

Supplementary materials

Study title: Longitudinal transitions in e-cigarette and cigarette use among US adults:
Prospective cohort study

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Weighted data presentation

All percentages presented in this supplementary are weighted using SAS procedures to provide nationally representative estimates of US adults and unbiased measures, adjusting for differences in selection probability and nonresponse while accounting for design features.

Abbreviations

PATH=Population Assessment on Tobacco and Health

ENDS=Electronic nicotine delivery system

W=Wave

Wt%=Weighted percentages

AOR= Adjusted odds ratio

CI=Confidence interval,

Ref=Reference

LGB= Lesbian, Gay, Bisexual, or Something else

Supplementary Table 1. Tobacco products use definitions, PATH Study

Product	Use status	Definitions
ENDS	Never use	Never used ENDS, even once.
	Ever use	Have ever used any ENDS
	Former established use	Have ever used any ENDS products fairly regularly and have not used them within the past 12 months or currently do not use at all.
	Former experimental use	Have never used any ENDS fairly regularly, have not used them within the past 12 months or currently use not at all.
	Current established use	Have ever used any ENDS, have ever used them fairly regularly, and currently use every day or some days.
	Current experimental use	Have never used any ENDS fairly regularly, and currently use every day or some days.
	Daily use	Have ever used any ENDS, have ever used them fairly regularly, and currently use every day.
	Some days use	Have ever used any ENDS, have ever used them fairly regularly, and currently use some days.
Cigarettes	Never use	Never used cigarettes, even once.
	Ever use	Have ever smoked a cigarette, used <100 cigarettes in lifetime
	Former established use	Have smoked at least 100 cigarettes in their lifetime, and have not smoked them within the past 12 months or currently smoke not at all.
	Former experimental use	Have not smoked at least 100 cigarettes in their lifetime, and did not smoke them within the past 12 months or currently smoke not at all.
	Current established use	Have smoked at least 100 cigarettes in their lifetime, and currently smoke every day or some days
	Current experimental use	Have not smoked at least 100 cigarettes in their lifetime, and currently smoke every day or some days
	Daily use	Have smoked at least 100 cigarettes in their lifetime, and currently smoke every day
	Some days use	Have smoked at least 100 cigarettes in their lifetime, and currently smoke some days

Supplementary Table 2. Definitions of behavioral transitions in ENDS or cigarettes use, PATH Study

Behavioral transitions	Definitions	Coded
Initiation	Transition from never use to ever use of [ENDS/cigarettes] across timepoints.	0=no or 1=yes
Relapse	Transition from former established or experimental use of [ENDS/cigarettes] to current established or experimental use of [ENDS/cigarettes] across timepoints.	0=no or 1=yes
Progression	Transition from some days established use to everyday established use, or from current experimental use to some days or everyday established use across timepoints.	0=no or 1=yes
Cessation	Transition from current established or current experimental use of [ENDS/cigarettes] to former use across timepoints.	0=no or 1=yes

Supplementary Table-3. Items for internalizing and externalizing symptoms, PATH Study

Internalizing Symptoms*

When was the last time that you had significant problems with ...

