

## SUPPLEMENTARY TABLES

Supplementary Table 1. Prevalence and correlates of ever use and current use of flavour capsule cigarette by country

| Country            | Study ID                 | Measure   | Prevalence of use<br>Year: %  | Use by age (years)<br>% and/or measure of association<br>(95%CI)  | Use by gender<br>% and/or<br>measure of<br>association<br>(95%CI)   | Other correlates of use<br>% and/or measure of association (95%CI)  |
|--------------------|--------------------------|---|---|---|---|---|
| <b>Ever Use</b>    |                          |   |   |   |   |   |
| AUSTRALIA          | <i>White, 2016</i>       | Ever used menthol capsule cigs                                      | 2014: 7.1%  | 12-15: 4.4%<br>16-17: 13.4%<br><b>p&lt;0.01</b><br>18-24: 4%, Ref<br>35-44: 1%, <b>aOR=0.32 (0.14-0.75)</b>   | 16-17-year-olds<br>Male: 14.5%<br>Female: 12.3%<br><b>p&lt;0.01</b><br>12-15-year-olds<br>No association. | N/A   |
| MEXICO             | <i>Abad-Vivero, 2016</i> | Ever used viewed packs, with brand names removed                    | 2015:<br><i>Capsule, regular</i><br>Marlboro: 2%<br>Camel: 5%<br>Pall Mall: 9%<br><br><i>Capsule, menthol</i><br>Marlboro: 6%<br>Camel: 5%<br>Pall Mall: 8% | N/A   | N/A   | N/A   |
| NEW ZEALAND        | <i>Hoek, 2019</i>        | Ever smoked flavour capsule cigs                                    | 2017: 51.3%   | N/A   | N/A   | N/A   |
| <b>Current Use</b> |                          |   |   |   |   |   |
| AUSTRALIA          | <i>Thrasher, 2016</i>    | Usual or current preferred brand variety includes a flavour capsule | 2012: 1%<br>2014: 3%  | 18-24: 4%, Ref<br>25-34: 3%, aOR <sup>1</sup> =0.82 (0.37-1.84)<br>35-44: 1%, <b>aOR<sup>1</sup>=0.32 (0.14-0.75)</b><br>45-54: 1%, aOR <sup>1</sup> =0.48 (0.19-1.23)<br>55-64: 1%, aOR <sup>1</sup> =0.43 (0.16-1.10) | Male: 1%, Ref<br>Female: 2%, aOR <sup>1</sup> = 1.52 (0.91-2.52)  | <i>Education</i><br>≤High school: 1%, Ref<br>Some university: 2%, aOR <sup>1</sup> =1.05 (0.60-1.84)<br>≥University: 3%, aOR <sup>1</sup> =1.16 (0.63-2.13)<br><br><i>Smoking status</i><br>Non-daily: 3%, Ref<br>Daily: 2%, aOR <sup>1</sup> =1.05 (0.63-1.74)<br><br><i>Intentions to quit</i><br>No: 1%, Ref |

<sup>1</sup> Adjusted models for age, sex, education, income, race, daily smoker, quit attempt, Wave, and time in sample.

| Country | Study ID                      | Measure  | Prevalence of use<br>Year: %  | Use by age (years)<br>% and/or measure of association<br>(95%CI)   | Use by gender<br>% and/or<br>measure of<br>association<br>(95%CI)  | Other correlates of use<br>% and/or measure of association (95%CI)   |
|---------|-------------------------------|--|---|--|--|--|
|         |                               |  |   |  |  | Yes: 3%, aOR <sup>1</sup> = 1.35 (0.87-2.09)<br><i>Recent quit attempt</i><br>No: 1%, Ref<br>Yes: 3%, aOR <sup>1</sup> =1.11 (0.72-1.71)<br><i>HSI: aOR<sup>1</sup>=0.83 (0.71-0.96)</i>   |
| CHILE   | Paraje,<br>2019               | Last pack<br>bought was<br>flavour<br>capsule cigs   | 2017: 39.5% (SD:0.49)   | ≤25: 60% (SD: 0.49)<br>26-34: 54.4% (SD: 0.50)<br>35-49: 31.7% (SD: 0.47)<br>≥50: 23.0% (SD:0.43)<br><br>Each year less in age increased the<br>likelihood of preferring capsules by<br><b>0.8- 0.9 percentage points.</b> <sup>2</sup>  | Male: 32.3%<br>(SD: 0.47)<br>Female: 46.7%<br>(SD: 0.50)<br>If a woman, the<br>likelihood of<br>preferring<br>capsules<br>increased by<br><b>13.4-13.5<br/>percentage<br/>points.</b> <sup>2</sup> | <i>Price paid</i><br>On average, the unit value of prices paid by<br>those who used flavour capsule cigarettes<br>was <b>14% higher</b> than those who used non-<br>flavoured cigarettes.<br><br>No association with education level or with<br>employment status.   |
| MEXICO  | Gutiérrez-<br>Torres,<br>2020 | Last cig brand<br>they<br>purchased<br>was Pall Mall<br>(not<br>specifically<br>capsules, but<br>in Mexico<br>most variants<br>are capsules) | 2009: 1%<br>2011: 3%<br>2015: 10%<br>2016: 14%<br><br><i>Packs</i><br>2009: aOR <sup>3</sup> =0.48 (0.21-1.05)<br>2011: Ref<br>2015: <b>aOR<sup>3</sup>=3.71 (2.22-6.20)</b><br>2016: <b>aOR<sup>3</sup>=5.63 (3.65-8.69)</b><br><br><i>Single Cigs</i><br>2009: <b>aOR<sup>3</sup>=0.39 (0.09-1.58)</b><br>2011: Ref<br>2015: <b>aOR<sup>3</sup>=6.22 (2.95-<br/>13.08)</b><br>2016: <b>aOR<sup>3</sup>=9.98 (5.08-<br/>19.62)</b> | <i>Packs</i><br>15-25: Ref<br>25-44: aOR <sup>3</sup> =0.83<br>(0.57-1.20)<br>45-65: aOR <sup>3</sup> =0.83<br>(0.55-1.25)<br><br><i>Single Cigs</i><br>15-25: Ref<br>25-44: <b>aOR<sup>3</sup>=0.46<br/>(0.33-0.63)</b><br>45-65: <b>aOR<sup>3</sup>=0.31<br/>(0.19-0.51)</b> | <i>Packs</i><br>Male: Ref<br>Female:<br><b>aOR<sup>3</sup>=1.99<br/>(1.53-2.60)</b><br><br><i>Single Cigs</i><br>Male: Ref<br>Female:<br><b>aOR<sup>3</sup>=2.21<br/>(1.60-3.05)</b>               | <i>Smoking status</i><br><i>Packs</i><br>Non-daily: Ref<br>Daily ≤5cigs/day: aOR <sup>3</sup> =1.15 (0.79-1.66)<br>Daily >5cigs/day: aOR <sup>3</sup> =0.96 (0.70-1.32)<br><br><i>Single Cigs</i><br>Non-daily: Ref<br>Daily ≤5cigs/day: aOR <sup>3</sup> =0.88 (0.57-1.35)<br>Daily >5cigs/day: <b>aOR<sup>3</sup>=0.47 (0.24-0.90)</b> |

<sup>2</sup> Discrete choice (probit) models: The decision to smoke flavour capsule cigs (equal to one if respondents smoke flavour capsule cigs) is explained by the following characteristics of the smoker: age, sex, preference for the taste/flavour or price, level of education, number of cigs smoked per day, and employment status.

<sup>3</sup> Adjusted models by year (2011 as the reference), sex, group of age, residence, education attainment, smoking pattern and cigarette price (log-transformed).

| Country     | Study ID               | Measure   | Prevalence of use<br>Year: % | Use by age (years)<br>% and/or measure of association<br>(95%CI)   | Use by gender<br>% and/or<br>measure of<br>association<br>(95%CI)            | Other correlates of use<br>% and/or measure of association (95%CI)  |
|-------------|------------------------|---|------------------------------|--|--|---|
| MEXICO      | Thrasher, 2016         | Usual or current preferred brand variety includes a flavour capsule | 2012: 6%<br>2014: 14%        | 18-24: 12%, Ref<br>25-34: 9%, <b>aOR<sup>1</sup>=0.66 (0.49-0.88)</b><br>35-44: 7%, <b>aOR<sup>1</sup>=0.60 (0.43-0.83)</b><br>45-54: 10%, <b>aOR<sup>1</sup>= 0.67 (0.48-0.95)</b><br>55-64: 12%, aOR <sup>1</sup> = 0.96 (0.67-1.38)   | Male: 7%, Ref<br>Female: 13%,<br><b>aOR<sup>1</sup>= 2.07 (1.66-2.59)</b>    | <i>Education</i><br>≤High school: 11%, Ref<br>Some university: 9%, aOR <sup>1</sup> =0.90 (0.69-1.19)<br>≥University: 9%, aOR <sup>1</sup> =0.85 (0.66-1.09)<br><i>Smoking status</i><br>Non-daily: 9%, Ref<br>Daily: 11%, <b>aOR<sup>1</sup>= 1.24 (1.02-1.51)</b><br><i>Quit intentions</i> No: 11%, Ref<br>Yes: 9%, aOR <sup>1</sup> = 0.92 (0.76-1.1)<br><i>Recent quit attempt</i><br>No: 11%, Ref<br>Yes: 9%, aOR <sup>1</sup> = 0.89 (0.75-1.07)<br><i>HSI</i> : aOR <sup>1</sup> =0.94 (0.86-1.03)                          |
| MEXICO      | Zavala-Arciniega, 2020 | Smoke cigarettes with flavoured capsules within the past 30 days    | 2018-2019: 43%               | 10-19: 52%, <b>aPR<sup>4</sup>=2.66 (2.07-3.43)</b><br>20-29: 56%, <b>aPR<sup>4</sup>=2.64 (2.08-3.36)</b><br>30-39: 50%, <b>aPR<sup>4</sup>=2.41 (1.90-3.07)</b><br>40-49: 36%, <b>aPR<sup>4</sup>=1.80 (1.39-2.32)</b><br>50-59: 28%, <b>aPR<sup>4</sup>=1.41 (1.08-1.85)</b><br>≥60: 19%, Ref | Male: 39%,<br><b>aPR<sup>4</sup>=0.74 (0.69-0.80)</b><br>Female: 55%,<br>Ref | <i>Education</i><br>Primary school or less: 25%, Ref<br>Secondary school: 43%, <b>aPR<sup>4</sup>=1.27 (1.13-1.43)</b><br>High school: 51%, <b>aPR<sup>4</sup>=1.41 (1.24-1.61)</b><br>University or more: 56%, <b>aPR<sup>4</sup>=1.56 (1.36-1.79)</b><br><i>Well-being index</i> (quintiles)<br>Very low: 32%, Ref<br>Low: 40%, aPR <sup>4</sup> =1.10 (0.96-1.27)<br>Middle: 44%, aPR <sup>4</sup> =1.15 (0.99-1.33)<br>High: 47%, <b>aPR<sup>4</sup>=1.22 (1.06-1.40)</b><br>Very high: 48%, aPR <sup>4</sup> =1.15 (0.99-1.34) |
| SOUTH KOREA | Cho, 2018              | Usual or current brand is flavour capsule                           | 2016: 18%                    | 19-28: Ref<br>29-38: <b>aOR=0.38, p&lt;0.001</b>   | Male: Ref<br>Female:<br><b>aOR=1.51, p&lt;0.05</b>                           | <i>Smoked current usual brand &lt;1 year</i><br>Regular: Ref<br>Capsule: <b>aOR=4.81, p&lt;0.001</b><br><i>Nicotine dependence</i><br>Regular: Ref<br>Capsule: <b>aOR=0.87, p&lt;0.01</b>   |

