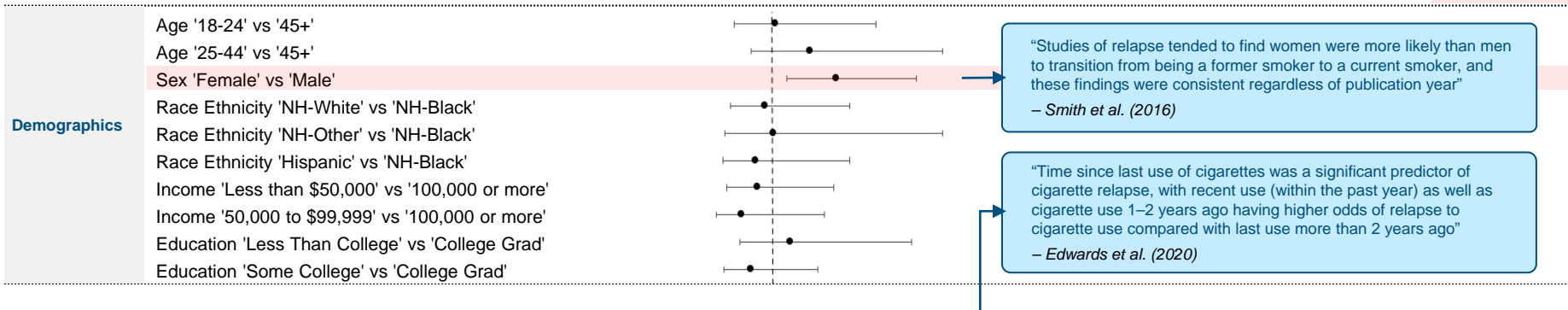
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Factors Associated with Relapse in Wave 5 among Those who Have Quit

Sex, recency of smoking, and self-perception of overall health are strongly associated with relapse in Wave 5 among Wave 3 AS who quit smoking in Wave 4

p-value<0.05



ALCS Analysis of PATH Wave 3 (Oct 2015-Oct 2016) to Wave 5 (Dec 2018-Nov 2019) Longitudinal Data.

Wave 5 cigarette smoking relapse is defined as having smoked in the past 30 days in Wave 5 among Wave 3 AS who quit smoking in Wave 4.



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Wave 5 Smoking Relapse Comparison by AS Subpopulations

Wave 5 Smoking Relapse Rate with 95% CI among Wave 4 AS Subpopulations



ALCS Analysis of PATH Wave 3 (Oct 2015-Oct 2016) to Wave 5 (Dec 2018-Nov 2019) Longitudinal Data.

Wave 5 cigarette smoking relapse is defined as having smoked in the past 30 days in Wave 5 among Wave 3 AS who quit smoking in Wave 4.



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Conclusions

- ✓ Our longitudinal analyses of PATH data provide unique insights regarding contemporary cigarette smoking cessation and relapse patterns
- ✓ Income, education, smoking frequency, years of smoking history, quit intention, social environment (e.g., smoking rule in the house), NRT use are significantly associated with P30D smoking abstinence
- ✓ AS who recently quit (<6 months), females, AS who perceived their overall health as 'poor to fair' after quitting are more likely to relapse back to cigarette smoking

Limitations

The calculations are based on self-reported 'current use' status
which was observed at the distinct time points
when the PATH study data was collected

There was 1-year interval between waves before Wave 4
but there was a 2-year interval
between Wave 4 to Wave 5

Relapse may occur any time during this 2-year interval between Wave 4 and 5





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