

# Smokers who do not try alternative nicotine products: who are they?

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## INTRODUCTION

- Nicotine products have a continuum of health risks; tobacco smoking occupies the most harmful end of this continuum<sup>1</sup> (Fig. 1).



Fig. 1 Tobacco and nicotine products' relative harm to a user from most to least harmful.

- Completely switching from smoking to using alternative nicotine products reduces health risks associated with smoking.
- Many smokers have never tried alternative nicotine products, which is a missed opportunity for harm reduction and cessation.

### Aims

- To assess what proportion of smokers in Great Britain have never used e-cigarettes, nicotine replacement therapy (NRT) and heated tobacco products (HTP)?
- To identify smokers' characteristics associated with not using alternative nicotine products.
- To compare users of the two most common alternative nicotine products: e-cigarettes and NRT.

## METHOD

### Study design & sample

- Secondary analysis of online survey data.
- Data collected in March 2019 were representative of the adult Great Britain population ( $n = 12393$ ).
- Only current adult smokers ( $n = 1777$ , 14.3%) were included for analyses.
- Research questions and analysis plan were pre-registered with the Open Science Framework (<https://osf.io/2bjk5/>).

### Measures

- Sociodemographic: gender, age, ethnicity and socioeconomic status (SES).
- Nicotine use: tobacco smoking status, number of cigarettes smoked per day (CPD), time to the first cigarette (TTFC), motivation to stop smoking (MTSS) and use status of e-cigarettes, NRT and HTP (never vs tried/used in the past).

### Analysis

- Descriptive statistics,  $\chi^2$  tests, multivariate logistic and binomial regression models.

## RESULTS

- Among 1777 smokers from Great Britain, 72.1% have tried or used alternative nicotine products (Fig. 2).

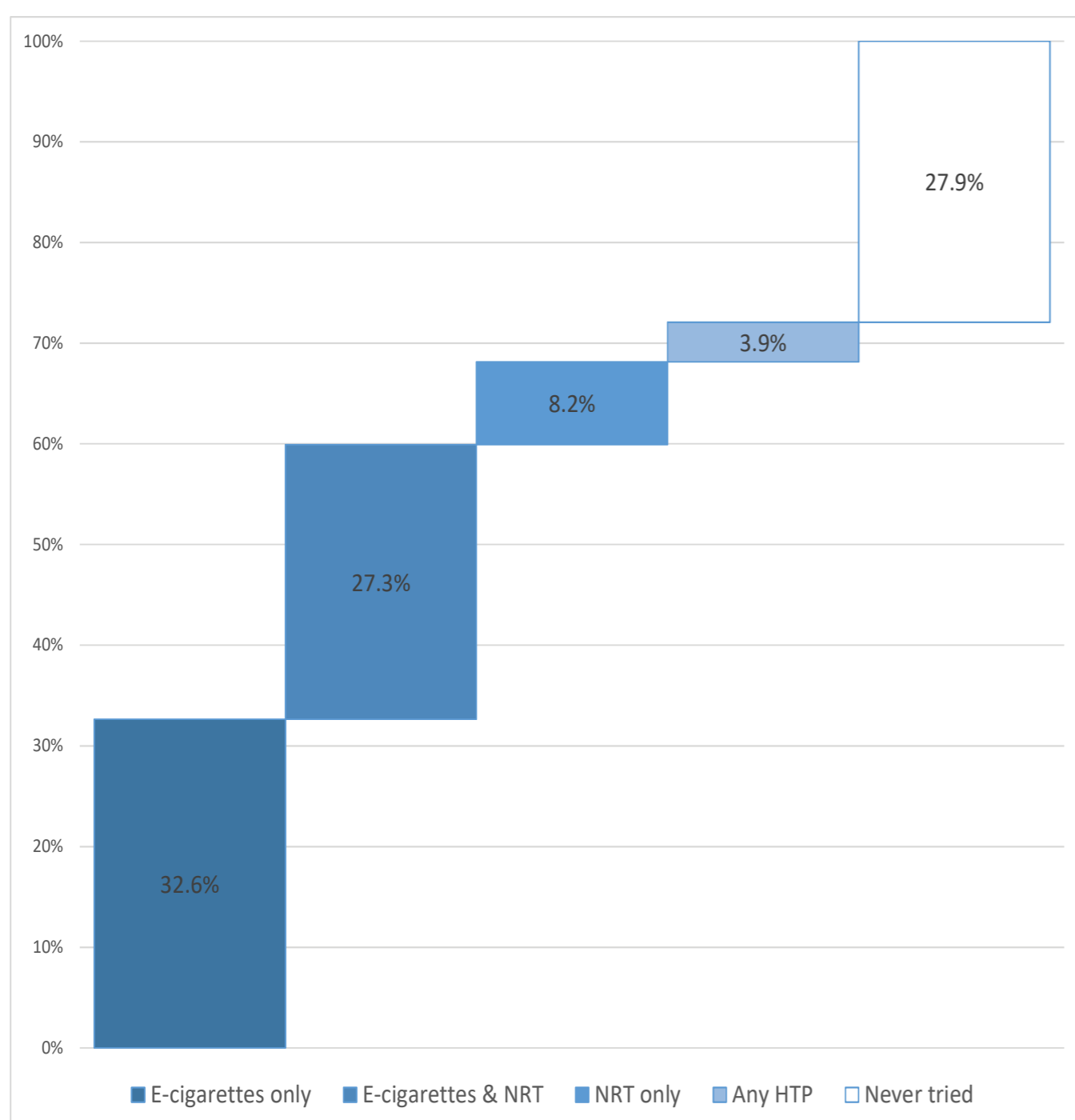


Fig. 2 Ever use of alternative nicotine products among smokers from Great Britain ('any HTP' includes sole and combined HTP use with other nicotine products;  $n = 1777$ ).