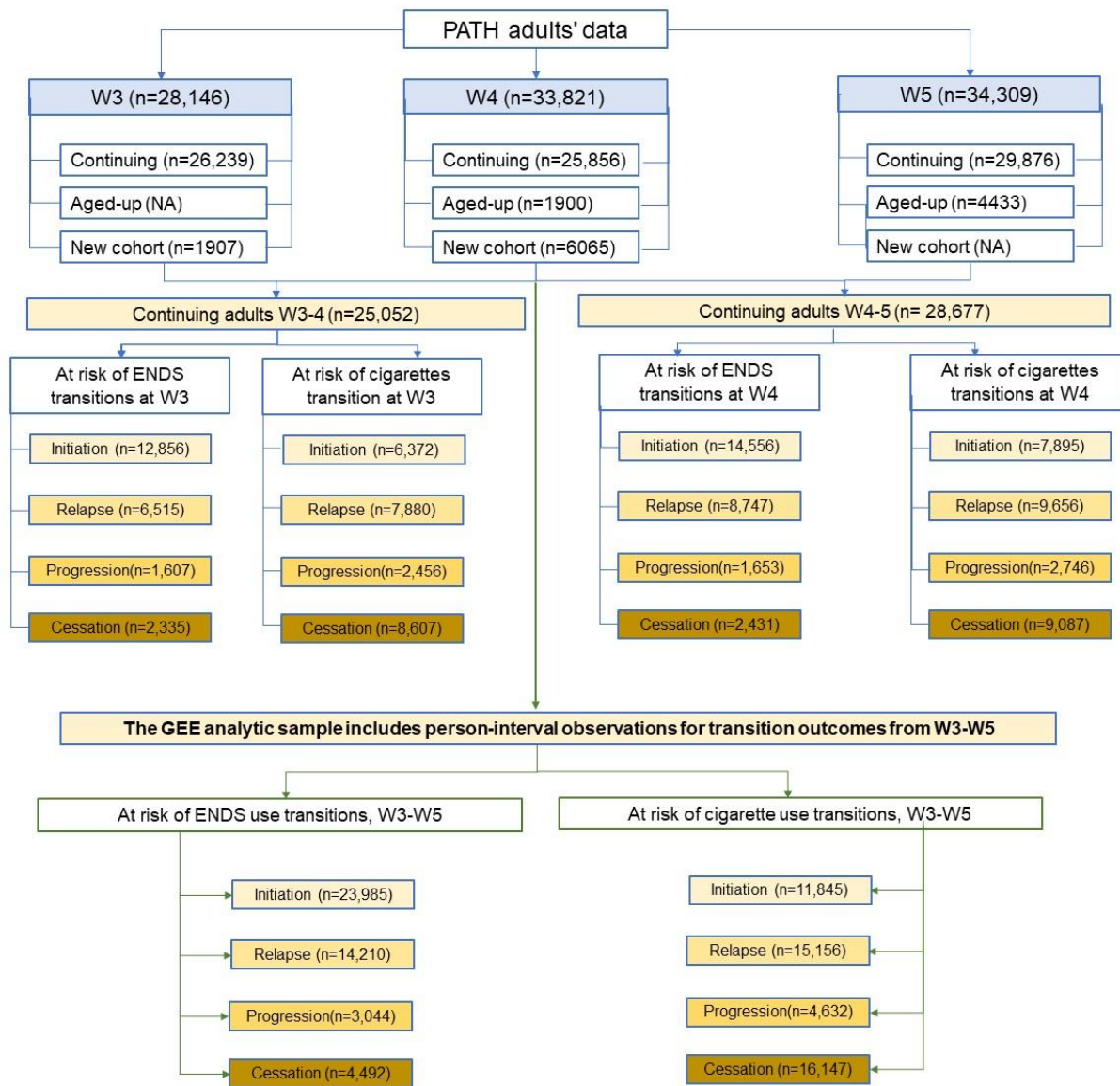
- 1) Feeling very trapped, lonely, sad, blue, depressed, or hopeless about the future?
- 2) Sleep trouble, such as bad dreams, sleeping restlessly, or falling asleep during the day?
- 3) Feeling very anxious, nervous, tense, scared, panicked, or like something bad was going to happen?
- 4) Becoming very distressed and upset when something reminded you of the past?

Externalizing Symptoms

When was the last time that you did any of the following things two or more

- 1) Lied or conned to get things you wanted or to avoid having to do something?
- 2) Had a hard time paying attention at school, work, or home?
- 3) Had a hard time listening to instructions at school, work, or home?
- 4) Were a bully or threatened other people?
- 5) Started physical fights with other people?
- 6) Felt restless or the need to run around or climb on things?
- 7) Gave answers before the other person finished asking the question?

*Response options for all questions were: "0" (never), "1" (over a year ago), "2" (2 to 12 months). Participants were grouped into two categories: those who never reported any problems (coded as 0) and those who reported at least one problem in the past 12 months or more (coded as 1).



Supplementary Figure 1. Study Flow Diagram

Supplementary Table 4. Multivariable analysis of ENDS or cigarettes use initiation among adults across W3-W4 and W4-W5, PATH Study