<sup>4</sup> Adjusted models for type of smoker (daily, occasional) and geographical region (Central, Mexico City, North, South)

| Country               | Study ID            | Measure   | Prevalence of use<br>Year: % | Use by age (years)<br>% and/or measure of association<br>(95%CI)   | Use by gender<br>% and/or<br>measure of<br>association<br>(95%CI) | Other correlates of use<br>% and/or measure of association (95%CI)  |
|-----------------------|---------------------|---|------------------------------|--|---|---|
| <b>UNITED KINGDOM</b> | <i>Moodie, 2019</i> | Cig brand has flavour capsule                       | 2016: 13%                    | 25-34 vs. 18-24: <b>aOR<sup>5</sup>=0.46 (0.33-0.64)</b><br>35-44 vs. 18-34: <b>aOR<sup>5</sup>=0.41 (0.30-0.54)</b><br>45-54 vs. 18-44: <b>aOR<sup>5</sup>=0.33 (0.24-0.45)</b><br>55+ vs. 18-54: <b>aOR<sup>5</sup>=0.36 (0.27-0.48)</b> | Male: Ref<br>Female:<br>aOR <sup>5</sup> =1.15<br>(0.92-1.43)     | <i>Race/ethnicity</i><br>White British: Ref<br>Other white: <b>aOR<sup>5</sup>=1.85 (1.26-2.72)</b><br>Other: aOR <sup>5</sup> =1.16 (0.76-1.78)<br>Not stated: aOR <sup>5</sup> =0.46 (0.11-1.99)<br><i>Social Grade</i><br>ABC1: Ref<br>C2DE: aOR <sup>5</sup> =1.11 (0.88-1.40)<br>Not stated: aOR <sup>5</sup> =0.86 (0.43-1.74)<br><i>HSI</i><br>0: Ref<br>1 vs 0: aOR <sup>5</sup> = 0.89 (0.63-1.26)<br>2 vs. (0-1): aOR <sup>5</sup> = 0.89 (0.65-1.22)<br>3 vs. (0-2): aOR <sup>5</sup> = 0.83 (0.62-1.11)<br>4-6 vs. (0-3): aOR <sup>5</sup> = 0.87 (0.60-1.27)<br>Not stated vs. (0-6): aOR <sup>5</sup> = 1.14 (0.48-2.70)<br><i>Quit intentions (next 6 months)</i><br>No: Ref<br>Yes: <b>aOR<sup>5</sup>=1.74 (1.40-2.17)</b> |
| <b>UNITED STATES</b>  | <i>Emond, 2017</i>  | Usual or last-smoked cig is flavour capsule variant | 2013-2014: 4.3%              | 18-24: <b>9.4% (8.2-10.8), p&lt;0.001</b><br>25-34: <b>6.0% (5.1-7.0), p&lt;0.001</b><br>35-44: <b>3.7% (2.9-4.7), p&lt;0.001</b><br>≥45: 0.09% (0.6-1.0)  | No association.   | <i>18-24-year-olds</i><br><i>Race/ethnicity</i><br>Hispanic: <b>17.3% (13.1-22.4)</b><br>Non-Hispanic white: 8.4% (7.0-10.1)<br>Non-Hispanic black: 3.2% (1.1-8.8)<br>Other: 9.1%<br>p<0.05 among Hispanic than non-Hispanic white or black<br><i>Smoke some days (vs every day)</i><br>Non-menthol: 32.5% (29.6-35.5)<br>Menthol: 24.9% (21.8-28.3)<br>Capsule: <b>46.3% (39.6-53.1), p&lt;0.001</b><br><i>Mean cigs smoked/day</i><br>Non-menthol: 14.3 cigs (13.0-15.6)  |

<sup>5</sup> Adjusted models for sex, age, social grade, ethnicity, HSI, plans to quit in next 6 months.

| Country              | Study ID                | Measure   | Prevalence of use<br>Year: %              | Use by age (years)<br>% and/or measure of association<br>(95%CI)  | Use by gender<br>% and/or<br>measure of<br>association<br>(95%CI)        | Other correlates of use<br>% and/or measure of association (95%CI)  |
|----------------------|-------------------------|---|---|---|--|---|
|                      |                         |   |   |   |  | Menthol: 13.1 cigs (11.6-14.6)<br>Capsule: <b>10.7 cigs (9.1-12.30), p&lt;0.01</b><br><br><i>Polytobacco use</i><br>Non-menthol: 41.2% (38.6-43.9)<br>Menthol: 35.7% (32.6-38.9), p<0.05<br>Capsule: 40.9% (34.4-47.7)<br><br><b>Smoking history<sup>6</sup></b><br><b>Nicotine dependence<sup>7</sup></b>  |
| <b>UNITED STATES</b> | <i>Thrasher, 2016</i>   | Usual or current preferred brand variety includes a flavour capsule | 2012: 4%<br>2014: 4%                      | 18-24: 10%, Ref<br>25-34: 6%, <b>aOR<sup>1</sup>=0.64 (0.45-0.89)</b><br>35-44: 3%, <b>aOR<sup>1</sup>=0.36 (0.23-0.56)</b><br>45-54: 2%, <b>aOR<sup>1</sup>=0.16 (0.08-0.29)</b><br>55-64: 0.4%, <b>aOR<sup>1</sup>=0.08 (0.04-0.18)</b> | Male: 4%, Ref<br>Female: 5%,<br><b>aOR<sup>1</sup>= 1.39 (1.03-1.88)</b> | <i>Race Ethnicity</i><br>Caucasian: 4%, Ref<br>African American: 4%, aOR <sup>1</sup> =0.53 (0.26-1.09)<br>Latino: 4%, <b>aOR<sup>1</sup>=0.66 (0.47-0.94)</b><br>Other: 9%, aOR <sup>1</sup> =1.35 (0.75-2.43)<br><br><i>Education</i><br>≤High school: 4%, Ref<br>Some university: 5%, aOR <sup>1</sup> =0.98 (0.70-1.37)<br>≥University: 5%, aOR <sup>1</sup> =0.98 (0.67-1.45)<br><br><i>Smoking status</i><br>Non-daily: 6%, Ref<br>Daily: 4%, aOR <sup>1</sup> = 0.84 (0.60-1.17)<br><br><i>Quit intentions</i><br>No: 4%, Ref<br>Yes: 5%, aOR <sup>1</sup> = 1.11 (0.82-1.49)<br><br><i>Recent quit attempt</i><br>No: 4%, Ref<br>Yes: 5%, aOR <sup>1</sup> = 1.04 (0.77-1.41)<br><br><i>HSI: aOR<sup>1</sup>=0.90 (0.80-1.01)</i> |
| <b>UNITED STATES</b> | <i>Schneller, 2020a</i> | Usual brand: non-menthol, menthol in tobacco only, menthol in       | 2014-2015: 6%<br>Menthol capsule only: 3% | N/A   | N/A  | <i>Mean (SE); Adjusted β<sup>8</sup> (95%CI)</i><br><br><i>HSI:</i><br><i>Wave 1:</i> Non-menthol: 2.4 (0.03), Ref<br>Menthol capsule only: <b>1.3 (0.10), p&lt;0.05</b>  |

<sup>6</sup> Capsule daily smokers were more like to start smoking regularly when 18 years or older than non-menthol/ menthol daily smokers, p<0.001

<sup>7</sup> Capsule smokers were less likely to smoke within an hour of waking than non-menthol/ menthol smokers, p<0.001

| Country | Study ID | Measure  | Prevalence of use<br>Year: %            | Use by age (years)<br>% and/or measure of association<br>(95%CI) | Use by gender<br>% and/or<br>measure of<br>association<br>(95%CI) | Other correlates of use<br>% and/or measure of association (95%CI)   |
|---------|----------|--|---|--|---|--|
|         |          | capsule only,<br>menthol in<br>both tobacco<br>and capsule | Menthol in tobacco and<br>capsule: 2.3% |  |   | <p>Wave 2: Non-menthol: 2.27 (0.04), Ref<br/>Menthol tobacco only: 2.06 (0.03), <math>\beta^8</math>: -0.05<br/>(-0.12-0.03)<br/>Menthol capsule only: 1.35 (0.11), <math>\beta^8</math>: -0.04<br/>(-0.20-0.12)<br/>Menthol tobacco and capsule: 1.76 (0.13),<br/><math>\beta^8</math>: -0.13 (-0.30-0.03)</p> <p><i>Made past quit attempt:</i><br/>Non-menthol: 62.7%, Ref<br/>Menthol tobacco only: 66.1%, <math>\beta^8</math>: 1.00 (0.89-<br/>1.13)<br/>Menthol capsule only: 69.5%, <math>\beta^8</math>: 1.14 (0.83-<br/>1.57)<br/>Menthol tobacco and capsule: 61.6%, <math>\beta^8</math>:<br/>0.74 (0.52-1.06)</p> <p><i>Successfully quit at Wave 2:</i><br/>Non-menthol: 11.6%, Ref<br/>Menthol tobacco only: 10.9%, <math>\beta^8</math>: 1.09 (0.88-<br/>1.37)<br/>Menthol capsule only: 17.8%, <math>\beta^8</math>: 1.21 (0.77-<br/>1.90)<br/>Menthol tobacco and capsule: 17.1%, <math>\beta^8</math>:<br/>1.48 (0.97-2.25)</p> |

**Bolded**= Statistically significant; N/A=Not applicable; 95%CI= 95% Confidence interval; SE= Standard error; SD= Standard deviation; aOR= Adjusted odds ratio; Ref= Reference category, Cig= Cigarette; HSI = Heaviness of Smoking Index: Time to first cigarette and daily number of cigarettes consumed; higher score (4–6); lower score (0-3)

<sup>8</sup> Adjusted models for sex, age, race/ethnicity, and education. HSI also included in models for successfully quit and made past quit attempt.