- Never use of alternative nicotine products was more likely among smokers from Black and Minority Ethnic groups (BME), those with low motivation to stop smoking and smoking fewer than 11 cigarettes per day (Table 1).

Variable	Odds Ratio	95% confidence intervals	<i>p</i>
<b>Gender (ref.: Male)</b>			
Female	0.78	0.59 – 1.03	.081
<b>Age (ref.: 55+)</b>			
18-34	1.03	0.69 – 1.52	.90
35-54	1.03	0.73 – 1.48	.85
<b>Ethnicity (ref.: White)</b>			
BME	1.97	1.25 – 3.07	.003
<b>SES (ref.: C2DE)</b>			
ABC1	1.06	0.79 – 1.41	.70
<b>Smoking (ref.: Daily)</b>			
Non-daily	1.10	0.76 – 1.59	.60
<b>MTSS (ref.: Strong)</b>			
Low	2.06	1.28 – 3.44	.004
Moderate	1.52	0.93 – 2.56	.105
<b>CPD (ref.: 11+)</b>			
1-10	1.56	1.10 – 2.21	.012
<b>TTFC (ref.: within 5 minutes)</b>			
6 to 60 minutes	0.83	0.56 – 1.23	.35
After 60 minutes	1.23	0.76 – 1.99	.41

Table 1 Logistic regression model predicting never use of alternative nicotine products ( $n = 1140$ ).

- Compared with e-cigarette only users, NRT only users were more likely to be older, non-daily smokers, more motivated to stop smoking and to smoke more than 10 cigarettes per day (Table 2).

Variable	NRT only ( $n = 96$ )			Both ( $n = 353$ )			Neither ( $n = 295$ )		
	Odds Ratio	95% confidence intervals	<i>p</i>	Odds Ratio	95% confidence intervals	<i>p</i>	Odds Ratio	95% confidence intervals	<i>p</i>
<b>Gender (ref.: Male)</b>									
Female	1.12	0.70 – 1.79	.63	1.54	1.13 – 2.10	.006	0.91	0.67 – 1.23	.53
<b>Age (ref.: 18-34)</b>									
35-54	3.76	1.92 – 7.37	<.001	1.63	1.12 – 2.37	.011	1.29	0.90 – 1.85	.166
55+	4.02	1.87 – 8.68	<.001	2.40	1.56 – 3.70	<.001	1.46	0.95 – 2.27	.087
<b>Ethnicity (ref.: White)</b>									
BME	2.11	0.94 – 4.74	.071	1.16	0.63 – 2.16	.63	2.15	1.27 – 3.66	.005
<b>SES (ref.: ABC1)</b>									
C2DE	1.37	0.84 – 2.24	.21	1.30	0.95 – 1.78	.101	1.10	0.80 – 1.51	.54
<b>Smoking (ref.: Non-daily)</b>									
Daily	0.36	0.19 – 0.70	.002	0.88	0.56 – 1.39	.59	0.78	0.52 – 1.17	.23
<b>MTSS (ref.: Low)</b>									
Moderate	2.37	1.41 – 4.01	.001	1.51	1.09 – 2.09	.013	0.92	0.67 – 1.28	.63
Strong	4.33	2.16 – 8.69	<.001	2.70	1.66 – 4.40	<.001	0.83	0.47 – 1.47	.53
<b>CPD (ref.: 1-10)</b>									
11+	2.47	1.34 – 4.55	.004	1.71	1.19 – 2.47	.004	0.83	0.56 – 1.23	.35
<b>TTFC (ref.: after 60 minutes)</b>									
Within 5 minutes	1.98	0.87 – 4.50	.104	2.28	1.32 – 3.95	.003	1.22	0.71 – 2.10	.47
6 to 60 minutes	1.48	0.75 – 2.92	.26	2.12	1.37 – 3.29	.001	0.91	0.61 – 1.36	.64

Table 2 Multinomial regression model predicting use of NRT only, NRT and e-cigarettes and neither (e-cigarette use only ( $n = 396$ ) is a reference category;  $n = 1140$ ).

## DISCUSSION

- A substantial minority of smokers from Great Britain (27.9%) have never used alternative nicotine products, which might place them at a disadvantage when reducing harm from or stopping smoking.
- Smokers from different socioeconomic backgrounds were equally likely to have used alternative nicotine products; fewer smokers from BEM groups have ever used e-cigarettes.
- Tobacco harm reduction by switching to alternative nicotine products might not be appealing to light smokers and those who do not want to stop smoking.
- Smokers prefer e-cigarettes over NRT (62.8% vs 37.2% ever tried).
- Heavier smokers motivated to stop smoking were more likely to be NRT only users, suggesting that NRT is mostly perceived as a smoking cessation aid.

### Limitations & strengths

- Ever use of alternative nicotine products does not imply smokers' intent to change. Likewise, never use does not suggest smokers are reluctant to change.
- Possible self-report bias regarding history of alternative nicotine products uses.
- However, we used a representative sample of smokers from Great Britain.
- The first study to identify disparity in ever e-cigarette use by ethnicity among smokers from Great Britain.

## CONCLUSIONS

More than a quarter of adult smokers in Great Britain have never tried e-cigarettes, NRT or heated tobacco products. Switching from tobacco smoking to alternative nicotine sources might not appeal to smokers from Black and Minority Ethnic groups, light smokers and those not motivated to stop smoking.

### References

- McNeill, A. and M. R. Munafò (2013). "Reducing harm from tobacco use." *Journal of Psychopharmacology* 27(1): 13-18.

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