Characteristics	Initiation of ENDS use		Initiation of cigarette use	
	Waves 3-4 n=12,856	Waves 4-5 n=14,556	Waves 3-4 n=6,372	Waves 4-5 N=7,895
	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)
Age group				
18–24	Ref	Ref	Ref	Ref
25–44	0.26 (0.16-0.41)	0.19 (0.14-0.25)	0.17 (0.09-0.31)	0.14 (0.08-0.25)
45–64	0.17 (0.10-0.28)	0.09 (0.06-0.14)	¥	¥
65+	0.03 (0.01-0.07)	0.04 (0.02-0.07)	¥	¥
Sex				
Female	Ref	Ref	Ref	Ref
Male	1.07 (0.74-1.55)	1.26 (0.97-1.64)	2.12 (1.17-3.85)	1.54 (1.03-2.31)
Sexual Orientation				
Straight	Ref	Ref	Ref	Ref
LGB	1.23 (0.81-1.88)	1.28 (0.70-2.35)	0.48 (0.25-0.90)	1.84 (0.98-3.46)
Not reported	¥	0.21 (0.01-3.03)	1.31 (0.17-10.15)	4.17 (0.98-17.82)
Race/ethnicity				
Non-Hispanic White	Ref	Ref	Ref	Ref
Non-Hispanic Black	1.11 (0.70-1.77)	1.19 (0.80-1.78)	1.32 (0.64-2.69)	0.81 (0.46-1.42)
Hispanic	1.31 (0.82-2.08)	1.38 (1.00-1.90)	1.57 (0.90-2.73)	1.43 (0.82-2.49)
Other races	0.77 (0.36-1.61)	0.71 (0.48-1.06)	1.69 (0.44-6.56)	1.66 (0.70-3.94)
Educational				
Less than high school	Ref	Ref	Ref	Ref
High school graduate	0.88 (0.53-1.46)	0.85 (0.61-1.19)	0.76 (0.39-1.50)	0.51 (0.25-1.03)
Some college	0.88 (0.55-1.40)	0.99 (0.70-1.40)	0.66 (0.32-1.35)	0.56 (0.29-1.11)
Bachelor's degree or more	0.57 (0.30-1.06)	0.62 (0.41-0.94)	0.61 (0.20-1.84)	0.29 (0.09-0.97)
Income				
Less than \$25,000	Ref	Ref	Ref	Ref
\$25,000 to \$49,999	0.91 (0.55-1.49)	1.37 (0.94-1.99)	0.45 (0.20-0.99)	1.06 (0.57-1.98)
\$50,000 to \$99,999	0.97 (0.56-1.70)	1.13 (0.77-1.66)	0.52 (0.25-1.08)	0.39 (0.22-0.73)
\$100,000 or more	0.96 (0.54-1.71)	1.54 (0.96-2.47)	1.21 (0.58-2.52)	0.69 (0.37-1.28)
Not reported	0.90 (0.44-1.86)	1.23 (0.64-2.35)	0.97 (0.43-2.16)	0.51 (0.22-1.19)
Internalizing symptoms				
No	Ref	Ref	Ref	Ref
Yes	1.77 (1.18-2.64)	1.72 (1.33-2.22)	1.32 (0.79-2.23)	1.61 (1.01-2.56)
Externalizing symptoms				
No	Ref	Ref	Ref	Ref
Yes	1.00 (0.51-1.97)	1.28 (0.73-2.24)	0.50 (0.16-1.58)	1.07 (0.67-1.73)
Current use of cigarettes/ENDS ^a				
No	Ref	Ref	Ref	Ref
Yes	5.56 (3.70-8.37)	5.13 (3.39-7.78)	2.97 (0.91-9.63)	6.83 (1.04-44.78)
Current other tobacco use				
No	Ref	Ref	Ref	Ref
Yes	2.88 (1.73-4.81)	2.08 (1.27-3.41)	1.80 (0.52-6.16)	2.74 (1.08-6.99)
Past 12-month cannabis use				
No	Ref	Ref	Ref	Ref
Yes	2.17 (1.36-3.46)	3.49 (2.47-4.93)	2.14 (1.21-3.78)	2.17 (1.50-3.13)
Nicotine harm perception				
None or little harm	Ref	Ref	Ref	Ref
Very harmful	1.07 (0.73-1.56)	0.73 (0.51-1.04)	0.66 (0.28-1.54)	1.14 (0.69-1.88)
ENDS/Cigarette absolute harm perception ^b				
None or little harm	Ref	Ref	Ref	Ref
Very harmful	0.64 (0.43-0.96)	0.94 (0.69-1.27)	0.72 (0.27-1.95)	0.77 (0.37-1.59)
Comparative harm perception				
Less harmful	Ref	Ref	Ref	Ref
Equally or more harmful	0.85 (0.58-1.26)	1.03 (0.76-1.39)	0.63 (0.29-1.40)	0.87 (0.56-1.35)

Note. Regression models were weighted using wave 4 all-wave weights (for Waves 3-4) and wave 5 all-wave weights (for Waves 4-5). Bold-faced aOR indicates $p < .05$.