Supplementary Table 2. Product perceptions and responses to the product of flavour capsule cigarette by construct

| CONSTRUCT                               | STUDY ID                   | STUDY DESIGN/ POPULATION  | MEASURE  | MAIN RESULTS  |
|---|----------------------------|---|--|---|
| <i>Product perceptions</i> <sup>9</sup> |                            |   |  |   |
| <b>RISK PERCEPTIONS</b>                 |                            |   |  |   |
| PERCEIVED HARM                          | Barrientos-Gutierrez, 2020 | Cross-sectional survey with students aged 12-14 years from Mexico, 2015; Discrete choice experiment using a 3X25 design with six attributes.  | <b>Relative harm:</b> For each choice set of three packs: 'If you were to smoke, which of these brands will harm your health the most?' and 'which would harm your health the least?', with the option "all are equally harmful".              | Packs with one capsule were perceived to have lower harm than packs with no capsules (b=0.131, SE=0.04, p<0.01), however this was not found for packs with two capsules. Normal branding (rather than plain packaging) and packs with small HWLs (30%), respectively enhanced perceptions of lower harm of packs with one flavour capsule (b=-0.216, SE=0.06, p<0.001 and b=-0.192, SE=0.06, p<0.001, respectively), but not for two capsules, compared to no capsules. Pall Mall packs were perceived to have relatively lower harm compared to Marlboro packs (b=-0.265, SE=0.06, p<0.001). |
|   | Brown, 2020                | Focus groups with young adults (smokers and non-smokers, men and women) aged 18-24 years from Metro Manila, Philippines; Viewed 26 cigarette packs purchased in Manila which varied in brand, flavour and size. | <b>Relative harm:</b> Asked to place all packs on a scale from 'least harmful to most harmful'; Questions on why ranked packs as they did, how the packs are similar and different and what pack characteristics contributed to their ranking. | Generally, there were no perceived differences in harm between flavour capsule packs and non-flavoured packs.   |
|   | Emond, 2018                | Cross-sectional survey with 7,181 adults, aged 18-44 years, from the US who were current or former established ( $\geq 100$ lifetime cigarettes) cigarette smokers.   | <b>Relative harm:</b> Asked whether usual brand is less harmful, no different or more harmful compared with other cigarette brands.  | Among current, daily smokers aged 18-24 years, those whose usual or last brand smoked was flavour capsule cigarettes, the majority (84.8%, 95%CI: 74.5-91.4) believed their brand was no different in harm compared to other brands. 4.2% (95%CI: 1.3-13.3) perceived their brand to be less harmful and 11.0% (95%CI: 5.0-19.2) perceived their brand to be more harmful. Harm perceptions among flavour capsule smokers did not differ from non-menthol and menthol smokers.  |
|   | Hoek, 2019                 | Discrete choice experiment cross-sectional survey with 816  | <b>Relative harm; Relative levels of tar:</b> Asked to rate a capsule cigarette  | There were no significant differences in perceptions of capsule cigarettes being less harmful or having lower tar, respectively   |

<sup>9</sup> Product perceptions, as defined in the Hypothetical Model of Tobacco Consumer Response, encompass "subjective responses to product information, and include individual perceptions of risk, attitudes and beliefs about the product, social acceptability, and outcome expectancies such as satisfactory nicotine and sensory effects". (Rees VW, Kreslake JM, Cummings KM, et al. Assessing consumer responses to potential reduced-exposure tobacco products: a review of tobacco industry and independent research methods. *Cancer Epidemiol Biomarkers Prev.* 2009;18(12):3225-3240).

| CONSTRUCT | STUDY ID     | STUDY DESIGN/ POPULATION  | MEASURE   | MAIN RESULTS   |
|-----------|--------------|---|---|--|
|           |              | young adults (425 daily/non-daily current smokers, 224 susceptible non-smokers <sup>10</sup> , and 155 former smokers), aged 18-25 years from New Zealand.  | compared to an unflavoured cigarette on perceived relative harm and levels of tar, respectively, on a seven-point semantic differential scale, where 1 is negative and 7 is positive  | between daily and non-daily smokers and former and never susceptible non-smokers <sup>10</sup> , with all groups having a mean score between 4.1 and 4.3 for relative harm and between 4.3 and 4.4 for relative levels of tar.   |
|           | Moodie, 2015 | Focus groups with 75 female non-smokers and occasional smokers aged 12-24 years from Glasgow, Scotland, United Kingdom in 2013; 12 focus groups segmented by age (12-14, 15-17, 18-24) and social grade (ABC1, C2DE).               | <b>Relative harm and reasons why:</b> Participants shown 11 cigarettes (2 standard, 2 coloured, 4 slim, 1 aromatized black cigarette, 1 menthol, and 1 menthol capsule) and asked to order the cigarettes by harm (most/least) and the reasons behind the ordering decisions. There was also general discussion when participants were shown the menthol capsule inside the filter. | 'The capsule and menthol cigarettes tended to be placed together and ranked as less harmful, positioned either alongside the four slim and pink cigarettes or as slightly more harmful than these cigarettes. The capsule and menthol cigarettes were, however, usually ranked less harmful than the two standard cigarettes. The prevailing view was that menthol flavouring implied a safer cigarette... While the capsule cigarette was placed alongside the menthol cigarette and towards the least harmful, perceptions of harm were less clear after participants were shown the capsule inside the filter. While the perception that the capsule cigarette would be less harmful persisted, some participants recognized that the cigarette was just the same as a standard cigarette but with a different flavouring. Others thought it would be more harmful. These participants were surprised at the capsule's appearance, likened it to chemicals and became concerned about the extra ingredients need to change the taste... That looks more dangerous...looks like something you would put in your laundry. It's just extra chemicals isn't it?' (18-24-year-old occasional smoker).' |
|           | Moodie, 2018 | Focus groups with 120 current smokers aged 16 to 50+ years from Glasgow and Edinburgh, Scotland, United Kingdom in 2015; 12 focus groups segmented by gender, age (16-17, 18-24, 25-35, 36-50, >50), and social grade (ABC1, C2DE). | <b>Relative harm and reasons why:</b> Participants given a number of cigarettes, including two capsule cigarettes. Not explicitly measured, but perceptions around relative harm of capsule cigarettes emerged as a theme from the data.  | 'Participants were not explicitly asked to comment on the perceived harm of capsule cigarettes, which was seldom discussed in groups. Where it was, discussion indicated some confusion about the harmfulness of capsule cigarettes in comparison to traditional cigarettes, which was generally related to mixed perceptions of menthol. One view was that capsules would be less harmful because they contain menthol, whereas others thought they could be more harmful because menthol was perceived to open up the airways and allow more toxins in the lungs. The final view was that there would be no difference in terms of harm.'  |
|           | Moodie, 2019 | Cross-sectional survey with 3620 factory-made cigarette smokers, who had smoked in the past month aged 18+ years from the United Kingdom.   | <b>Relative harm:</b> 'Is your usual (current) brand of cigarettes a little less harmful, no different, or a little more harmful, compared to other brands?'  | Perceptions of harm did not differ significantly between flavour capsule and non-capsule smokers.  |

<sup>10</sup> Susceptible non-smokers = Never smoked regularly, but gave responses other than 'Definitely would not smoke if offered a cigarette by a friend' or 'Definitely will not smoke a cigarette in the next 12 months'.

| CONSTRUCT                                | STUDY ID         | STUDY DESIGN/ POPULATION   | MEASURE   | MAIN RESULTS  |
|--|------------------|--|---|---|
|  | Schneller, 2020b | Randomised controlled study design <sup>11</sup> with 18 smokers aged 18-65 years who smoked 5+ cigarettes daily, primarily preferred mentholated cigarettes, and were not trying to quit smoking, from the United States. | <b>Perceived risk:</b> At the end of each smoking session, participants used a 10-run ladder to assess perceived risk of the cigarette product after smoking the cigarette replicates assigned for each session, with the top of the ladder representing a greater health risk and the bottom was no or little health risk. | There were no significant differences in mean risk perception scores according to cigarette product (F (4,64)=0.77; p=0.448). Scores showed that most participants felt that all cigarette products were harmful to their health.   |
|  | Thrasher, 2016   | Quarterly surveys with smokers aged 18-64 from Australia (n=5864 observations, n=2710 individuals), Mexico (n=5723 observations, n=3366 individuals), and the US (n=6865 observations, n=4154 individuals).                | <b>Relative harm:</b> 'Compared to other cigarettes, how much less/more harmful is your brand and type of cigarettes?' (much less harmful, a little less harmful, the same, a little more harmful, much more harmful).  | Mexican smokers who preferred discount flavour capsules were more likely than regular premium brand smokers to view their brand as less harmful (b: 0.07, SE: 0.03, p<0.05). US smokers who preferred flavour capsule varieties (only found among premium brands) were more likely to view their brand as less harmful than smokers who preferred regular premium brands (b: 0.08, SE:0.03, p<0.05). No difference observed in Australia.   |
| <b>OUTCOME EXPECTANCIES<sup>12</sup></b> |                  |  |   |   |
| SMOOTHNESS, LIGHTNESS                    | Cho, 2018        | Cross-sectional survey with 1,940 adult smokers, aged 18+ years from South Korea.  | <b>Smoothness on throat:</b> 'Thinking about the cigarette you usually/ currently smoke, are your cigarettes harsher or smoother on your throat?' (Harsher, About the Same, Smoother)   | Flavour capsule cigarette smokers were more likely than regular cigarette smokers to report that their cigarette varieties are lighter in taste (b: 0.18, p <.01) and smoother on throat (b: 0.12, p <.05).   |
|  | Gilbert, 2021    | In-depth interviews with 41 women smokers, aged 18-40 years from Australia.  | <b>Lighter, milder, less harsh on throat; Less substance:</b> Not explicitly measured, but emerged as a theme.  | 'For many, menthol capsules made the cigarettes feel "lighter", "milder", less "harsh on your throat", "not as strong" as regular cigarettes, and allowed them to avoid "that disgusting taste in my mouth"... "I don't like harsh cigarettes. They (Winfield Optimum Crush) feel very, very light. That's why I like them. Especially if you pop them at the start, they're extremely light. Enjoyable and lighter, yeah"; "It's not as harsh as just smoking it on its own".' Among smokers who didn't use menthol capsules, they preferred regular |

<sup>11</sup> Participants were randomly assigned to one of four sampling groups, which varied in the sequence of the cigarette products that were smoked (Camel Crush crushed, Camel Crush uncrushed, Camel Menthol crushed, and Camel Menthol uncrushed) (R.J. Reynolds, Winston-Salem, NC). All participants smoked all available cigarette products. At the baseline session, all participants smoked their preferred brand, which allowed them to serve as their own control.

<sup>12</sup> "Outcome expectancies" is a construct of product perceptions from the Hypothetical Model of Tobacco Consumer Response with examples described as satisfactory nicotine and sensory effects (Rees VW, Kreslake JM, Cummings KM, et al. Assessing consumer responses to potential reduced-exposure tobacco products: a review of tobacco industry and independent research methods. *Cancer Epidemiol Biomarkers Prev.* 2009;18(12):3225-3240). Outcome expectancies originates from social learning theory and refers to a person's beliefs about the likelihood that a behaviour will result in specific outcomes or consequences (Maisto SA, Karem KB, Bradizza CM. Social learning theory. In: Leonard KE, Blane HT, editors. *Psychological Theories of Drinking and Alcoholism.* New York: Guilford Press; 1999. pp. 106–163).

