

**FLAVOR CAPSULES AND COLORS  
ON CIGARETTE PACKS APPEAL  
TO YOUTH IN MEXICO AND  
CONTRIBUTE TO  
MISPERCEPTIONS OF HARM**



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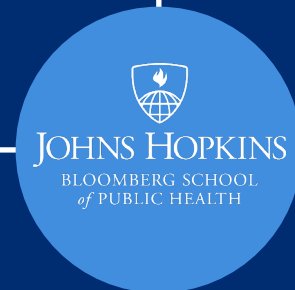
# Funding sources and conflicts of interest

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# Background



# Tobacco marketing

- Tobacco packs are an important marketing tool
- Pack features influence consumer perceptions of product



# Tobacco use in Mexico



- 17.9% of adults and 5.7% of adolescents smoke tobacco<sup>1</sup>
- Flavor capsule cigarettes popular (smoked by 43% of all smokers)<sup>2</sup>
- Females, adolescents, young adults more likely than other groups to use flavor capsule cigarettes<sup>2</sup>

<sup>1</sup>Shamah-Levy T, Vielma-Orozco E, Heredia-Hernández O, et al. Encuesta Nacional de Salud y Nutrición 2018-19: Resultados Nacionales. Cuernavaca, México: Instituto Nacional de Salud Pública, 2020

<sup>2</sup> Zavala-Arciniega L, Gutiérrez-Torres DS, Reynales-Shigematsu LM, et al. Cigarros con cápsulas de sabor en México: prevalencia, proporción de uso entre fumadores y predictores de consumo. *Ensanut 2018-19. Salud Publica Mex.* 2020;62(6):820-828. doi:10.21149/11566



# Flavor capsule cigarettes

- Appeal to youth
- Associated with misperceptions of harm

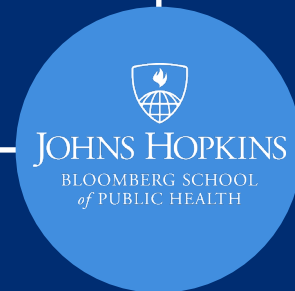


# Objective

Examine the effect of cigarette pack features communicating flavor on product appeal, perceived harm and use intentions among adolescent smokers and non-smokers (13-17 years old) and adult smokers (18-34 years old) in Mexico City



# Methods




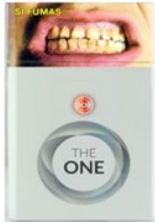
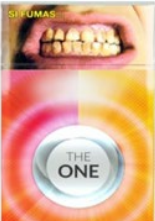
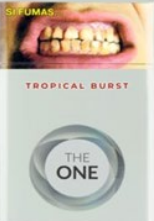
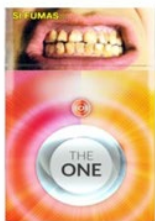
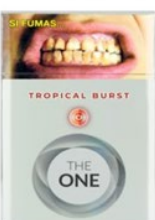
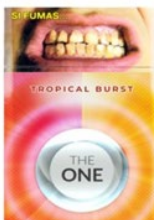
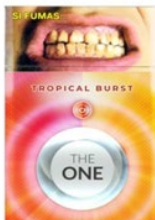
# Sampling

- Household recruitment in Mexico City
- Quota-based sampling
- Adult smokers, ages 18 – 34 and adolescent smokers and non-smokers, ages 13 – 17 eligible

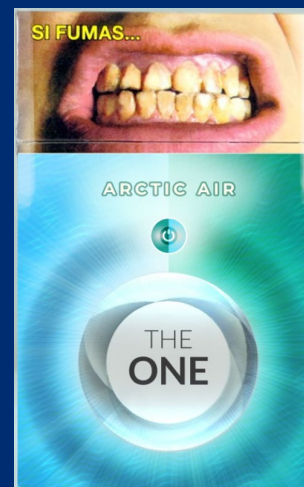


# Design and analysis

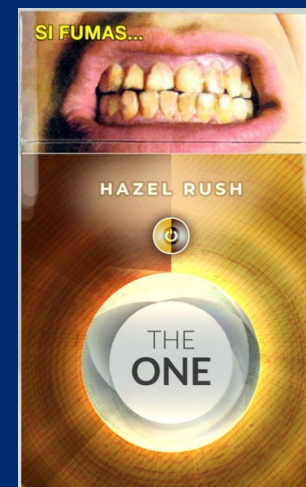
- Electronic, self-administered experimental survey
- Two experimental procedures