^a First two columns show current established cigarettes smoking and the last two columns show current established ENDS use.

^b First two columns indicate ENDS absolute harm perception, and the last two columns indicate cigarettes' absolute harm perception. ¥ No observation was in this category or the model did not converge.

Supplementary Table 5. Multivariable analysis of relapse in ENDS or cigarette use among adults across W3-W4 and W4-W5, PATH Study

Characteristics	Relapse of ENDS use		Relapse of cigarette use	
	Waves 3-4 n=6,515 aOR (95% CI)	Waves 4-5 n=8,747 aOR (95% CI)	Waves 3-4 n=7,880 aOR (95% CI)	Waves 4-5 N=7,895 aOR (95% CI)
Age group				
18-24	Ref	Ref	Ref	Ref
25-44	0.70 (0.54-0.92)	0.45 (0.35-0.59)	0.62 (0.47-0.82)	0.59 (0.44-0.79)
45-64	0.48 (0.34-0.68)	0.28 (0.19-0.42)	0.26 (0.18-0.37)	0.27 (0.18-0.39)
65+	0.62 (0.31-1.23)	0.27 (0.12-0.60)	0.09 (0.06-0.16)	0.06 (0.03-0.11)
Sex				
Female	Ref	Ref	Ref	Ref
Male	0.89 (0.68-1.17)	0.93 (0.74-1.17)	0.90 (0.71-1.15)	0.91 (0.71-1.15)
Sexual Orientation				
Straight	Ref	Ref	Ref	Ref
LGB	1.51 (0.99-2.29)	0.99 (0.71-1.37)	1.28 (0.89-1.86)	1.04 (0.69-1.59)
Not reported	2.14 (0.71-6.47)	1.37 (0.46-4.07)	0.84 (0.15-4.72)	1.78 (0.28-11.10)
Race/ethnicity				
Non-Hispanic White	Ref	Ref	Ref	Ref
Non-Hispanic Black	1.49 (0.96-2.32)	0.75 (0.47-1.20)	1.26 (0.79-2.02)	1.23 (0.86-1.77)
Hispanic	1.55 (1.09-2.22)	0.80 (0.59-1.08)	1.07 (0.69-1.66)	0.89 (0.64-1.24)
Other races	1.45 (0.90-2.34)	1.10 (0.77-1.57)	0.80 (0.52-1.22)	1.18 (0.66-2.11)
Educational				
Less than high school	Ref	Ref	Ref	Ref
High school graduate	1.10 (0.76-1.61)	1.02 (0.73-1.44)	0.63 (0.42-0.95)	0.77 (0.54-1.11)
Some college	1.00 (0.68-1.47)	1.21 (0.90-1.63)	0.48 (0.35-0.65)	0.66 (0.44-0.97)
Bachelor's degree or more	1.09 (0.68-1.74)	0.93 (0.61-1.43)	0.42 (0.27-0.64)	0.47 (0.29-0.75)
Income				
Less than \$25,000	Ref	Ref	Ref	Ref
\$25,000 to \$49,999	1.26 (0.89-1.77)	0.89 (0.67-1.19)	0.87 (0.66-1.16)	0.52 (0.37-0.73)
\$50,000 to \$99,999	1.05 (0.71-1.54)	0.86 (0.61-1.21)	0.66 (0.46-0.96)	0.45 (0.32-0.64)
\$100,000 or more	1.18 (0.78-1.80)	0.89 (0.61-1.30)	0.42 (0.28-0.64)	0.30 (0.19-0.48)
Not reported	0.95 (0.50-1.79)	0.67 (0.41-1.11)	0.76 (0.37-1.54)	0.55 (0.27-1.15)
Internalizing symptoms				
No	Ref	Ref	Ref	Ref
Yes	1.33 (1.04-1.70)	1.28 (0.99-1.67)	1.08 (0.83-1.39)	1.23 (0.96-1.58)
Externalizing symptoms				
No	Ref	Ref	Ref	Ref
Yes	1.05 (0.66-1.67)	1.40 (1.00-1.94)	0.86 (0.50-1.46)	1.09 (0.68-1.76)
Current use of cigarettes/ENDS ^a				
No	Ref	Ref	Ref	Ref
Yes	2.47 (1.82-3.36)	2.25 (1.71-2.97)	3.52 (2.14-5.77)	2.36 (1.51-3.68)
Current other tobacco use				
No	Ref	Ref	Ref	Ref
Yes	1.51 (1.02-2.24)	1.43 (1.10-1.86)	1.79 (1.18-2.74)	1.72 (1.15-2.57)
Past 12-month cannabis use				
No	Ref	Ref	Ref	
Yes	1.28 (0.89-1.84)	1.23 (0.96-1.59)	1.81 (1.36-2.41)	1.67 (1.18-2.38)
Nicotine harm perception				
None or little harm	Ref	Ref	Ref	Ref
Very harmful	0.84 (0.65-1.09)	1.11 (0.85-1.46)	0.91 (0.60-1.39)	0.70 (0.51-0.94)
ENDS/Cigarette absolute harm perception ^b				
None or little harm	Ref	Ref	Ref	Ref
Very harmful	0.64 (0.47-0.87)	0.81 (0.63-1.05)	0.56 (0.34-0.91)	0.67 (0.45-1.00)
Comparative harm perception				
Less harmful	Ref	Ref	Ref	Ref
Equally or more harmful	0.90 (0.71-1.14)	0.72 (0.56-0.93)	1.81 (1.36-2.41)	1.22 (0.89-1.66)