| CONSTRUCT            | STUDY ID       | STUDY DESIGN/ POPULATION  | MEASURE   | MAIN RESULTS  |
|----------------------|----------------|---|---|---|
|                      |                |   |   | cigarettes because of the “burn” and “heat that you get”, which makes “everything become clearer than it did”, “makes me feel present”, “in the moment”... “I like the burn of the cigarette, Okay. I like the drawing into my lungs and exhaling it’s like taking a deep breath, but like, there’s more substance to it”; “Cause when I’m stressed it kind of like burns but it like centres me (...) So it’s like it grounds me cause I have a lot of anxiety”.’  |
|                      | Hoek, 2019     | Discrete choice experiment cross-sectional survey with 816 young adults (425 daily/non-daily current smokers, 224 susceptible non-smokers <sup>10</sup> , and 155 former smokers), aged 18-25 years from New Zealand. | <b>Smoother taste:</b> Asked to rate a capsule cigarette compared to an unflavoured cigarette on whether they have a smoother taste, on a seven-point semantic differential scale, where 1 is negative and 7 is positive.         | Non-daily smokers (4.8, 95%CI: 4.6-5.1, p<0.05), former smokers (4.9, 95%CI: 4.7-5.1, p<0.05) and susceptible non-smokers <sup>10</sup> (5.0, 95%CI: 4.8-5.1, p<0.001) were significantly more likely than daily smokers (4.5, 95%CI: 4.3-4.7) to perceive capsule cigarettes as having a smoother taste.   |
|                      | Thrasher, 2016 | Quarterly surveys with smokers aged 18-64 from Australia (n=5864 observations, n=2710 individuals), Mexico (n=5723 observations, n=3366 individuals), and the US (n=6865 observations, n=4154 individuals).           | <b>Lighter; Smoother:</b> ‘Compared to other cigarettes, how much lighter/more intense and smoother/harsher, respectively, is your brand and type of cigarettes?’ (much more, a little more, the same, a little more, much more). | Australian smokers who preferred flavour capsule varieties were more likely than those who preferred regular brands to view their brand as smoother (b: 0.27, SE: 0.10, p<0.01). Mexican smokers who preferred discount flavour capsules were more likely than regular premium brand smokers to view their brand as lighter (b: 0.43, SE: 0.08, p<0.001) and smoother (b: 0.49, SE: 0.07, p<0.001). US smokers who preferred flavour varieties (only found among premium brands) were more likely to view their brand as smoother (b: 0.25, SE: 0.07, p<0.001) than smokers who preferred regular premium brands.   |
| TASTE/ BREATH/ SMELL | Gilbert, 2021  | In-depth interviews with 41 women smokers, aged 18-40 years from Australia.   | <b>Taste more minty, sweeter, fresher, cleaner, artificial; Smell less:</b> Not explicitly measured, but emerged as a theme.  | ‘Most young women gave accounts that menthol capsules improved the taste of cigarettes, with participants describing the menthol flavour as “fresh”, “refreshing”, “like a blast of mint”, and “not as bitter” as regular cigarettes... “It’s almost like a breath of fresh air. They just seem a bit cleaner, a bit fresher”; “Kind of feels like healthier in a way because it’s more refreshing”; “It’s more like an air-con in your mouth”. Some young women explained that when compared with menthol flavour capsule cigarettes, regular cigarettes are “just dirty”, “dirty tasting”, “horrendous”, “look yuck”... and as “tasting like chemicals”....Some participants provided accounts that “If I can’t get my menthol cigarettes, I won’t smoke”. ...Menthol flavour capsule cigarettes are like smoking a sweet or breath mint...: “They don’t even taste like a cigarette. They taste like you’re just smoking a minty”; “There’s like this little ball, you pop it. Some people literally take it out and just taste it. Like it pops in your mouth and it’s just like mint.” The mint flavour of the menthol capsule with masked the taste of tobacco. “I have this weird thing in my head that maybe—it’s more subconscious—that I won’t smell of cigarettes either, because if I |

| CONSTRUCT | STUDY ID     | STUDY DESIGN/ POPULATION  | MEASURE   | MAIN RESULTS   |
|-----------|--------------|---|---|--|
|           |              |   |   | can't taste the dirtiness, I can't smell the dirtiness. They just seem a bit cleaner, a bit fresher."Almost all of the eighteen young women who did not smoke flavour capsule cigarettes reported that they "can't stand menthols" or the "minty kind of taste" ... [they] described menthol capsules as "like somebody ate like a whole bunch of mints and then threw up in your mouth" ... "plasticky" and "artificial" ...with many preferring the "full bodied flavour and texture" and "the pure tobacco taste" of regular cigarettes.'   |
|           | Grilo, 2021  | Focus group discussions with 56 adolescents (10 focus groups) and young adult smokers (5 focus groups), separated by age, gender, smoking, and socioeconomic (SES) status) from Mexico City, Mexico.                  | <b>Taste better; Smell less</b> : Not explicitly measured, but perceptions around the taste of capsule cigarettes emerged as a theme during pack sorting exercise in which participants were given 23 cigarettes packs (most were flavour capsule cigarettes reflecting the Mexican market) to view and were told to divide into groups they believed to be appealing and unappealing to young people and asked about reasons behind these choices. | 'Flavors were especially appealing to smokers because they modified the taste and smell of cigarettes. "I don't know why the capsule appeals to me, I feel I want to know what it tastes like (female adolescent smoker, low-SES); "I started to like these [Pall Mall Mykonos Nightfall] because my grandmother bought them and I smelled the scent of the cucumber flavor capsule and said, 'I want to try them' (male adolescent smoker, mid/high-SES); "First, in part because of the blending design, the colors, the capsule that says it is just one [capsule that] has two flavors, and the experience that they are fresh [Benson and Hedges Crystal Violet] (female adolescent smoker, mid/high-SES). "A lot of young people tell me I buy these because they have a capsule and taste better. They don't taste as strong as Marlboro or Shots. And besides, I think that's why these attract young people more, because of the flavours and the colours" (male adolescent smoker, mid/high-SES). Female young adults (mid/high SES) shared a unique perception that flavours would mask the smell of tobacco.: "Young people...smoke it because it's smooth. Sometimes they go out to eat or something like that, they smoke it and go back to the office without any smell" (female young adult, mid/high SES).' |
|           | Hoek, 2019   | Discrete choice experiment cross-sectional survey with 816 young adults (425 daily/non-daily current smokers, 224 susceptible non-smokers <sup>10</sup> , and 155 former smokers), aged 18-25 years from New Zealand. | <b>Leaves breath pleasant:</b> Asked to rate a capsule cigarette compared to an unflavoured cigarette on whether they leave your breath pleasant, on a seven-point semantic differential scale, where 1 is negative and 7 is positive.  | There were no significant differences between daily smokers and non-daily smokers, former smokers, and susceptible non-smokers <sup>10</sup> on perceptions about flavour capsules leaving one's breath more pleasant, with all groups having a mean score between 4.6 and 4.7.  |
|           | Moodie, 2015 | Focus groups with 75 female non-smokers and occasional smokers aged 12-24 years from Glasgow, Scotland, United Kingdom; 12 focus groups segmented by age (12-14, 15-  | <b>Pleasant taste and reasons why; Pleasant breath/ smell:</b> Participants shown 11 cigarettes (2 standard, 2 coloured, 4 slim, 1 aromatized black cigarette, 1 menthol, and 1 menthol capsule) and asked to order the   | 'When ranked in order of taste, the slim, pink, capsule and menthol cigarettes were generally perceived to be more pleasant tasting than the standard cigarette.... That they do not taste of traditional cigarettes and allow for fresher breath, simply by bursting the capsule, was perceived to make smoking more pleasant... Many participants thought the cigarette would be less smelly than a  |

| CONSTRUCT                     | STUDY ID        | STUDY DESIGN/ POPULATION  | MEASURE  | MAIN RESULTS   |
|-------------------------------|-----------------|---|--|--|
|                               |                 | 17, 18-24) and social grade (ABC1, C2DE).   | cigarettes by taste (pleasant/unpleasant) and the reasons behind the ordering decisions. Not explicitly measured, but perceptions around the impact of capsule cigarettes on breath and smell emerged as a theme during general discussion when participants were shown the menthol capsule inside the filter. | standard cigarette, provide fresher breath, be gentler on the throat, and would make it less obvious that somebody had been smoking... Several likened it to finishing off a cigarette with a chewing gum. "Because you're smoking a cigarette and then all of a sudden it's like chewing gum", 15-17 year old non-smoker). The capsule and menthol cigarettes were also considered "cleaner" and "fresher" than the standard cork filtered cigarettes.'   |
|                               | Moodie, 2018    | Focus groups with 120 current smokers aged 16 to 50+ years from Glasgow and Edinburgh, Scotland, United Kingdom; 12 focus groups segmented by gender, age (16-17, 18-24, 25-35, 36-50, >50), and social grade (ABC1, C2DE). | <b>Taste, fresher breath, smell less, concealment:</b> Not explicitly measured, but perceptions around the impact of capsule cigarettes on taste, breath, and smell emerged as a theme from the data, particularly in relation to why they were appealing.   | 'That they do not taste of traditional cigarettes and allow for fresher breath, simply by bursting the capsule, was perceived to make smoking more pleasant and thought to appeal to young people and those just starting to smoke... Opinion among older adults regarding taste was mixed. On one hand were those opposed to different flavors because they enjoyed the taste of traditional cigarettes, but on the other were those who were attracted to alternative flavors because they could mask the taste of traditional cigarettes. "I don't like the taste of cigarettes and I think that would appeal to me" (50+ year old female, social class C2DE)... The final element of appeal was concealment, which was especially relevant to young people smoking in school. "I used to smoke them more at school because the smell is less than if you smoke a normal cigarette. You are less likely to get caught smoking" (16-17-year-old female, social class C2DE).' |
|                               | Wackowski, 2018 | Focus groups with 45 menthol smokers ages 18-24 years from New Jersey, United States; six focus groups, with 3 conducted exclusively with black menthol smokers and 3 general groups (all other races).                     | <b>Tastes very minty, like candy, like a pack of gum:</b> Not explicitly measured, but perceptions around Camel Crush (menthol capsule cigarettes) impact on taste emerged as a theme from the data.   | 'Participants agreed that Came Crush cigarettes were "very minty" or "more minty" than other menthol cigarettes... "They taste like candy, it is more minty"(24 year-old male, general group); "They taste like mint. When I first started smoking Newport I thought I was going to puke, I hated it. But with Camel Crush I feel I wouldn't get that feeling because it tastes like toothpaste or mouthwash which would just be more normal" (18 year-old female, general group); "I'll buy the Camel Crushes [when sick] because they're mintier" (20 year-old female, general group); "I do like Camel Crushes cause they're mintier" (19-year old female, black group); "I feel it doesn't really taste too much like smoke. If you compare that to a different cigarette you will get more of a cigarette taste. It is like a pack of gum".'  |
| SATISFACTION/<br>FUN TO SMOKE | Hoek, 2019      | Discrete choice experiment cross-sectional survey with 816 young adults (425 daily/non-daily current smokers, 224 susceptible non-smokers <sup>10</sup> , and   | <b>Satisfying:</b> Asked to rate a capsule cigarette compared to an unflavoured cigarette on how satisfying they are, on a seven-point semantic differential scale, where 1 is negative and 7 is positive.   | Non-daily smokers (4.6, 95%CI: 4.4-4.9, p<0.001), former smokers (4.6, 95%CI: 4.4-4.8, p<0.001), and susceptible non-smokers <sup>10</sup> (4.5, 95%CI: 4.4-4.7, p<0.001) were significantly more likely than daily smokers (4.0, 95%CI: 3.8-4.2) to perceive flavour capsule cigarettes to be more satisfying.  |