|   |   |   |
|---|---|---|
| <p><b>Series A</b></p> <p><b>Fruity Flavor<br/>(Tropical Burst)</b></p>   |                                  | <p><b>Capsule</b></p>                     |
| <p><b>Color</b></p>                | <p><b>Name</b></p>               | <p><b>Color &amp; Capsule</b></p>         |
| <p><b>Capsule &amp; Name</b></p>  | <p><b>Color &amp; Name</b></p>  | <p><b>Color, Capsule &amp; Name</b></p>  |

Series B –  
Arctic Air  
(minty flavor)



Series C –  
Hazel Rush  
(nutty flavor)

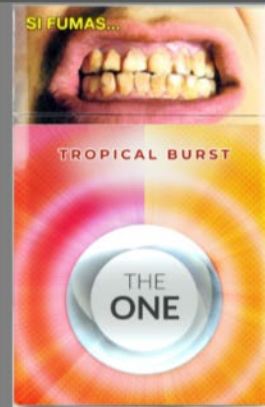


#Q2\_8\_TB.4: Conjunto 4. De este conjunto de cajetillas, ¿cuál cajetilla (1, 2, o 3) usted preferiría probar?

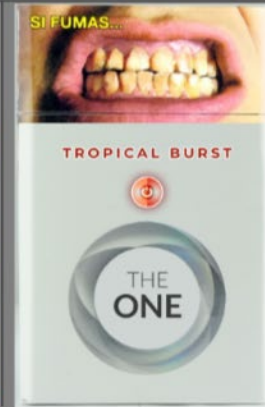
**CAJETILLA 1**



**CAJETILLA 2**



**CAJETILLA 3**



Cajetilla 1

Cajetilla 2

Cajetilla 3

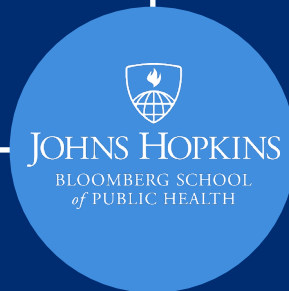
Ninguna de las anteriores

No responde

Siguiente



# Results



# Participant characteristics

## Adolescents

- N=1500
- Mean age – 15 years
- 17.7% smokers, 78.6% non-smokers

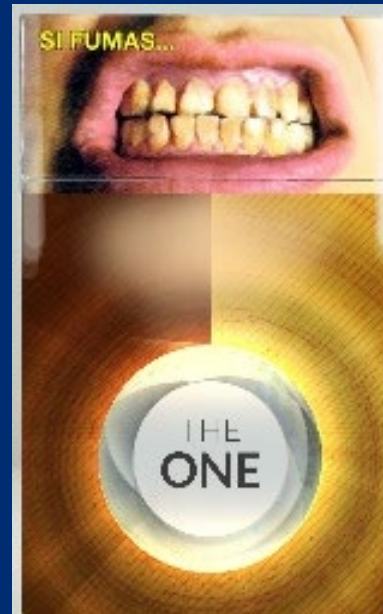
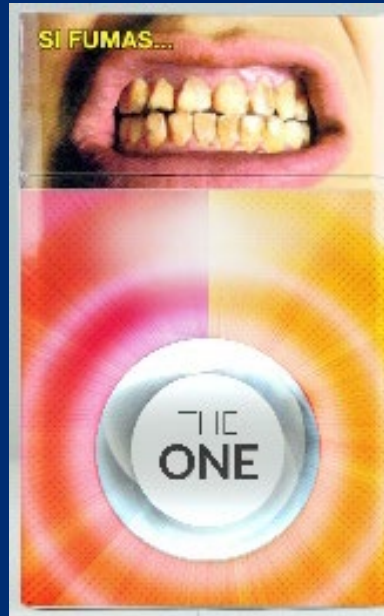
## Adults