Note. Regression models were weighted using wave 4 all-wave weights (for Waves 3-4) and wave 5 all-wave weights. (for Waves 4-5). Bold-faced aOR indicates $p < .05$.

^a First two columns show current established cigarettes smoking and the last two columns show current established ENDS use.

^b First two columns indicate ENDS absolute harm perception, and the last two columns indicate cigarettes' absolute harm perception.

Supplementary Table 6. Multivariable analysis of progression in ENDS and cigarettes use among adults across W3-W4 and W4-W5, PATH Study

Characteristics	Progression in ENDS use		Progression in cigarettes use	
	Waves 3-4 n=1,611	Waves 4-5 n=1,653	Waves 3-4 n=2,467	Waves 4-5 N=2,746
	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)
Age group				
18-24	Ref	Ref	Ref	Ref
25-44	1.85 (0.80-4.27)	0.37 (0.11-1.21)	0.62 (0.39-0.99)	1.14 (0.73-1.79)
45-64	0.70 (0.26-1.93)	0.34 (0.13-0.87)	0.52 (0.27-0.99)	1.17 (0.70-1.97)
65+	0.49 (0.06-3.82)	0.19 (0.01-2.63)	0.32 (0.13-0.80)	0.88 (0.31-2.48)
Sex				
Female	Ref	Ref	Ref	Ref
Male	1.82 (0.82-4.05)	0.83 (0.29-2.37)	0.99 (0.64-1.54)	0.84 (0.54-1.30)
Sexual Orientation				
Straight	Ref	Ref	Ref	Ref
LGB	1.02 (0.27-3.77)	1.04 (0.33-3.31)	1.29 (0.68-2.45)	1.35 (0.74-2.46)
Not reported	¥	2.12 (0.46-9.90)	1.54 (0.40-5.97)	0.22 (0.01-7.57)
Race/ethnicity				
Non-Hispanic White	Ref	Ref	Ref	Ref
Non-Hispanic Black	0.36 (0.06-2.16)	2.12 (0.46-9.90)	0.28 (0.12-0.66)	1.14 (0.62-2.09)
Hispanic	0.14 (0.04-0.48)	0.67 (0.16-2.76)	0.44 (0.25-0.76)	0.61 (0.36-1.04)
Other races	0.54 (0.14-2.09)	1.34 (0.20-8.94)	1.02 (0.44-2.37)	0.57 (0.28-1.18)
Educational				
Less than high school	Ref	Ref	Ref	Ref
High school graduate	2.18 (0.52-9.14)	0.94 (0.32-2.72)	0.76 (0.44-1.32)	0.76 (0.42-1.38)
Some college	1.83 (0.53-6.28)	1.37 (0.51-3.68)	0.76 (0.44-1.34)	0.62 (0.35-1.09)
Bachelor's degree or more	3.43 (0.77-15.19)	3.11 (0.71-13.65)	0.61 (0.31-1.21)	0.37 (0.18-0.75)
Income				
Less than \$25,000	Ref	Ref	Ref	Ref
\$25,000 to \$49,999	0.34 (0.11-1.03)	0.58 (0.15-2.22)	0.74 (0.43-1.26)	0.85 (0.53-1.38)
\$50,000 to \$99,999	0.73 (0.28-1.91)	0.50 (0.14-1.77)	0.77 (0.40-1.46)	0.58 (0.34-1.01)
\$100,000 or more	0.45 (0.13-1.59)	1.62 (0.40-6.46)	0.50 (0.21-1.16)	0.76 (0.40-1.47)
Not reported	0.68 (0.14-3.36)	0.42 (0.06-3.02)	0.71 (0.21-2.46)	1.22 (0.58-2.58)
Internalizing symptoms				
No	Ref	Ref	Ref	Ref
Yes	1.99 (0.92-4.31)	0.53 (0.25-1.14)	0.64 (0.40-0.99)	1.19 (0.83-1.69)
Externalizing symptoms				
No	Ref	Ref	Ref	Ref
Yes	0.41 (0.08-2.10)	1.16 (0.26-5.20)	0.69 (0.22-2.16)	1.01 (0.51-2.02)
Current use of cigarettes/ENDS^a				
No	Ref	Ref	Ref	Ref
Yes	0.35 (0.17-0.72)	0.93 (0.32-2.73)	0.55 (0.28-1.09)	1.10 (0.63-1.92)
Current other tobacco use				
No	Ref	Ref	Ref	Ref
Yes	0.97 (0.39-2.42)	0.25 (0.06-1.00)	0.62 (0.34-1.13)	0.41 (0.24-0.69)
Past 12-month cannabis use				
No	Ref	Ref	Ref	Ref
Yes	0.87 (0.32-2.40)	1.12 (0.39-3.20)	0.72 (0.43-1.21)	1.13 (0.67-1.89)
Nicotine harm perception				
None or little harm	Ref	Ref	Ref	Ref
Very harmful	1.09 (0.53-2.23)	0.80 (0.38-1.71)	1.07 (0.62-1.85)	0.67 (0.41-1.08)
ENDS/Cigarette absolute harm perception^b				
None or little harm	Ref	Ref	Ref	Ref
Very harmful	0.27 (0.06-1.23)	1.10 (0.31-3.94)	1.06 (0.66-1.72)	0.69 (0.47-1.03)
Comparative harm perception				
Less harmful	Ref	Ref	Ref	Ref
Equally or more harmful	0.71 (0.27-1.89)	0.78 (0.36-1.71)	0.93 (0.62-1.41)	1.08 (0.64-1.82)
ENDS/cigarette nicotine dependence	1.03 (1.01-1.05)	1.06 (1.03-1.09)	1.04 (1.03-1.05)	1.02 (1.01-1.03)