| CONSTRUCT   | STUDY ID       | STUDY DESIGN/ POPULATION  | MEASURE  | MAIN RESULTS   |
|---|----------------|---|--|--|
|   |                | 155 former smokers), aged 18-25 years from New Zealand.   | <b>Fun to smoke:</b> Asked to rate a capsule cigarette compared to an unflavoured cigarette on how fun they are to smoke, on a seven-point semantic differential scale, where 1 is negative and 7 is positive.                                   | Former smokers (4.9, 95%CI: 4.7-5.2, p<0.05), and susceptible non-smokers (4.9, 95%CI: 4.7-5.1, p<0.05) were significantly more likely than daily smokers (4.5, 95%CI: 4.3-4.7) to perceive flavour capsule cigarettes to be more fun to smoke.  |
|   | Thrasher, 2016 | Quarterly surveys with smokers aged 18-64 from Australia (n=5864 observations, n=2710 individuals), Mexico (n=5723 observations, n=3366 individuals), and the US (n=6865 observations, n=4154 individuals).                 | <b>Satisfying:</b> 'Compared to other cigarettes, how much less/more satisfying is your brand and type of cigarettes?' (much less satisfying, a little less satisfying, the same, a little more satisfying, much more satisfying).               | Australian smokers who preferred flavour capsule varieties were more likely than those who preferred regular brands to view their brand as more satisfying (b: 0.23, SE: 0.09, p<0.01). Mexican smokers who preferred discount flavour capsule varieties were more likely to report that their brand was more satisfying than other brands compared to smokers who preferred regular premium brands.   |
| PERCEIVED IMPACT ON SMOKING AND QUITTING BEHAVIOURS | Moodie, 2015   | Focus groups with 75 female non-smokers and occasional smokers aged 12-24 years from Glasgow, Scotland, United Kingdom; 12 focus groups segmented by age (12-14, 15-17, 18-24) and social grade (ABC1, C2DE).               | <b>Perceived impact on non-smokers trying or smokers using:</b> Not explicitly measured, but perceived impact of capsule cigarettes emerged as a theme in general discussion when participants were shown the menthol capsule inside the filter. | 'Within all the 12-14 groups, and two of the 15-17 groups, participants spoke of this being a cigarette for young people: those starting smoking but not yet used to the taste of cigarettes or who were trying to hide smoking from their parents. "Like someone might be feeling left out because they don't like the taste of a cigarette. They might, like, try that one so you can change the taste of it" (12-14 year old, non-smoker); "I'm thinking like if you are like a teenager like your parents don't know you smoke, that would come in more handy cos they wouldn't be able to smell it off you" (12-14-year-old, non-smoker).'  |
|   | Moodie, 2018   | Focus groups with 120 current smokers aged 16 to 50+ years from Glasgow and Edinburgh, Scotland, United Kingdom; 12 focus groups segmented by gender, age (16-17, 18-24, 25-35, 36-50, >50), and social grade (ABC1, C2DE). | <b>Perceived impact on experimentation, consumption, and cessation:</b> Not explicitly measured, but perceived impact of capsule cigarettes emerged as a theme from the data.  | 'Among younger female groups in particular, the various appeal factors previously discussed were thought to increase the potential of capsule cigarettes, especially double capsules, to encourage nonsmokers to experiment, smokers to consume more, and to discourage attempts to quit... "It would encourage non-smokers" (16-17 year old female, social class ABC1); "That's to encourage you to smoke more" (25-34 year old female, social class C2DE); "Yum, that is not going to help me quit" (16-17 year old female, social class C2DE); "It's kind of like a starter cigarette as well, if you're smoking and it's feeling a bit rough, I'll make it menthol and that's a bit easier" (36-50 year old male, social class ABC1).' |

| CONSTRUCT                             | STUDY ID          | STUDY DESIGN/ POPULATION  | MEASURE  | MAIN RESULTS   |
|---------------------------------------|-------------------|---|--|--|
| <b>CONSUMER INTEREST<sup>13</sup></b> |                   |   |  |  |
| AWARENESS/<br>RECALL                  | Abad-Vivero, 2016 | Cross-sectional survey with students aged 11-16 years from Mexico; Randomised to view flavour capsule variants (FCVs) and non-FCVs from major brands (Marlboro, Camel, Pall Mall).  | <b>Brand recognition:</b> 'Have you ever seen this brand of cigarettes' (yes/no)<br><br><b>Brand recall:</b> Asked to write out the brand name.  | Pall Mall FCVs were among top brand varieties with highest levels of recognition (42%) and correct brand recall (8%). However, FCVs were no more likely to be recalled than non-FCVs (AOR=0.43, 95%CI=0.39-0.51). FCVs from all brand families were less likely to be recalled in comparison with non-FCVs for Marlboro. |
|                                       | Grilo, 2021       | Focus group discussions with 56 adolescents (10 focus groups) and young adult smokers (5 focus groups), separated by age, gender, smoking, and socioeconomic (SES) status) in Mexico City, Mexico.                          | <b>Brand recognition</b> Participants were given 23 cigarettes packs (most were flavour capsule cigarettes reflecting the Mexican market) to view. One of the domains of the discussion guide was brand recognition. | 'In general, participants easily identified the existence of flavour capsules on the pack and knew that they worked by releasing flavor when crushed, inciting participants' curiosity and desire to try the many flavours.'   |
|                                       | Moodie, 2018      | Focus groups with 120 current smokers aged 16 to 50+ years from Glasgow and Edinburgh, Scotland, United Kingdom; 12 focus groups segmented by gender, age (16-17, 18-24, 25-35, 36-50, >50), and social grade (ABC1, C2DE). | <b>Awareness:</b> Participants were given a number of cigarettes, including two capsule cigarettes (single capsule and double capsule), and asked if they were aware of capsule cigarettes.                          | Awareness and use of capsules were greater among younger adults (16–35 years), who were most interested in these products.   |
|                                       | Wackowski, 2018   | Focus groups with 45 menthol smokers ages 18-24 years from New Jersey, United States; Six focus groups, with 3 conducted exclusively with black menthol smokers and 3 general groups (all other races).                     | <b>Awareness:</b> Not explicitly measured, but awareness of Camel Crush (menthol capsule cigarettes) emerged as a theme from the data.   | 'Participants across all age groups were familiar with Camel Crush, with many having at least tried it, and seven participants (15.5%) using it regularly.'  |
|                                       | Brown, 2020       | Focus groups with young adults (smokers and non-smokers, men and women) aged 18-24 years from Metro Manila,   | <b>Audience/ User associations:</b> Asked about the people they thought would smoke different types of cigarettes.   | Flavour capsule packs were perceived to appeal to a younger audience, including teens, young adult in their 20s, millennials, students, as well as "party-goers".  |

<sup>13</sup> "Consumer interest" includes aspects such as brand awareness and purchase intent often used in tobacco industry consumer researcher (Rees VW, Kreslake JM, Cummings KM, et al. Assessing consumer responses to potential reduced-exposure tobacco products: a review of tobacco industry and independent research methods. *Cancer Epidemiol Biomarkers Prev.* 2009;18(12):3225-3240). "Interest" is described in relation to consumer affective response in the Modified Context of Consumption Framework by Brown et al. (2020) as "user interest in the product and surprise (i.e., whether the pack is perceived as novel to a consumer).

| CONSTRUCT  | STUDY ID   | STUDY DESIGN/ POPULATION  | MEASURE  | MAIN RESULTS   |
|--|--|---|--|--|
| TARGET AUDIENCE/ USER ASSOCIATIONS <sup>14</sup> |  | Philippines; Viewed 26 cigarette packs purchased in Manila which varied in brand, flavour and size.   |  |  |
|  | Grilo, 2021  | Focus group discussions with 56 adolescents (10 focus groups) and young adult smokers (5 focus groups), separated by age, gender, smoking, and socioeconomic (SES) status) in Mexico City, Mexico.                          | <b>Perceived target audience:</b> Participants were given 23 cigarettes packs (most were flavour capsule cigarettes reflecting the Mexican market) to view and were told to divide into groups they believed to be appealing and unappealing to young people and asked to describe the perceived audience for the packs. | 'Participants described the perceived audience for the packs, reinforcing notions of self-identification (or lack of it) with certain cigarette packs. A common theme among all groups was that colored and flavored packs are more appealing and used more frequently by young women.: "I feel that this one would go into the appealing, since the colors appeal more to a woman who smokes because of the colors, and besides (. . .) what I have heard and seen is that, really, the capsule cigarettes are for women" (male adolescent non-smoker, mid/high-SES). "[M]y guy friends say they don't like the capsules; they prefer them without anything because they say they're for girls" (female adolescent smoker, low-SES).' |
|  | Moodie, 2015   | Focus groups with 75 female non-smokers and occasional smokers aged 12-24 years from Glasgow, Scotland, United Kingdom; 12 focus groups segmented by age (12-14, 15-17, 18-24) and social grade (ABC1, C2DE).               | <b>Audience/ User associations:</b> Not explicitly measured, but user associations of capsule cigarettes emerged as a theme in general discussion when participants were shown the menthol capsule inside the filter.  | 'The "click" design was thought to offer novelty and hold appeal to children, people keen to try something different or smokers bored of their regular brand.' Several likened it to finishing off a cigarette with a chewing gum...'As such it was considered a cigarette for occasions such as a "party", "wedding", "prom", or "night out", and for somebody who worried about the smell of smoking cigarettes or who had a sore throat.' ...Within all the 12-14 groups, and two of the 15-17 groups, participants spoke of this being a cigarette for young people: those starting smoking but not yet used to the taste of cigarettes or who were trying to hide smoking from their parents.'                                    |
|  | Moodie, 2018   | Focus groups with 120 current smokers aged 16 to 50+ years from Glasgow and Edinburgh, Scotland, United Kingdom; 12 focus groups segmented by gender, age (16-17, 18-24, 25-35, 36-50, >50), and social grade (ABC1, C2DE). | <b>Audience/ User associations:</b> Not explicitly measured, but user associations of capsule cigarettes emerged as a theme from the data, particularly in relation to why they were appealing.  | 'Age featured prominently in the appeal of capsules, with the general perception that they held most appeal for young people. "...It's a kind of young person's cigarette" (36-50-year-old male, social class ABC1); "I think it's glamourising for younger folk that, maybe, say, don't like the taste of smoke but they want to look, Oh, I'm cool, I'm smoking" (35-50-year-old male, social class C2DE). Older adults (50+) were more likely to question their purpose, view them as a gimmick, consider them most relevant to menthol smokers, and associate them with e-cigarettes due to the potential for different flavors.'  |
| Wackowski, 2018                                  | Focus groups with 45 menthol smokers ages 18-24 years from New Jersey, United States; Six focus groups, with 3 conducted | <b>Audience/ User associations:</b> Not explicitly measured, but user associations of Camel Crush (menthol  | 'It was suggested that Camel Crush might more likely appeal to younger and/or newer smokers, or just be used by smokers occasionally for entertainment... "I feel like they're running towards younger people because they are so minty. it doesn't taste like a   |  |

<sup>14</sup> User associations, according to the Modified Context of Consumption Framework by Brown et al. (2020) is a sub-construct of cognitive consumer response and entails "what the cigarette pack communicates about the person who uses it."