- N=950
- Mean age – 25.7 years



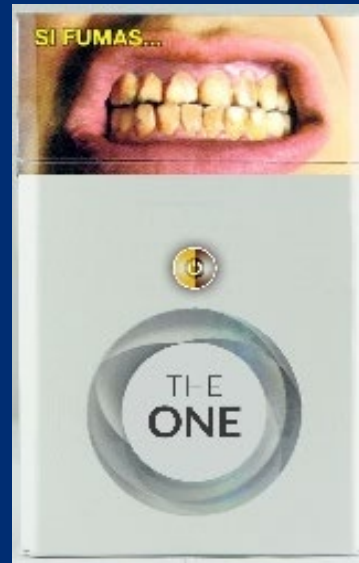
# Effects of pack features on appeal

|       | Adults (n=950) |             |         | Adolescents (n=1500) |               |         |
|-------|----------------|-------------|---------|----------------------|---------------|---------|
|       | Odds Ratio     | 95% CI      | p-value | Odds Ratio           | 95% CI        | p-value |
| Color | 4.836          | 3.982-5.874 | <0.001  | 15.039               | 12.085-18.715 | <0.001  |



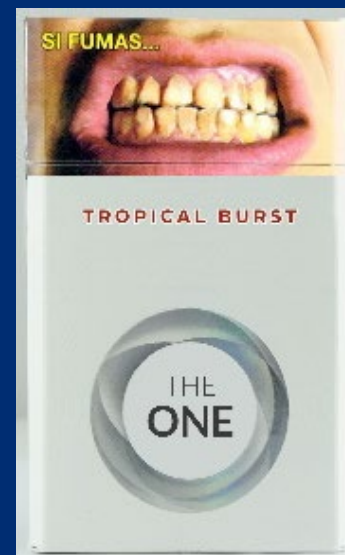
# Effects of pack features on appeal

|         | Adults (n=950) |             |         | Adolescents (n=1500) |             |         |
|---------|----------------|-------------|---------|----------------------|-------------|---------|
|         | Odds Ratio     | 95% CI      | p-value | Odds Ratio           | 95% CI      | p-value |
| Capsule | 1.851          | 1.526-2.245 | <0.001  | 1.826                | 1.471-2.266 | <0.001  |



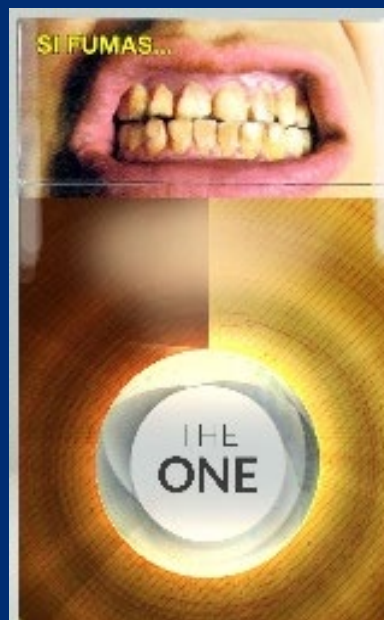
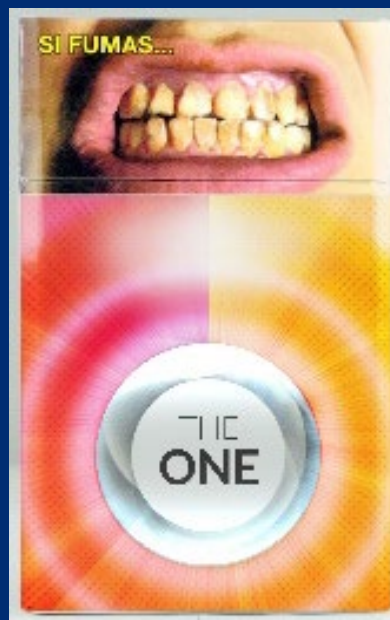
# Effects of pack features on appeal