Note. Regression models were weighted using wave 4 all-wave weights (for Waves 3-4) and wave 5 all-wave weights (for Waves 4-5). Bold-faced aOR indicates $p < .05$.

^a First two columns show current established cigarettes smoking and the last two columns show current established ENDS use.

^b First two columns indicate ENDS absolute harm perception, and the last two columns indicate cigarettes' absolute harm perception. ¥ No observation was in this category or model did not converge.

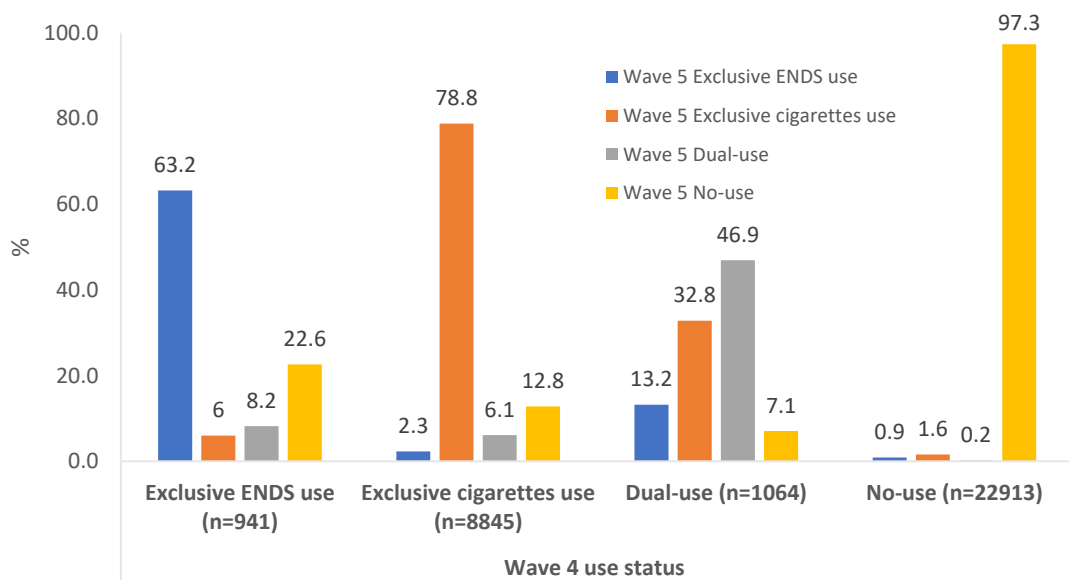
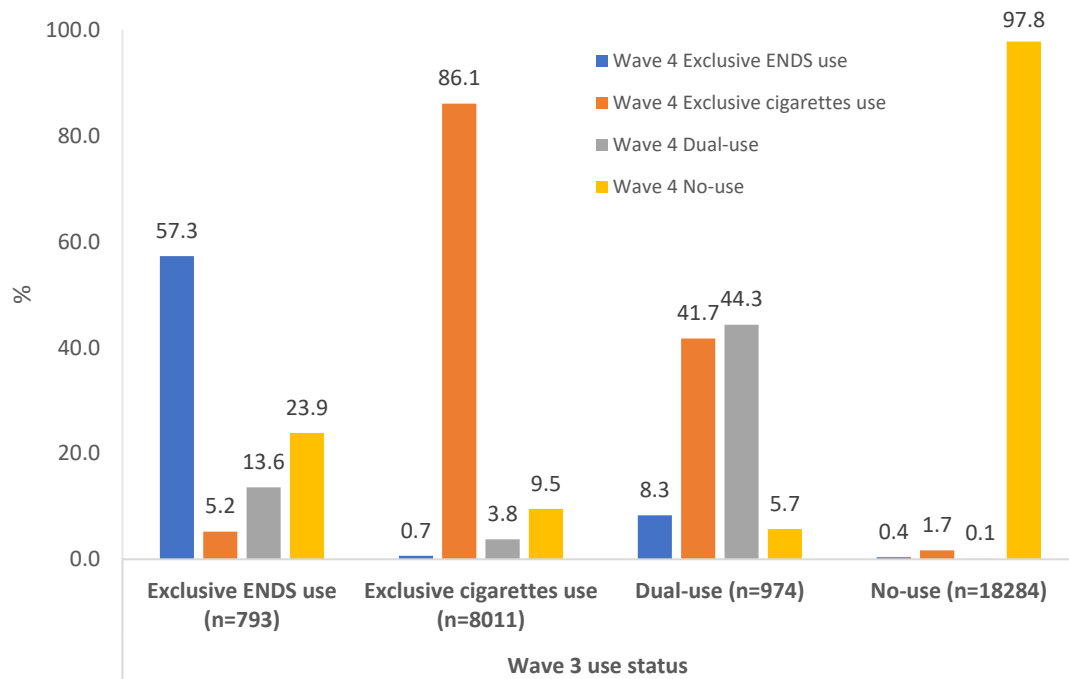
Supplementary Table 7. Multivariable analysis of ENDS or cigarettes use cessation among adults across W3-W4 and W4-W5, PATH Study