| CONSTRUCT                          | STUDY ID                   | STUDY DESIGN/ POPULATION  | MEASURE   | MAIN RESULTS  |
|------------------------------------|----------------------------|---|---|---|
|                                    |                            | exclusively with black menthol smokers and 3 general groups (all other races).  | capsule cigarettes) emerged as a theme from the data.   | cigarette, sometimes" (20-year-old female, general group); "It appeals to kids. People that like to play with stuff" (25-year-old female, black group); "I also think a lot of like mediocre smokers use that. I feel it doesn't really taste too much like smoke. If you compare that to a different cigarette you will get more of a cigarette taste. It is like a pack of gum." (19-year-old female, general group); "I always just thought of it as a gimmick...But if I get one for free, like at a party, that's usually where I experiment, hell yeah, I'll smoke it, but I wouldn't buy it 'cause I'm like, "This is just stupid." Like, I don't need toys in my cigarettes. I just need to smoke." (25-year-old female, black group).'   |
| APPEAL, ATTRACTIVENESS, AND CHOICE | Abad-Vivero, 2016          | Cross-sectional survey with students aged 11-16 years from Mexico; Randomised to view flavour capsule variants (FCVs) and non-FCVs from major brands (Marlboro, Camel, Pall Mall).                              | <b>Pack attractiveness:</b> 'How much do you like the look of the pack' (not at all=0, a little=1, a lot=2)   | Pall Mall FCVs and Camel FCVs packs were most often rated as very attractive (13%, 9%, respectively). FCVs were independently associated with greater pack attractiveness (AOR=1.83, 95% CI:1.72-1.94). Compared with Marlboro non-FCVs, Camel FCVs and Pall Mall FCVs had greater odds of being perceived as having very attractive packaging (AOR=2.57, 95%CI: 2.32-2.83 and AOR=3.30, 95%CI:2.97-3.66, respectively)   |
|                                    | Barrientos-Gutierrez, 2020 | Cross-sectional survey students aged 12-14 years from Mexico; Discrete choice experiment using a 3X25 design with six attributes.   | <b>Pack attractiveness:</b> For each choice set of three packs: 'Which pack is most attractive?' and 'Which pack is least attractive?', including option 'none are attractive'.   | Packs with one or two capsules were perceived as most attractive compared to packs with no capsules (b=0.226, SE=0.02, p<0.001 and b=0.329, SE=0.02, p<0.001, respectively). Menthol enhanced perceived attractiveness of cigarettes with one flavour capsule (b=0.341, SE=0.02, p<0.001) and two capsules (b=0.327, SE=0.03, p<0.001) compared to regular flavour. There was a significant interaction between perceived attractiveness of flavour capsules with plain packaging and HWL size, respectively. Packs branded normally and those with small HWLs (30%) had stronger, positive effects on attractiveness of cigarettes with one flavour capsule (b=0.351, SE=0.03, p<0.001 and b=0.436, SE=0.03, p<0.001, respectively) and two flavour capsules (b=0.455, SE=0.03, p<0.001 and b=0.430, SE=0.03, p<0.001, respectively) compared to no capsule. |
|                                    | Brown, 2020                | Focus groups with young adults (smokers and non-smokers, men and women) aged 18-24 years from Metro Manila, Philippines; Viewed 26 cigarette packs purchased in Manila which varied in brand, flavour and size. | <b>Pack attractiveness and reasons why:</b> Asked to place all packs on a scale from 'least attractive' to 'most attractive'. Questions on why ranked packs as attractive and what pack characteristics contributed to their ranking. | 'Flavour capsule cigarette packs were generally ranked as more attractive' than other packs, including non-flavoured packs and traditional menthol packs. Most named a flavour capsule pack as their favourite pack. 'In assessments of attractiveness, colour was the most discussed factor; the flavour capsule cigarettes named as most attractive were described as bright, colourful and having nice colour combinations, while the traditional menthol and non-flavoured cigarettes that were rated as least attractive were described as dull and often dark' Some flavour capsule packs were also described as "shiny", which was found to be attractive. Another main reason for   |

| CONSTRUCT | STUDY ID      | STUDY DESIGN/ POPULATION   | MEASURE  | MAIN RESULTS  |
|-----------|---------------|--|--|---|
|           |               |  |  | why flavour capsules were perceived as more attractive included expectations regarding taste: "It creates some anticipation of the taste..."; "With that ball, if it has that colour, it will have a different taste". The "button" imagery found on flavour capsule cigarettes also reinforced expectations around taste: "The imaging also emphasizes the flavor and the sensation it would give...it shows that when you pop this section, it would heighten the flavor". Many also associated the product with candy: "It has candy. You need to press on it". Many participants discussed how the packs piqued their interest..."It makes you ask and be curious about the cigarette".   |
|           | Gilbert, 2021 | In-depth interviews with 41 women smokers, aged 18-40 years from Australia.  | <b>Reasons for appeal:</b> Not explicitly measured, but emerged as a theme   | Reasons for the appeal of menthol capsule cigarettes were linked to the fact that they are "fresh", "light", and "minty", which were seen as improving the smoking experience. The ability to pop the menthol capsule was also viewed as allowing for personalization of the smoking experience. Example quotes: "I smoke half plain, and then I crush it. I know people will crush it straight up, but I like to have the best of both worlds (...) I need to have it even. So, I need to smoke it straight up, normal, and then when I get to a certain point, I need to pop it."; "It pops and it tastes good" and "whenever it starts getting bad, I pop it".   |
|           | Grilo, 2021   | Focus group discussions with 56 adolescents (10 focus groups) and young adult smokers (5 focus groups), separated by age, gender, smoking, and socioeconomic (SES) status) in Mexico City, Mexico. | <b>Pack appeal and reasons why</b> Participants were given 23 cigarettes packs (most were flavour capsule cigarettes reflecting the Mexican market) to view and were told to divide into groups they believed to be appealing and unappealing to young people reasons why. | 'Colours on the pack were discussed as conveying addition of flavour (including via flavour capsules) to cigarettes especially in the groups of smokers and mid/high-SES male adolescent nonsmokers... "You can imagine what the flavor is because of the colours" (female adolescent smoker, low-SES); "Because the colors pop and you can say, "Oh, it's watermelon!" [Marlboro Fusion Summer] (female adolescent non-smoker, mid/high-SES). The availability of different cigarette flavors increased the attractiveness of the pack, which was conveyed by multiple colors on the pack... Discussions on the appeal of the capsules were slightly more predominant among male and female smokers of all ages compared with non-smokers. In addition, mid/high-SES female smokers specifically discussed that the presence of double-capsules further increased the appeal of the pack because it changed their smoking experience. "You crush one flavor at the beginning, and then halfway through you crush the other one to taste. At least that's what I do" (female young adult, mid-high-SES).' |
|           | Hoek, 2019    | Discrete choice experiment cross-sectional survey with 816 young adults (425 daily/non-daily current smokers, 224 susceptible non-smokers <sup>10</sup> , and                                      | <b>Attractive; Stylish:</b> Asked to rate a capsule cigarette compared to an unflavoured cigarette on whether they are... 'more attractive' and 'more stylish', respectively on a seven-point semantic   | Non-daily smokers (4.5, 95%CI: 4.3-4.7, p<0.05), former smokers (4.5; 95%CI: 4.3-4.8, p<0.05) and susceptible non-smokers <sup>10</sup> (4.6, 95%CI: 4.5-4.8, p<0.05) were significantly more likely than daily smokers (4.2, 95%CI: 4.0-4.4) to perceive capsule cigarettes to be more attractive. Former smokers (4.6, 95%CI: 4.4-4.8, p<0.05) were significantly more  |

| CONSTRUCT | STUDY ID     | STUDY DESIGN/ POPULATION  | MEASURE   | MAIN RESULTS  |
|-----------|--------------|---|---|---|
|           |              | 155 former smokers), aged 18-25 years from New Zealand.   | differential scale, where 1 is negative and 7 is positive.  | likely than daily smokers (4.3, 95%CI: 4.2-4.5) to perceive capsule cigarettes to be more stylish.  |
|           |              |   | <b>Choice:</b> Viewed sets of packs each with a flavour capsule (Fruit Burst, Pineapple & Mango, Hawaiian Mojito <sup>15</sup> , Rum & Coke, Energy Drink <sup>15</sup> , Menthol Blast) and an unflavoured control and asked which they would prefer if they had to choose (respondents could choose neither). | Smokers preferred cigarettes with no flavour over flavour capsule variants (FCV), with significantly lower preferences for all flavours except Fruit Burst (relative to the no flavour option). Susceptible non-smokers <sup>10</sup> preferred all flavours, with fruit flavours (i.e. Fruit Burst, Pineapple & Mango) the most popular. Smokers with a higher probability of quitting (OR=1.03, 95%CI: 1.00-1.06, p<0.05), non-daily smokers (ref: daily smoker; OR=1.64, 95%CI: 1.25–1.98, p<0.001) and female smokers (ref: male smokers; OR=1.27, 95%CI: 1.08-1.48, p<0.01) were more likely to choose a FCV. Among susceptible non-smokers <sup>10</sup> , females (ref: male; OR=1.48, 95%CI: 1.18-1.84, p<0.001) were more likely to choose a FCV, while those with higher education were less likely to choose a FCV (ref: low education; OR=0.77, 95%CI: 0.61-0.98, p<0.05).  |
|           | Moodie, 2015 | Focus groups with 75 female non-smokers and occasional smokers aged 12-24 years from Glasgow, Scotland, United Kingdom; 12 focus groups segmented by age (12-14, 15-17, 18-24) and social grade (ABC1, C2DE). | <b>Relative appeal and reasons why:</b> Participants shown 11 cigarettes (2 standard, 2 coloured, 4 slim, 1 aromatized black cigarette, 1 menthol, and 1 menthol capsule) and asked to order the cigarettes by appeal (most/least) and the reasons behind the ordering decisions.                               | 'The capsule and menthol cigarettes were, for the most part, placed together and ranked in the middle in terms of appeal... Where separated, the capsule cigarette was ranked as more appealing than the menthol cigarette because of the innovative "bursting" function... The capsule design was referred to as "cool", "funky" and "high-tech" and every group saw advantages in this type of cigarette. The "click" design was thought to offer novelty. Several participants spoke of their desire to want to press the capsule. "I just think it's quite cool personally, the fact it clicks, and it changes flavour and all, whether you like it or not, you just click it and that's it...I'd buy them" (18-24-year-old, occasional smoker). Having the choice of smoking with or without menthol flavouring was seen as a positive, providing the "Best of both world" (18-24-year-old, non-smoker); "I can smoke normal fags, but sometimes I like a menthol fag so I can just smoke it and, if I feel like a menthol fag, I just press it" (18-24-year-old, occasional smoker).' |
|           | Moodie, 2018 | Focus groups with 120 current smokers aged 16 to 50+ years from Glasgow and Edinburgh, Scotland, United Kingdom; 12 focus groups segmented by gender, age (16-17, 18-24, 25-                                  | <b>Appeal and reasons why:</b> Participants were given a number of cigarettes, including two capsule cigarettes (single capsule and double capsule), and asked whether they found these products appealing and, if so why.  | Reasons for appeal included: 'The fact that they were viewed as novel, cool, innovative, fashionable, and fun... Being able to choose if and when to burst the capsule was part of their appeal, as was the ability to share it with others (particularly between menthol and nonmenthol smokers), especially among young females...That they do not taste of traditional cigarettes and allow for fresher breath...The   |

<sup>15</sup> Flavour not viewed by smokers (only susceptible non-smokers)

| CONSTRUCT             | STUDY ID          | STUDY DESIGN/ POPULATION  | MEASURE  | MAIN RESULTS  |
|-----------------------|-------------------|---|--|---|
|                       |                   | 35, 36-50, >50), and social grade (ABC1, C2DE).   |  | final element of appeal was concealment, which was especially relevant to young people smoking in school. "Incredible, that is really cool technology" (18-24-year-old female, social class ABC1); "It's a bit like a designer cigarette isn't it, it's more dynamic as well, so it's kind of a young person's cigarette (36-50-year-old male, social class ABC1). "But that's the point of them...like, for talking sakes my man smokes regular and I'm smoking menthol so he could just light up a fag and it's normal and I'm bursting the balls it means you've got the two in the one" (18-24-year-old female, social class C2DE).'  |
|                       | Thrasher, 2016    | Quarterly surveys with smokers aged 18-64 from Australia (n=5864 observations, n=2710 individuals), Mexico (n=5723 observations, n=3366 individuals), and the US (n=6865 observations, n=4154 individuals). | <b>Stylish:</b> 'Compared to other cigarettes, how much less/more stylish is your brand and type of cigarettes?' (much less stylish, a little less stylish, the same, a little more stylish, much more stylish). | Mexican smokers who preferred premium priced flavour capsule varieties were more likely than those who preferred regular premium brands to report that their variety was more stylish than other cigarettes (b: 0.26, SE: 0.09, p<0.001). US smokers who preferred flavour varieties (only found among premium brands) were more likely to view their brand as more stylish than smokers who preferred regular premium brands (b: 0.11, SE: 0.05, p<0.05).  |
|                       | Wackowski, 2018   | Focus groups with 45 menthol smokers ages 18-24 years from New Jersey, United States; Six focus groups, with 3 conducted exclusively with black menthol smokers and 3 general groups (all other races).     | <b>Reasons for appeal;</b> Not explicitly measured, but perceptions that Camel Crush (menthol capsule cigarettes) give both flavour options and therefore can be shared emerged as a theme from the data.        | 'Some [participants] thought that Camel Crush was popular because it provided an option between the two flavors and could be shared between non-menthol and menthol smokers, though participants did not actually know people who smoked it "uncrushed". ..."I've seen advertisements for them, and like it's for sharing...like if a friend smokes menthol, and one smokes non-menthol, you can share" (24-year-old female, general group); "They might want a menthol so they crush it and maybe later they want a non-menthol" (24-year-old male, general group); "Best of both worlds" (24-year-old male, general group). [Participants] described the "crushing" aspect of Camel Crush as fun and entertaining, a perceived reason for their popularity..."I think they wanted something new, likely maybe people are getting bored of traditional cigarettes. It's something different. It's a new feature. It's like a toy." (19-year-old male, general group); "I think they are cool though, like that little ball. They are actually like candy. I think it is fun" (19-year-old male, general group); "It's a time occupier and it is an entertainment thing too" (19-year-old female, general group); "They gave it to me and said here try it, press the middle and I felt it and said OMG this is cool" (19-year-old male, general group).' |
| FUTURE USE INTENTIONS | Abad-Vivero, 2016 | Cross-sectional survey with students aged 11-16 years from Mexico; Randomised to view flavour capsule variants (FCVs)   | <b>Interest in trying:</b> 'If you were to try smoking one of these brands, which would you try (choose just one option)?'   | Pall Mall regular capsule and menthol capsule packs were most often chosen as brands willing to try (25%, 18% respectively). FCVs were associated with a greater likelihood of interest in trying (AOR=1.74, 95%CI: 1.54-1.96). Compared with Marlboro non-FCVs, Camel FCVs   |