|                | Odds Ratio | 95% CI      | p-value | Odds Ratio   | 95% CI             | p-value      |
|----------------|------------|-------------|---------|--------------|--------------------|--------------|
| Name           |            |             |         |              |                    |              |
| Tropical Burst | 1.123      | 0.845-1.492 | 0.710   | <b>1.607</b> | <b>1.180-2.190</b> | <b>0.003</b> |
| Hazel Rush     | 1.185      | 0.880-1.595 | 0.264   | 1.079        | 0.776-1.500        | 0.653        |
| Arctic Air     | 0.898      | 0.673-1.199 | 0.467   | <b>1.791</b> | <b>1.254-2.559</b> | <b>0.001</b> |



# Effects of pack features on perceived harm

|              | Adults (n=950) |             |         | Adolescents (n=1500) |                    |              |
|--------------|----------------|-------------|---------|----------------------|--------------------|--------------|
|              | Odds Ratio     | 95% CI      | p-value | Odds Ratio           | 95% CI             | p-value      |
| <b>Color</b> | 0.857          | 0.671-1.096 | 0.219   | <b>0.756</b>         | <b>0.619-0.924</b> | <b>0.006</b> |



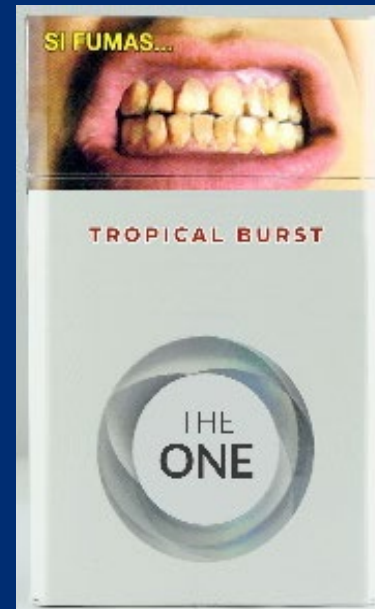
# Effects of pack features on perceived harm

|                | Adults (n=950) |             |         | Adolescents (n=1500) |                    |              |
|----------------|----------------|-------------|---------|----------------------|--------------------|--------------|
|                | Odds Ratio     | 95% CI      | p-value | Odds Ratio           | 95% CI             | p-value      |
| <b>Capsule</b> | 0.913          | 0.714-1.166 | 0.466   | <b>0.751</b>         | <b>0.615-0.918</b> | <b>0.005</b> |



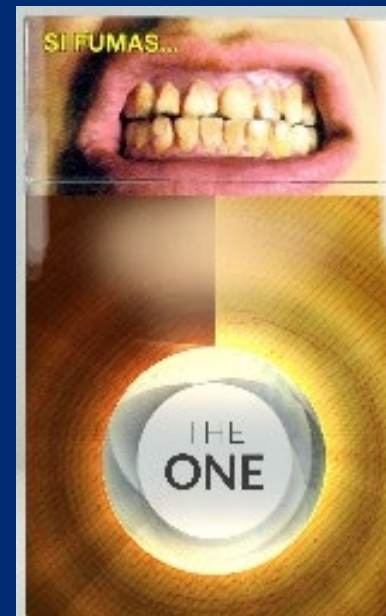
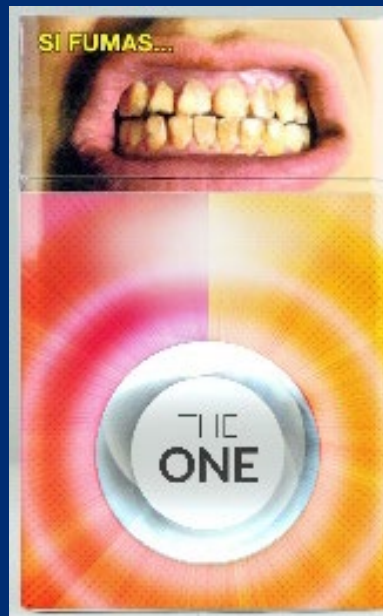
# Effects of pack features on perceived harm