Characteristics	Cessation in ENDS use		Cessation in cigarette use	
	Waves 3-4 n=2,335	Waves 4-5 n=2,431	Waves 3-4 n=8,607	Waves 4-5 N=9,087
	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)
Age group				
18–24	Ref	Ref	Ref	Ref
25–44	0.83 (0.54-1.27)	0.99 (0.58-1.69)	0.60 (0.43-0.85)	0.54 (0.41-0.71)
45–64	0.79 (0.47-1.35)	0.95 (0.53-1.69)	0.52 (0.35-0.77)	0.41 (0.30-0.55)
65+	0.85 (0.40-1.83)	1.46 (0.64-3.31)	0.74 (0.41-1.31)	0.93 (0.58-1.48)
Sex				
Female	Ref	Ref	Ref	Ref
Male	0.99 (0.69-1.44)	0.98 (0.68-1.42)	0.95 (0.73-1.23)	1.07 (0.86-1.34)
Sexual Orientation				
Straight	Ref	Ref	Ref	Ref
LGB	1.17 (0.68-2.01)	0.67 (0.38-1.17)	0.99 (0.58-1.67)	0.67 (0.47-0.95)
Not reported	1.90 (0.15-24.49)	¥	0.95 (0.28-3.21)	1.10 (0.27-4.40)
Race/ethnicity				
Non-Hispanic White	Ref	Ref	Ref	Ref
Non-Hispanic Black	1.08 (0.52-2.24)	0.59 (0.31-1.10)	0.91 (0.64-1.28)	0.57 (0.40-0.81)
Hispanic	1.41 (0.83-2.41)	1.21 (0.65-2.24)	1.08 (0.72-1.62)	1.05 (0.74-1.47)
Other races	1.08 (0.53-2.23)	0.73 (0.38-1.39)	0.63 (0.40-0.98)	1.28 (0.87-1.90)
Educational				
Less than high school	Ref	Ref	Ref	Ref
High school graduate	0.92 (0.57-1.49)	1.10 (0.63-1.92)	1.04 (0.66-1.65)	0.89 (0.62-1.27)
Some college	0.97 (0.65-1.46)	1.48 (0.91-2.43)	1.30 (0.91-1.87)	1.25 (0.89-1.75)
Bachelor's degree or more	0.71 (0.37-1.38)	1.34 (0.65-2.74)	2.48 (1.57-3.91)	1.67 (1.12-2.48)
Income				
Less than \$25,000	Ref	Ref	Ref	Ref
\$25,000 to \$49,999	0.92 (0.59-1.42)	0.85 (0.50-1.45)	0.90 (0.69-1.18)	1.08 (0.80-1.45)
\$50,000 to \$99,999	0.68 (0.46-1.01)	0.88 (0.51-1.51)	1.11 (0.80-1.55)	1.04 (0.77-1.41)
\$100,000 or more	0.50 (0.29-0.88)	0.83 (0.44-1.56)	1.48 (0.98-2.26)	1.56 (1.06-2.31)
Not reported	0.62 (0.26-1.47)	0.69 (0.27-1.76)	0.95 (0.48-1.90)	1.36 (0.86-2.14)
Internalizing symptoms				
No	Ref	Ref	Ref	Ref
Yes	0.87 (0.56-1.36)	1.37 (0.93-2.02)	1.09 (0.83-1.43)	0.91 (0.73-1.15)