| CONSTRUCT                            | STUDY ID                   | STUDY DESIGN/ POPULATION  | MEASURE   | MAIN RESULTS  |
|--------------------------------------|----------------------------|---|---|---|
|                                      |                            | and non-FCVs from major brands (Marlboro, Camel, Pall Mall)   | with the option 'I would not try any of these brands'.  | and Pall Mall FCVs had greater odds for being of greatest interest for trying (AOR=1.36, 95%CI: 1.10-1.66 and AOR=1.99, 95%CI: 1.65-2.39, respectively)   |
|                                      | Barrientos-Gutierrez, 2020 | Cross-sectional survey students aged 12-14 years from Mexico; Discrete choice experiment using a 3X25 design with six attributes.   | <b>Interest in trying:</b> For each choice set of three packs: 'If you were to smoke, which of these brands would you most like to smoke' and 'which would you least like to smoke?', with the option 'I would not like to smoke any of them'.  | Packs with one or two capsules were associated with greater interest in trying compared to packs with no capsules (b=0.172, SE=0.03, p<0.001 and b=0.230, SE=0.03, p<0.001, respectively). Menthol enhanced interest in trying cigarettes with one flavour capsule (b=0.307, SE=0.04, p<0.001) and two capsules (b=0.271, SE=0.04, p<0.001) compared to regular flavour. There was a significant interaction between interest in trying flavour capsules with plain packaging and HWL size, respectively. Packs branded normally and those with small HWLs (30%) had stronger, positive effects on interest in trying cigarettes with one flavour capsule (b=0.269, SE=0.04, p<0.001 and b=0.261, SE=0.04, p<0.001, respectively) and two flavour capsules (b=0.370, SE=0.04, p<0.001 and b=0.303, SE=0.04, p<0.001, respectively) compared to no capsule.  |
|                                      | Hoek, 2019                 | Discrete choice experiment cross-sectional survey with 816 young adults (425 daily/non-daily current smokers, 224 susceptible non-smokers <sup>10</sup> , and 155 former smokers), aged 18-25 years from New Zealand. | <b>Likelihood of trying:</b> 'If a friend offered you a cigarette, how likely would you be to try it if it had the following flavours?' (Fruit Burst, Pineapple & Mango, Hawaiian Mojito <sup>15</sup> , Rum & Coke, Energy Drink <sup>15</sup> , Menthol Blast, and an unflavoured control), on an 11-point probability scale from 0=no chance to 10=certain). | Smokers were significantly more likely than susceptible non-smokers <sup>10</sup> to accept a cigarette offered to them, regardless of whether it was flavoured or not flavoured. Non-daily smokers were more likely than daily smokers to try a menthol flavour capsule cigarette if offered by a friend (6.0, 95%CI: 5.5-6.4 vs 5.2; 95%CI: 4.8-5, p<0.05). Susceptible non-smokers <sup>10</sup> were more likely than former smokers to indicate that if offered by a friend would try a Pineapple & Mango flavoured cigarette (3.9, 95%CI: 3.5-4.3 vs 3.0, 95%CI: 2.5-3.4, p<0.01) and Hawaiian Mojito flavoured cigarette (3.6, 95%CI: 3.2-3.9 vs 2.8, 95%CI: 2.4-3.3, p<0.01). Although a lower mean proportion of susceptible non-smokers <sup>10</sup> were likely to try a flavoured cigarette, around one-third (28%–37%) would smoke one of the novel flavoured cigarettes, if offered to them. These estimates exceed the 24% that would smoke a regular cigarette in similar circumstances. |
| REASONS FOR ACTUAL USE/ BRAND CHOICE | Cho, 2018                  | Cross-sectional survey with 1,940 adult smokers, aged 18+ from South Korea.   | <b>Reasons for brand choice:</b> 'In choosing [your current brand], was part of your decision to smoke this brand based on...how they taste?' (yes/no)  | Flavour capsule cigarette users from South Korea were more likely than regular cigarette smokers to choose their brand because of taste (AOR: 4.55, p < .05).   |
|                                      | Emond, 2018                | Cross-sectional survey with 7,181 adults, aged 18-44 years, from the US who were current or former established (≥100 lifetime cigarettes) cigarette smokers.  | <b>Reasons for brand choice:</b> 'In choosing your regular brand of cigarettes, was part of your decision based on any of the following?' (Eight a priori reasons)  | Among current, daily smokers (aged 18-24 years) who have a regular brand and who purchase manufactured cigarettes and whose usual brand was flavour capsules (dropdown list: Camel Crush, Camel Crush Bold, Camel Silver Menthol Kings and Marlboro NXT), almost all (97.8%, 95%CI: 91.0-99.5) reported choosing their brand for 'taste', which was a rate significantly higher than non-menthol users (86.8%, 95%CI: 84.1-80.1, p=0.001). Flavour capsule users were more likely to  |

| CONSTRUCT | STUDY ID     | STUDY DESIGN/ POPULATION  | MEASURE   | MAIN RESULTS  |
|-----------|--------------|---|---|---|
|           |              |   |   | report choosing their brand because it is 'less expensive' (42%, 95%CI: 32.0-53.1) and for 'the design of the pack' (19.6%, 95%CI: 12.8-28.8) compared to menthol users (27.7%, 95%CI: 24.1-31.5, p=0.003 and 9.1%, 95%CI: 6.9-11.8, p=0.02, respectively). Other reasons for flavour capsule users choosing their brand that did not differ from non-menthol or menthol users, included: 'the amount of satisfaction it gives you' (78.7%, 95%CI: 70.0-85.4), 'people who are important to you smoke this brand' (19.8%, 95%CI: 12.2-30.5), 'the tar and nicotine levels' (12.7%, 95%CI: 7.2-21.4), 'as a way to help you quit' (4.2%, 1.6-10.5), and 'it may not be as bad for your health' (6.9%, 3.3-13.9). |
|           | Moodie, 2019 | Cross-sectional survey with 3620 factory-made cigarette smokers, who had smoked in the past month aged 18+ years from the United Kingdom. | <b>Reasons for capsule use:</b> 'Why do you use capsule cigarettes?' (Eight response options; could check all that applied)   | Reasons for using capsule cigarettes among those who smoke capsule cigarettes (N = 454) from most to least prevalent included: They taste better than regular cigarette (52%); They are smoother on my airways (i.e. throat and lungs) than regular cigarettes (41%); I like having a choice of flavors (32%); I enjoy clicking the capsule (25%); They are more interesting than regular cigarettes (21%); My brand only has capsule cigarettes (15%); They are novel (9%); Other (6%); Don't know (4%).   |
|           | Paraje, 2019 | Cross-sectional survey with 851 smokers aged >13 years from Metropolitan Santiago, Chile.   | <b>Attributes that determined the last purchase of a pack of cigarettes:</b> 'When you chose the package of cigarettes you purchased last, you did it based on: a) its taste/flavor; b) that it would be less harmful than the rest; c) its price'. | Based on descriptive statistics of weighted data, a higher percentage of smokers whose last pack of cigarettes purchased was flavoured <sup>16</sup> (75.9%, SD: 0.43) chose it because of the flavour/taste compared to those who purchased non-flavoured cigarettes (59.3%, SD: 0.49). Conversely, a higher percentage of smokers whose last pack of cigarette purchased was non-flavoured chose it because of it being 'less harmful' (7.9%, SD: 0.27) and because of the price (32.8%, SD: 0.47) compared to smokers whose last pack of cigarettes purchased was flavoured (6.8%, SD: 0.25 and 17.3%, SD: 0.38, respectively).  |

Single quotation marks ( ' ' ) refer to the initial quotation (e.g. direct text from the article). Double quotation marks ( " " ) refer to quotations within quotations (e.g. quotes from respondents)

<sup>16</sup> Flavoured cigarettes includes both capsules and non-capsules, however only 6 of the 810 were non-capsule flavoured cigarettes.

Reponses to product<sup>17</sup>

| SENSORY RESPONSES                         |                  |   |   |
|---|------------------|---|---|
| SENSORY EFFECTS (TASTE, SMELL, MOUTHFEEL) | Schneller, 2020b | Randomised controlled study design <sup>18</sup> with 18 smokers aged 18-65 years who smoked 5+ cigarettes daily, primarily preferred mentholated cigarettes, and were not trying to quit smoking, from the United States.  | <p><b>Sensory effects:</b> Using a linear scale (from 0 to 10) “The Sensory Scale”, with descriptive anchors, participants were asked to mark along the scale to indicate their rating for the following items: Strength, Harshness, Heat, Draw, Taste, Satisfaction, Burn Rate, Mildness, Aftertaste, Staleness, Smoke Harshness, Smoke Strength, and Smoke Smell</p> <p>All of the sensory scale items mean scores were compared between cigarette products as well as cigarette replicates. There were significant associations between cigarette products for mean scores of satisfaction [F(4,64)=5.8; p=0.004], too mild [F(4,64)=3.8; p=0.027], strength [F(4,64)=3.7; p=0.030], and smoke strength [F(4,64)=5.3; p=0.010]. The post hoc test showed that the mean satisfaction score of the participants’ preferred brand was significantly higher than mean satisfaction score for Camel Menthol crushed (p=0.004). In addition, the mean smoke strength scores of participants’ preferred brand was also significantly higher than Camel Crush crushed (p=0.022). Furthermore, mean smoke strength scores of Camel Menthol crushed was significantly higher than Camel Crush crushed (p=0.033). Significant associations were also seen between cigarette replicates for mean scores of too mild [F(1,16)=11.1; p=0.004] and strength [F(1,16)=5.7; p=0.030] with high scores for the first cigarette replicate. Finally, a significant interaction was noted between cigarette brand and cigarette replicate for the mean score of smoke harshness [F(4,64)=3.8; p=0.021].</p> |
|   | Strasser, 2013   | 35-day randomised, open-label, laboratory study <sup>19</sup> with 32 smokers aged 21-65 years who smoked 10+ cigarettes daily for 5+ years and smoking menthol flavoured cigarettes 80%+ of the time, and were not currently trying to quit smoking, or planning to quit | <p><b>Sensory effects:</b> Using a 100-mm visual analog scale with descriptive anchors, participants were asked to place a vertical line to indicate their rating on the following items: Strength (very weak/ very strong); Harshness (very mild/ very harsh); Heat (no heat/ very hot); Draw (easy/ difficult);</p> <p>There were significant condition x period interactions for taste (b=-10.7, z=-2.03, P=0.043), too mild (b=-19.9, z=3.3, P=0.001), did not leave a good taste (b=-15.6, z=-2.5, P=0.011), and smoke smell (b=-11.2, z=-2.36, P=0.018). For taste, the experimental group reported significantly worse taste from period 1 (baseline) to period 2 (menthol; P=0.007) and from period 2 to 3 (non-menthol; P= 0.0004). Although the control group reported worse taste from periods 1 to 2 (P= 0.02) despite remaining on their own cigarettes, there was no change between periods 2 and 3 (P=0.97). For too mild, there was no change from period 1 (baseline) to period 2 (menthol; P=0.41) and a marginal decrease from period 2 to 3 (non-menthol; P= 0.10) in the experimental group, indicating that period 3 (non-menthol) cigarettes were less mild than all</p>   |