|                       | Adults (n=950) |             |         | Adolescents (n=1500) |                    |              |
|-----------------------|----------------|-------------|---------|----------------------|--------------------|--------------|
|                       | Odds Ratio     | 95% CI      | p-value | Odds Ratio           | 95% CI             | p-value      |
| <b>Flavor</b>         |                |             |         |                      |                    |              |
| <b>Tropical Burst</b> | 1.040          | 0.724-1.494 | 0.832   | <b>0.674</b>         | <b>0.500-0.908</b> | <b>0.009</b> |
| <b>Hazel Rush</b>     | 0.848          | 0.578-1.245 | 0.400   | 1.024                | 0.761-1.379        | 0.874        |
| <b>Arctic Air</b>     | 1.154          | 0.802-1.660 | 0.441   | 1.048                | 0.768-1.423        | 0.769        |



# Effects of pack features on intention to try

|              | Adults (n=950) |                    |                  | Adolescents (n=1500) |                    |                  |
|--------------|----------------|--------------------|------------------|----------------------|--------------------|------------------|
|              | Odds Ratio     | 95% CI             | p-value          | Odds Ratio           | 95% CI             | p-value          |
| <b>Color</b> | <b>3.720</b>   | <b>2.988-4.631</b> | <b>&lt;0.001</b> | <b>5.374</b>         | <b>4.174-6.918</b> | <b>&lt;0.001</b> |



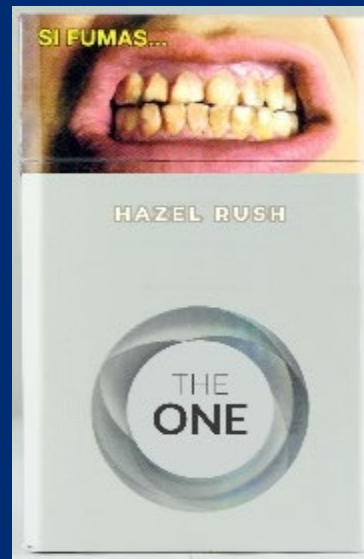
# Effects of pack features on intention to try

|                | Adults (n=950) |                    |                  | Adolescents (n=1500) |                    |                  |
|----------------|----------------|--------------------|------------------|----------------------|--------------------|------------------|
|                | Odds Ratio     | 95% CI             | p-value          | Odds Ratio           | 95% CI             | p-value          |
| <b>Capsule</b> | <b>1.527</b>   | <b>1.226-1.903</b> | <b>&lt;0.001</b> | <b>1.995</b>         | <b>1.546-2.576</b> | <b>&lt;0.001</b> |