Externalizing symptoms				
No	Ref	Ref	Ref	Ref
Yes	2.39 (0.99-5.74)	1.19 (0.61-2.33)	1.46 (0.87-2.46)	1.39 (0.95-2.03)
Current use of cigarettes/ENDS^a				
No	Ref	Ref	Ref	Ref
Yes	1.76 (1.22-2.55)	1.54 (1.01-2.34)	1.35 (0.94-1.95)	1.25 (0.91-1.73)
Current other tobacco use				
No	Ref	Ref	Ref	Ref
Yes	1.06 (0.66-1.69)	1.24 (0.78-1.99)	1.45 (1.07-1.97)	1.56 (1.18-2.07)
Past 12-month cannabis use				
No	Ref	Ref	Ref	
Yes	0.92 (0.57-1.49)	0.73 (0.49-1.07)	0.97 (0.65-1.44)	0.89 (0.68-1.16)
Nicotine harm perception				
None or little harm	Ref	Ref	Ref	Ref
Very harmful	1.12 (0.73-1.70)	1.72 (1.23-2.40)	1.02 (0.74-1.39)	1.35 (1.01-1.80)
ENDS/Cigarette absolute harm perception^b				
None or little harm	Ref	Ref	Ref	Ref
Very harmful	2.07 (1.11-3.86)	0.94 (0.49-1.81)	1.31 (0.90-1.92)	1.58 (1.15-2.16)
Comparative harm perception				
Less harmful	Ref	Ref	Ref	Ref
Equally or more harmful	1.42 (0.95-2.12)	1.16 (0.79-1.68)	1.00 (0.80-1.26)	0.89 (0.69-1.13)
ENDS/cigarette nicotine dependence	0.97 (0.96-0.98)	0.98 (0.7-0.99)	0.98 (0.97-0.98)	0.98 (0.98-0.99)

Note. Regression models were weighted using wave 4 all-wave weights (for Waves 3-4) and wave 5 all-wave weights (for Waves 4-5). Bold-faced aOR indicates $p < .05$.

^a First two columns show current established cigarettes smoking and the last two columns show current established ENDS use.

^b First two columns indicate ENDS absolute harm perception, and the last two columns indicate cigarettes' absolute harm perception. ¥ No observation was in this category or model did not converge.



Supplementary Figure 2. Between products (ENDS to cigarettes or vice versa) transitions from W3-W4 (above) and W4-W5 (bottom), PATH Study

Note. These transitions illustrate only the current established use as well as the no-use of each product across waves.