<sup>17</sup> Reponses to product, as defined in the Hypothetical Model of Tobacco Consumer Response, encompasses “measurement of sensory responses (including taste and aftertaste, mouth feel, and bite/kick), other subjective responses (including nicotine effect, urge and withdrawal relief), and ratings of product acceptability”. (Rees VW, Kreslake JM, Cummings KM, et al. Assessing consumer responses to potential reduced-exposure tobacco products: a review of tobacco industry and independent research methods. *Cancer Epidemiol Biomarkers Prev.* 2009;18(12):3225-3240).

<sup>18</sup> Participants were randomly assigned to one of four sampling groups, which varied in the sequence of the cigarette products that were smoked (Camel Crush crushed, Camel Crush uncrushed, Camel Menthol crushed, and Camel Menthol uncrushed) (R.J. Reynolds, Winston-Salem, NC). All participants smoked all available cigarette products. At the baseline session, all participants smoked their preferred brand, which allowed them to serve as their own control.

<sup>19</sup> After a 5-day baseline period, participants were randomised to the experimental group (n=22) where they would smoke menthol (i.e. crushed) Camel Crush for 15 days followed by 15 days of non-menthol (i.e. non-crushed) Camel Crush (R.J. Reynolds, Winston-Salem, NC), or the control group (n=10) where they smoked their own brand cigarette across all periods. Participants attended study visits every 5 days and completed measures of smoking rate, smoking topography, biomarkers of exposure, and subjective responses.

|   |   |   |  |
|---|---|---|--|
|   | in the next two months, from the United States. | Taste (very bad/ very good); Satisfaction from smoking (unsatisfying/ satisfying); (Burned/Did not burn) too fast in too few puffs; Mild taste/ Not mild taste; It was/was not too mild for me); (Did not leave/Left) a good aftertaste in my mouth; Somehow it (seemed/ did not seem) stale; Smoke seemed (very weak/ very strong); Smoke smell: (unpleasant/ pleasant). | previous cigarettes; and, a decrease in too mild ratings from period 1 to 2 (P= 0.002), but no change from period 2 to 3 (P= 0.93) among the control group. For did not leave a good taste, the experimental group reported a worse after taste during period 3 (non-menthol) compared with period 1 (baseline; P=0.005) and compared with period 2 (menthol; P=0.001), whereas the control group reported no changes between periods (P=0.90). For smoke smell, the experimental group reported marginally less pleasant smell from period 1 (baseline) compared with period 2 (menthol; P=0.09), and significantly less pleasant from period 2 to 3, (menthol to non-menthol periods; P=0.002). The control group showed no changes for smoke smell (P>0.6). There were main effects of condition (b=-22.5, z=-2.7, P=0.008) and period (b=-6.4, z=-2.5, P=0.012) such that across all periods, the experimental group rated their cigarettes as less satisfying than the control group, and across both conditions, cigarettes were rated as less satisfying from period 1 to 2 and from period 1 to 3 (mean=51.3, SE=3.9, P=0.02). |
| <b>OTHER SUBJECTIVE RESPONSES</b>                               |   |   |  |
| PSYCHOLOGICAL REWARD, AVERSION, SATISFACTION, RELIEF OF CRAVING | Schneller, 2020b                                | Randomised controlled study design <sup>20</sup> with 18 smokers aged 18-65 years who smoked 5+ cigarettes daily, primarily preferred mentholated cigarettes, and were not trying to quit smoking, from the United States.  | <b>Psychological Reward, Aversion, Satisfaction, Relief of Craving:</b> "The Cigarette Evaluation Scale" evaluates 21-items that can be broken down into the following subscales: satisfaction, psychological reward, aversion, and relief of cravings; items were rated on a scale of 1 (not at all) to 7 (extremely), and item scores for each subscale were averaged.   |

OR= Odds ratio; AOR= Adjusted odds ratio; 95% CI= 95% Confidence Intervals; SE= Standard error; SD= Standard deviation

<sup>20</sup> Participants were randomly assigned to one of four sampling groups, which varied in the sequence of the cigarette products that were smoked (Camel Crush crushed, Camel Crush uncrushed, Camel Menthol crushed, and Camel Menthol uncrushed) (R.J. Reynolds, Winston-Salem, NC). All participants smoked all available cigarette products. At the baseline session, all participants smoked their preferred brand, which allowed them to serve as their own control.

Supplementary Table 3a. Risk of bias assessed by the QATSDD for quantitative studies

|  | Abad-Vivero, 2016 | Barrientos-Gutierrez, 2020 | Emond, 2018 | Gutiérrez-Torres, 2020 | Hoek, 2019 | Moodie, 2019 | Paraje, 2019 | Schneller, 2020a | Schneller, 2020b | Strasser, 2013 | Thrasher, 2016 | Zavala-Arciniega, 2020 |
|--|-------------------|----------------------------|-------------|------------------------|------------|--------------|--------------|------------------|------------------|----------------|----------------|------------------------|
| <b>Total score</b>   | <b>26</b>         | <b>24</b>                  | <b>23</b>   | <b>20</b>              | <b>22</b>  | <b>23</b>    | <b>25</b>    | <b>24</b>        | <b>22</b>        | <b>18</b>      | <b>23</b>      | <b>22</b>              |
| <b>%*</b>  | <b>62%</b>        | <b>57%</b>                 | <b>55%</b>  | <b>48%</b>             | <b>52%</b> | <b>55%</b>   | <b>60%</b>   | <b>57%</b>       | <b>52%</b>       | <b>43%</b>     | <b>55%</b>     | <b>52%</b>             |
| Explicit theoretical framework   | 0                 | 0                          | 0           | 0                      | 0          | 0            | 0            | 0                | 0                | 0              | 0              | 0                      |
| Statement of aims/ objectives in main body of report                                   | 2                 | 2                          | 3           | 3                      | 2          | 2            | 2            | 3                | 3                | 2              | 2              | 2                      |
| Clear description of the research setting  | 3                 | 2                          | 3           | 3                      | 3          | 3            | 3            | 3                | 1                | 1              | 3              | 3                      |
| Evidence of sample size considered in terms of analysis                                | 1                 | 1                          | 2           | 1                      | 1          | 2            | 3            | 2                | 1                | 0              | 2              | 1                      |
| Representative sample of target group of a reasonable size                             | 2                 | 1                          | 3           | 3                      | 2          | 2            | 2            | 2                | 1                | 0              | 3              | 3                      |
| Description of procedure for data collection   | 3                 | 2                          | 2           | 2                      | 2          | 3            | 2            | 2                | 3                | 3              | 1              | 1                      |
| Rationale for choice of data collection tool(s)  | 2                 | 3                          | 0           | 0                      | 2          | 0            | 3            | 1                | 2                | 3              | 2              | 2                      |
| Detailed recruitment data  | 2                 | 2                          | 1           | 1                      | 1          | 3            | 2            | 1                | 2                | 2              | 1              | 1                      |
| Statistical assessment of reliability and validity of measurement tool(s) (Quant only) | 1                 | 1                          | 0           | 0                      | 1          | 0            | 0            | 2                | 0                | 1              | 1              | 1                      |
| Fit between stated research question and method of data collection (Quant only)        | 3                 | 3                          | 3           | 3                      | 2          | 2            | 2            | 3                | 3                | 2              | 3              | 2                      |
| Fit between research question and method of analysis                                   | 3                 | 3                          | 3           | 2                      | 2          | 3            | 2            | 2                | 2                | 2              | 3              | 3                      |
| Good justification for analytical method selected                                      | 1                 | 1                          | 1           | 1                      | 2          | 1            | 1            | 1                | 1                | 1              | 0              | 1                      |
| Evidence of user involvement in design   | 0                 | 0                          | 0           | 0                      | 0          | 0            | 1            | 0                | 0                | 0              | 0              | 0                      |
| Strengths and limitations critically discussed   | 3                 | 3                          | 2           | 1                      | 2          | 2            | 2            | 2                | 3                | 1              | 2              | 2                      |

\*Percentage = the total score of a study / the full score 42 (14 items x 3 per item)

**Supplementary Table 3b. Risk of bias assessed by the QATSDD for qualitative studies**

|   | Brown,<br>2020 | Gilbert,<br>2021 | Grilo,<br>2021 | Moodie,<br>2015 | Moodie,<br>2018 | Wackowski,<br>2018 |
|---|----------------|------------------|----------------|-----------------|-----------------|--------------------|
| Total score   | <b>23</b>      | <b>26</b>        | <b>23</b>      | <b>19</b>       | <b>20</b>       | <b>19</b>          |
| %*  | <b>55%</b>     | <b>62%</b>       | <b>55%</b>     | <b>45%</b>      | <b>48%</b>      | <b>45%</b>         |
| Explicit theoretical framework  | 3              | 2                | 0              | 0               | 0               | 0                  |
| Statement of aims/ objectives in main body of report  | 3              | 2                | 2              | 2               | 2               | 3                  |
| Clear description of the research setting   | 2              | 2                | 2              | 3               | 2               | 2                  |
| Evidence of sample size considered in terms of analysis   | 1              | 3                | 2              | 1               | 1               | 1                  |
| Representative sample of target group of a reasonable size  | 1              | 1                | 2              | 2               | 2               | 1                  |
| Description of procedure for data collection  | 3              | 2                | 2              | 3               | 3               | 3                  |
| Rationale for choice of data collection tool(s)   | 0              | 2                | 1              | 2               | 1               | 0                  |
| Detailed recruitment data   | 2              | 2                | 2              | 2               | 2               | 2                  |
| Fit between stated research question and format and content of data collection tool (e.g. interview schedule) (Qual only) | 2              | 2                | 2              | 2               | 2               | 3                  |
| Fit between research question and method of analysis  | 2              | 3                | 2              | 0               | 2               | 2                  |
| Good justification for analytical method selected   | 0              | 3                | 1              | 0               | 1               | 0                  |
| Assessment of reliability of analytical process (Qual only)   | 1              | 0                | 2              | 0               | 1               | 1                  |
| Evidence of user involvement in design  | 1              | 0                | 1              | 0               | 0               | 0                  |
| Strengths and limitations critically discussed  | 2              | 3                | 2              | 2               | 1               | 1                  |

\*Percentage = the total score of a study / the full score 42 (14 items x 3 per item)