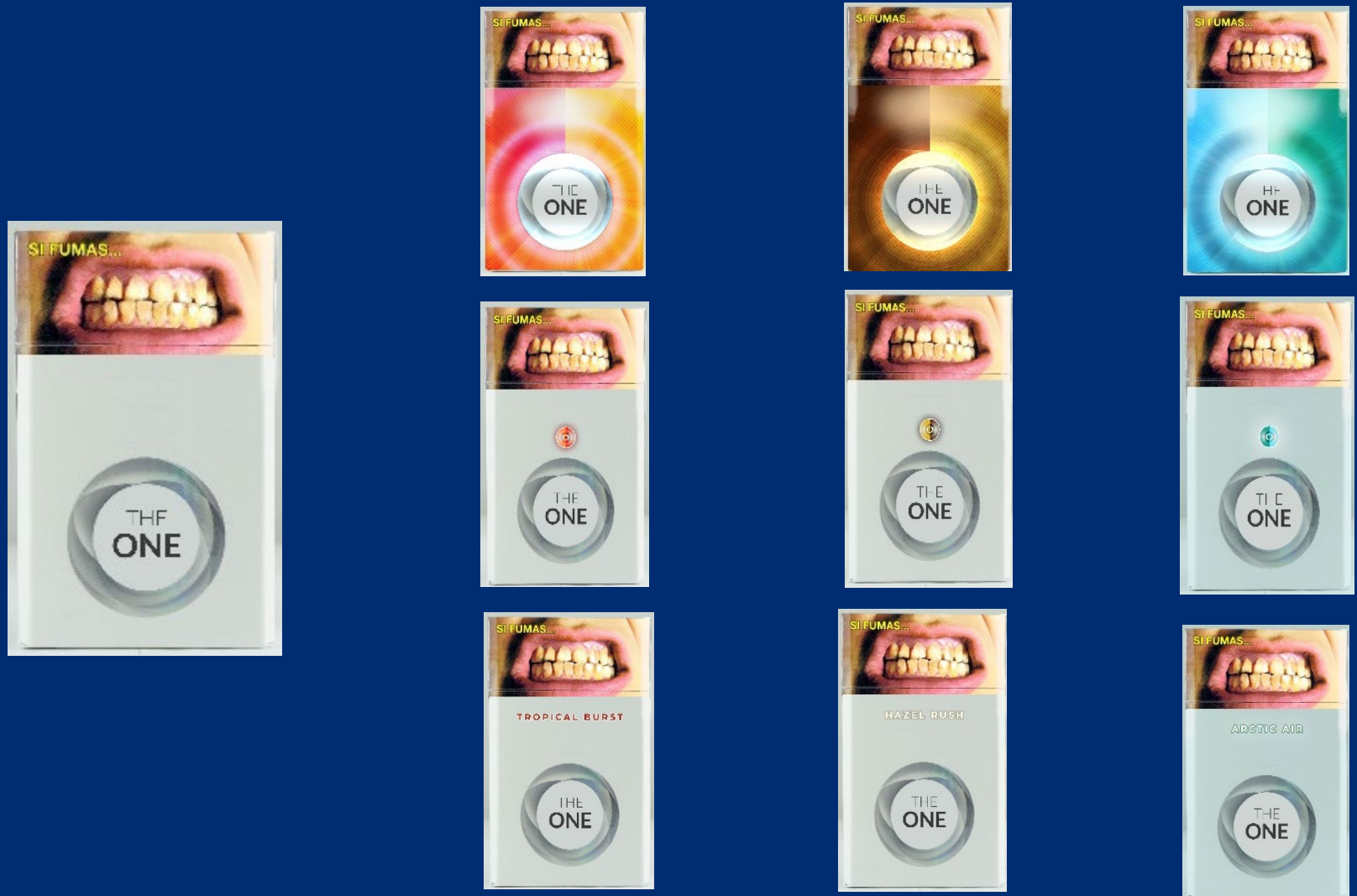


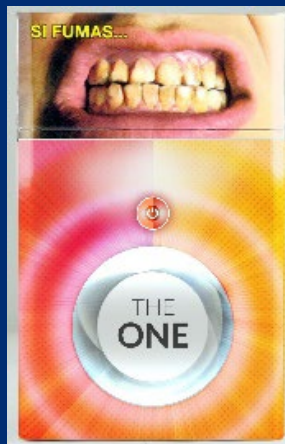
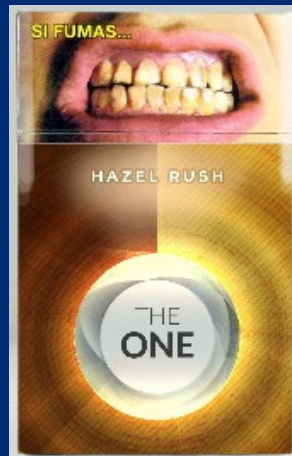
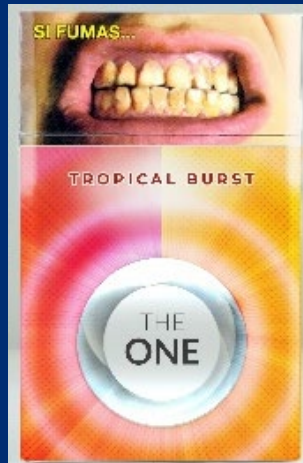
# Effects of pack features on intention to try

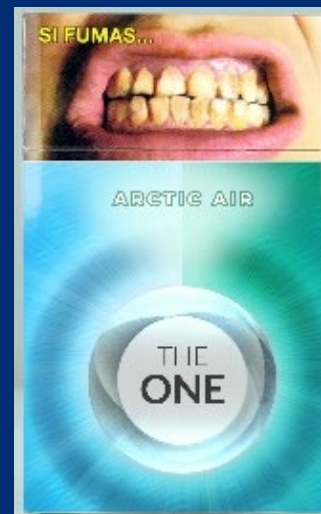
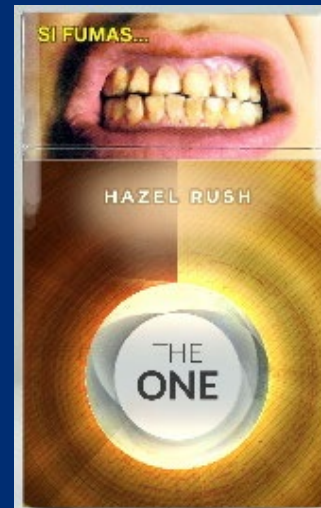
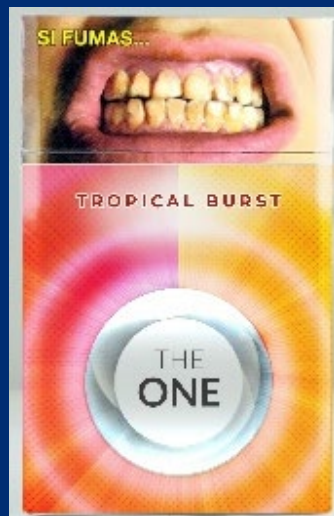
|                       | Adults (n=950) |                    |              | Adolescents (n=1500) |                    |              |
|-----------------------|----------------|--------------------|--------------|----------------------|--------------------|--------------|
|                       | Odds Ratio     | 95% CI             | p-value      | Odds Ratio           | 95% CI             | p-value      |
| <b>Flavor</b>         |                |                    |              |                      |                    |              |
| <b>Tropical Burst</b> | 1.231          | 0.888-1.705        | 0.212        | <b>1.752</b>         | <b>1.220-2.516</b> | <b>0.002</b> |
| <b>Hazel Rush</b>     | <b>1.754</b>   | <b>1.262-2.437</b> | <b>0.001</b> | 1.078                | 0.731-1.589        | 0.706        |
| <b>Arctic Air</b>     | 1.145          | 0.826-1.587        | 0.417        | 1.036                | 0.691-1.554        | 0.863        |



# Discrete choice analysis





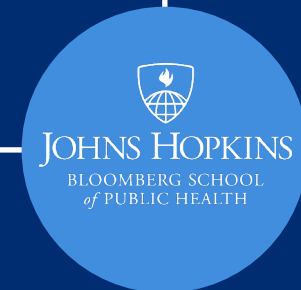


# Strengths and limitations

- Use of fictional packs - allowed us to examine impact of specific pack features on perceptions
- Sample limited to Mexico City



# Conclusions



# Main findings

- Color and capsules are appealing to adults and adolescents
- Adolescents find flavor names like 'Tropical Burst' and 'Arctic Air' appealing
- Misperceptions of harm among adolescents based on pack features – color, capsule, and 'Tropical Burst'



# Implications

- These findings suggest the need for plain packaging, a flavor ban, and a ban on the display of tobacco at retail



# Thank you!

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